



2018 Annual Surface Water Quality Monitoring Report

Clean Harbors Lambton Facility

Clean Harbors Canada, Inc.

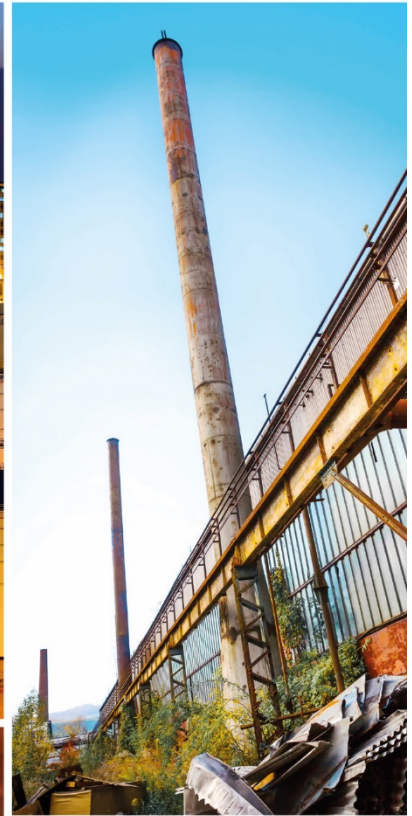
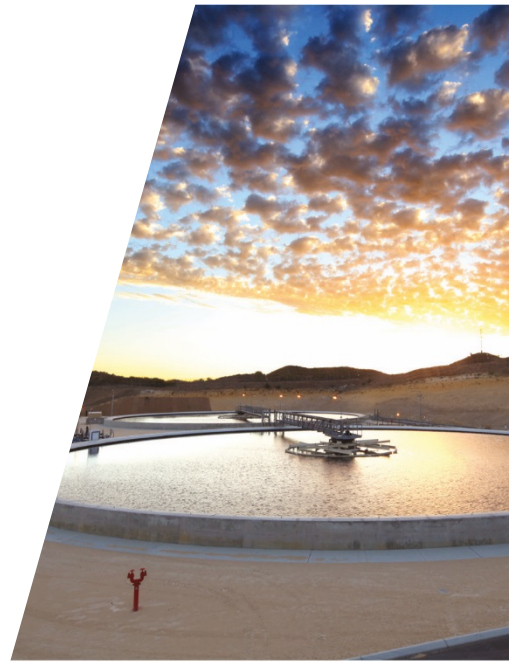




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1. Introduction

1.1 Purpose and Organization

GHD on behalf of Clean Harbors Canada, Inc. (Clean Harbors) has prepared the "2018 Annual Surface Water Quality Monitoring Report" for the Clean Harbors Lambton Facility (Lambton Facility or Site) located at 4090 Telfer Road, St. Clair Township, Ontario.

The Lambton Facility is a hazardous waste disposal facility owned and operated by Clean Harbors. The main hazardous waste disposal operations at the facility are the disposal of liquid waste in a liquid incinerator and the processing and disposal of solid waste in the landfill. The hazardous solid waste landfill component located at the Site operates in accordance with Environmental Compliance Approval No. A031806 (Waste ECA) issued by the Ministry of the Environment, Conservation and Parks (MECP). The most recent amendment is Notice 9 dated October 19, 2015. The surface water management system is approved by ECA No. 1065-9VVJSW (SW ECA) dated October 19, 2015. Both the Waste and SW ECAs have conditions that relate to surface water monitoring requirements. Copies of the Waste ECA and SW ECA are provided in the 2018 Clean Harbors Lambton Facility Annual Landfill Monitoring Report (Landfill Annual Monitoring Report).

Condition 9(a)(i) of the Waste ECA requires that by December 15, 2015 Clean Harbors submit an updated surface water monitoring program to the Regional Director for approval, while Condition 8 of the SW ECA requires that within 6 months of issuance that Clean Harbors prepare and submit to the Director for approval a proposal for the characterization of storm water from the facility. Clean Harbors responded to both of the above conditions with the submission of a letter prepared by GHD titled "Surface Water Monitoring Program and Surface Water Characterization Program, Lambton Facility, Corunna, Ontario" dated December 9, 2015. A copy of this letter is provided in Appendix A. The revised surface water program, that includes the characterization program, was approved by the MECP Regional Director on March 29, 2016. The approved surface water monitoring and storm water characterization programs are summarized in Section 3.

This report is organized into the following sections:

- Section 1 Introduction
- Section 2 Physical Setting
- Section 3 Monitoring Program
- Section 4 Monitoring Results and Assessment
- Section 5 Conclusions and Recommendations

1.2 Site Location

The Lambton Facility is a hazardous waste management complex on 121 hectares (ha) of land located within Lots 8 and 9, Concession 10 in St. Clair Township, Lambton County, operated by Clean Harbors. The facility location and site plan are presented on Figures 1 and 2. Geo-reference data for the Lambton Facility is presented in Table 1.



Table 1 Geo-Reference Data for the Lambton Facility

Location ⁽¹⁾	Northing	Easting
Northeast Corner of the Facility	4748849	394521
Southeast Corner of the Facility	4747490	394478
Northwest Corner of the Facility	4748882	393626
Southwest Corner of the Facility	4747582	393570

The Lambton Facility includes an analytical laboratory, transportation depot, high temperature incinerator, solid waste pre-treatment processes, and a secure landfill (waste disposal site). The solid waste pre-treatment processes at the facility include acid/alkali pre-treatment system (AAPS), thermal desorber unit (TDU), land disposal restriction building (LDR), spent pot liner treatment (SPL), and organic debris treatment.

1.3 Ownership and Key Personnel

The Lambton Facility is owned and operated by Clean Harbors. Any environmental issues at the Site are addressed by the following personnel:

Ms. Erica Carabott, Senior Compliance Manager
Clean Harbors Canada, Inc.
4090 Telfer Road, Rural Route #1
Corunna, Ontario N0N 1G0
Phone: (519) 864-3890, E-mail: carabott.eric@cleanharbors.com

GHD was retained by Clean Harbors to conduct the 2018 annual monitoring program. The Competent Environmental Practitioner (CEP) who reviewed the 2018 Annual Surface Water Quality Monitoring Report is:

Mr. Jim Yardley, P.Eng.
GHD
455 Phillip Street
Waterloo, Ontario N2L 3X2
Phone: (519) 884-0510, E-mail: Jim.Yardley@GHD.com

1.4 Waste Disposal Site

The secure landfill occupies a total fill area of approximately 56 ha that includes the pre-1986 fill area, Cell 16 completed in 1992, Cell 17 completed in early 1998, and Cell 18 completed in early 2016. The current operational area (disposal area for landfilling at the Lambton Facility) is in Cell 19-1. The landfill disposal method and sequence is provided in the Design and Operations Report - Lambton Landfill Expansion (D&O Report) prepared by Tetra Tech WEI Inc. and dated October 8, 2015. During the 2018 reporting period:

- a) Sub-cell 19-1-3C and Sub-cell 19-2-1A were constructed
- b) Disposal occurred in Sub-cells 19-1-2C, 19-1-3A, B and C
- c) Interim cover was applied to Sub-cell 19-1-2A and B, 19-1-3A and B



The 2015 vertical expansion of the Lambton Facility landfill means that the landfilled area will transition from a relatively flat/shallow grade final contour (less than 5 percent grade) to a more traditional landfill shape (25 percent side slope and 5 percent top slope grades). The approved surface water management system is presented in the August 2015 Stormwater Management Report (Appendix E of the D&O Report). The surface water management system is approved by the SW ECA and was designed to accommodate surface water for the proposed final contours.

The portion of the landfill area not directly used for landfilling contains drainage ditches, surface water ponds, access roads, and stockpiles of clay and topsoil. In the central portion of the landfill area, the Site is used for some waste processing components such as the TDU, SPL, container storage, and leachate storage (covered ponds). Undeveloped buffer land and berms separate the landfill operation from surrounding properties. The perimeter ditches and surface water ponds side slopes are routinely inspected for stability and signs of erosion. Major site features that relate to the surface water management system at the Site are shown on Figure 2.

Additional information with regard to waste volumes received, landfill cell development, landfill operation and management, engineering controls, leachate management and incineration, and all other relevant waste disposal site developments during the current reporting period are presented within the Landfill Annual Monitoring Report.

1.5 Water Management System

The following presents a description of the Lambton Facility's water management system that includes surface water and process water. Leachate, i.e., surface water generated from the active waste disposal area, is discussed in the Landfill Annual Monitoring Report.

1.5.1 Surface Water Management

Surface water is generated from non-operational areas at the Lambton Facility. Non-impacted surface water runoff from undeveloped portions of the Site, perimeter berms, and capped and closed landfill cells, and waste disposal cells with interim cover is directed through a series of on-Site drainage ditches and ponds to the two on-Site surface water storage ponds (West Pond and East Pond). As the Site expansion occurs, additional surface water storage ponds will be created which are noted in the D&O Report as the Southwest Pond, North Pond 1, and North Pond 2. An amendment to the surface water management system was submitted to the MECP in October of 2018 and the surface water management description will be updated when the amendments are approved.

The current surface water system has all of the non-impacted surface water from the northern portion of the landfill flow through drainage ditches along the interior toe of the north and east perimeter berm to the East Pond. Where required, pumps are used to move surface water that ponds due to poor drainage. Water from the East Pond is pumped to the southern ditch which directs the surface water to the West Pond. The West Pond receives surface water from the southwest section of the Pre-1986 disposal area.



The Lambton Facility's Surface Water Treatment Plant (SWTP) for processing surface water pumped from the West Pond is rated with a treatment capacity of 4,500 cubic metres per day (m³/day). The SWTP consists of the following:

- Two influent pumps (including one standby), each with rated capacity of 22.7 litres per second (L/s) at 310 kilopascals (kPa) (300 imperial gallons per minute [IGPM] at 45 pounds per square inch gauge [psig]).
- Two sand filters, each with 3.6 m outside diameter and 1.8 m high, containing 6.4 m³ of 0.3 mm of silica sand and 3.2 m³ of 1.0 mm anthracite, equipped with backwash pump rated at 49.3 L/s at 138 kPa (650 IGPM at 20 psig).
- One activated carbon filter consisting of a concrete above-ground basin with overall dimension of 2.4 m high, 4.3 m long, and 1.8 m wide containing 1.2 m³ of 20 mm clear crushed stone and 14.2 m³ of granular activated carbon.

The SWTP is operated when the live surface water storage across the Site needs to be increased, often driven by precipitation events and seasonal periods of high water runoff. Each time upon startup the SWTP operates in recirculation mode until the effluent criteria established under Condition 10 of the SW ECA are met. If an exceedance of the effluent criteria is identified, the SWTP remains in recirculation mode until results are in compliance.

Once the effluent from the SWTP is in compliance with the SW ECA criteria, the treated water is discharged to the Equalization Pond. The effluent is subsequently discharged via a gated channel to the municipal drainage ditch located along the eastern side of Telfer Road.

The SWTP is maintained by Clean Harbors staff through backwashing of the filter systems, and occasionally through replacement of the filter media.

1.5.2 Process Water Management

Surface water runoff from the operational areas is considered to be process water and is directed to one of the two process water ponds (North Process Water Pond, South Process Water Pond) either by ditches or through pumps, forcemains, or vacuum trucks. A new process water pond, West Process Water Pond, has been constructed and receives water from the South Process Water Pond through a forcemain. The three process water ponds store the process water on-Site until the process water is used for facility operations including quench water in the on-Site incinerator. The incinerator requires up to 11 million L of quench water per month. During a dry period and when process water is low, surface water from the West Pond is transferred to the process water ponds for use as quench water. This normally occurs during the dryer periods of the year (August through October).

1.5.3 SWTP Maintenance

Maintenance of the SWTP is conducted as required to maintain treatment flow and water quality. The timing of the maintenance depends on the amount of water treated and the performance of the



SWTP. During the current monitoring period, the following maintenance was conducted on the SWTP:

- The sand filters were backwashed on the following dates in 2018:
 - March 1 and 27
 - August 30
- Maintenance in 2018 consisted of the following:
 - Replaced hose on 6-inch pump – March 12
 - Boosted valve – February 23, March 28 and 29, April 18 and 26
 - Replaced split piping – May 16
 - Tested new piping – May 25
 - Replaced belts on 6-inch pump – July 19
 - Repaired float for suction hose – August 8
 - Checked flow meter and conducted maintenance on it – November 20, 21, and 22, and December 3, 4, and 5

1.6 Limitations

GHD was retained by Clean Harbors to review, summarize, and report the data provided by Clean Harbors as it relates to the assessment of surface water conditions. Clean Harbors holds the responsibility for field instrument calibration, precision and accuracy, quality assurance/quality control of the collected data, and provision of documented field observations/inspections. GHD has assumed that the data collected and provided by Clean Harbors is valid and reliable for the purposes of producing this monitoring report.

2. Physical Setting

The Lambton Facility is a rectangular shaped piece of land situated on 121.4 ha parcel. The Lambton Facility is bordered on all sides by rural residential and agricultural land. The Site location is provided on Figure 1.

2.1 Geology and Hydrogeology

The Lambton Facility lies within the Lambton Clay Plain which is a sub-region of the St. Clair Clay Plain physiographic region. The surficial geology is characterized by thick clay sediments and the area's topography is flat to slightly undulating. The combination of relatively flat topography and the fine texture clay soil result in an area that has poor drainage. Alluvial sediments and organic deposits can be found in the local stream, stream valleys, and wetlands.

Detailed information on the geological and/or hydrogeological conditions at the Lambton Facility during the current monitoring period is presented in the 2018 Annual Groundwater Monitoring Report, prepared by GHD.



2.2 Surface Water Features

The Lambton Facility resides within the Sydenham River basin watershed, which ultimately drain into Lake St. Clair. The main watercourse found in the Sydenham River watershed is Bear Creek. Bear Creeks is approximately 70 kilometres (km) in length and is fed by numerous tributaries including those found in the vicinity of the Lambton Facility and the downstream catchment area.

Seasonally intermittent flow conditions occur within the eastern Telfer roadside ditch immediately downstream of the Lambton Facility's Equalization Pond discharge occur and flow is normally related to a precipitation event or discharge from the Equalization Pond. Local drainage patterns downstream are heavily influenced by the nearby agricultural farms, in that the extensive tile drainage and ditch systems have been constructed to deal with irrigation and rainfall in soils that have low infiltration.

3. Monitoring Program

3.1 Surface Water Monitoring

The surface water monitoring program is documented in the letter prepared by GHD titled "Surface Water Monitoring Program and Surface Water Characterization Program, Lambton Facility, Corunna, Ontario" dated December 9, 2015. The revised surface water monitoring program, that includes the characterization program, was approved by the MECP Regional Director on March 29, 2016. A copy of the letter is provided in Appendix A.

Surface water is stored within the ponds at the Site and treated surface water is mainly discharged during the spring/summer periods. As such, the surface water discharge quality is not influenced by a specific precipitation event, but provides a normal or consistent quality for a period of time and year over year.

The surface water monitoring program for the Site is summarized in Tables 2 and 3. The monitoring consists of daily discharge monitoring, monthly discharge monitoring conducted during discharge periods at on-site locations, and seasonal monitoring at off-site locations. The following sections provide information with regard to the surface water monitoring program. Surface water effluent discharge limits are presented in Table 4.

3.1.1 Daily Discharge Monitoring

Location:	Equalization Pond discharge
Frequency:	Daily when the Equalization Pond is discharging to the off-Site drainage ditch.
Parameters:	pH, specific conductivity, total suspended solids (TSS), phenols, chloride, and solvent extractables (oil & grease).
Rationale:	The parameters represent routine parameters that are representative of general surface water quality during the discharge period and indicate the overall performance of the treatment plant. Four parameters have established Site-specific discharge criteria – pH, TSS, phenols, solvent extractables.



3.1.2 Monthly Discharge Monitoring

The monthly discharge monitoring program consists of three components: chemical parameter monitoring, toxicity monitoring, and visual monitoring.

3.1.2.1 Monthly Discharge Chemical Monitoring

Location:	Equalization Pond discharge, West Pond, East Pond
Frequency:	a) At start of discharge, within 25 to 35 days after discharge commencement, and within 25 to 35 days after the previous sample collection when discharge occurring. b) If discharge ceases for less than 30 days and discharge recommences, the initial monitoring schedule shall continue. If discharge ceases for greater than 30 days, monitoring shall revert as per item a).
Parameters:	General Chemistry, total metals, volatile organic compounds (VOC), and semi-volatile organic compounds (sVOC) as specified in Table 3.
Rationale:	Provides a detailed chemical profile of the water prior to and during discharge periods for both pre- and post-treatment of the water. Parameters represent chemical constituents that are accepted at the Lambton Facility and as such may be present in the surface water system.

3.1.2.2 Toxicity Monitoring

Location:	Equalization Pond discharge
Frequency:	As per the monthly discharge chemical monitoring program.
Parameters:	Microtox for fresh water in accordance with Environment Canada test method and protocols.
Rationale:	Monitors the overall water quality toxicity with an approved program.

3.1.2.3 Visual Observations

Location:	Equalization Pond
Frequency:	As per the monthly discharge chemical monitoring program.
Parameters:	Presence/absence of fish in the Equalization Pond through observation with food application at several locations around the Equalization Pond perimeter.
Rationale:	Monitors whether fish are present in the pond and a general understanding of the overall health of the Equalization Pond and water quality with regard to aquatic life.

3.1.3 Off-Site Surface Water Monitoring

Location:	STN6 (upstream of discharge) and STN6A (downstream of discharge). See Figure 1 for monitoring locations.
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- Frequency:** Two samples per year, one in the spring and one in the late summer/fall period. Samples to be collected when a discharge is occurring and on the same day as the monthly discharge samples are collected. The time period between the spring and late summer/fall sample should be a minimum of 80 days.
- Parameters:** General Chemistry, total metals, volatile organic compounds (VOC), and semi-volatile organic compounds (sVOC) as specified in Table 3. Analytical testing to be conducted by external Canadian certified laboratory.
- Rationale:** Provides a detailed chemical profile of the water in a downstream drainage system prior to and after the discharge of water from the drainage ditch that serves the facility. Parameters are consistent with the discharge monitoring parameters.

3.2 Surface Water Characterization

The surface water characterization program noted in Condition 8 of the SW ECA relates to concerns expressed during the vertical expansion approval and the potential changes that may occur with the surface water management system due to changes in the landfill operations and methods. A key concern is the potential for dust/operational impacts since the initial disposal cell (Cell 19) is in close proximity to the West Pond, which is the main surface water storage pond prior to water treatment, and this cell will be filled in the first 5 years of the landfill expansion program.

Review of historic data associated with the Lambton Facility with regard to surface water and process water quality have indicated that metals are the dominate set of parameters that change as a result of operational changes or changes in disposal location. The VOC and sVOC parameters also indicate some differences, but these are sporadic and low level (below criteria).

The surface water characterization program monitoring has been incorporated within the surface water monitoring program by monitoring the East and West Ponds prior to and during discharge periods for general chemistry, metals, VOCs, and sVOCs. These represent periods when water is present within the ponds, or a period of long-term water storage. The monitoring for a period of five years after commencement of the landfill expansion will allow a database to be established that will provide a long-term database for the new surface water management set-up. Amendments to the surface water characterization program that is part of the surface water monitoring program will be handled through the annual monitoring program and any modifications would require the approval of the Regional Director.

3.3 Amendments to Surface Water Monitoring Program

Once a five-year database of surface water monitoring post-commencement of the landfill expansion has been collected, Clean Harbors may assess the data and recommend changes to the surface water monitoring program. The assessment will be conducted as part of the Annual Surface Water Quality Monitoring Report and specific amendments to the surface water program will be provided in the report recommendations section. Changes to the surface water monitoring program will require review by MECP Regional staff and approval of the recommendations by the Regional Director. The first year of the amended monitoring program is 2016. The five-year review should occur in the 2020 Annual Surface Water Quality Monitoring Report.



Clean Harbors may collect additional surface water samples that relate to specific events or to collect additional information with regard to the management and operation of the surface water system. These additional events/samples will only become part of the official monitoring program if recommended by Clean Harbors in the Annual Surface Water Quality Monitoring Report and approved by the Regional Director.

4. Monitoring Results and Assessment

4.1 Daily Discharge Monitoring

The results of the daily discharge monitoring for the Equalization Pond is presented in Table 5. As shown in Table 5, effluent was discharged during the following periods:

- Period 1: February 22 to May 10, 2018
- Period 2: August 27 to September 16, 2018
- Period 3: November 7 to December 21, 2018

Data for all parameters regularly analyzed is available for Periods 1, 2, and 3. There were no exceedances noted for any discharge parameters analyzed.

Effluent discharge presented in Table 5 during the noted periods were below the maximum discharge rate for the SWTP of 4.5 million litres per day (L/d) specified in the ECA.

The flow meter was not working for the periods of November 10 to 26, and December 1 to 4, 2018. An assumed flow value for the days during the two periods was provided by Clean Harbors for the daily flow.

4.2 Monthly Discharge Monitoring

The results of the monthly discharge monitoring are presented in Tables 6 to 10 with analytical reports provided in Appendix B. An analytical data verification memo summarizing GHD's assessment of sample supporting quality assurance/quality control (QA/QC) procedures is included in Appendix C. Where applicable, the data summarized in the tables have been qualified accordingly.

4.2.1 Monthly Discharge Chemical Monitoring

Monthly monitoring samples for the Equalization Pond for general chemistry, metals, VOCs, and sVOCs were taken on February 22, April 23, August 28, November 7, November 19, and December 17, 2018 from the Equalization Pond. According to the schedule outlined in the SW ECA, a monthly monitoring sample should have been taken in the month of March (i.e., 25 to 35 days from the sample taken on February 22). The sampling protocol was reviewed with Clean Harbors staff to ensure that samples are not missed.

The results of the monthly discharge chemical monitoring are presented in Table 6.



As compared to the Provincial Water Quality Objectives (PWQO), the analytical results were generally below the PWQO with exception of the following:

- Hexavalent chromium VI above the objective of 0.001 mg/L on December 17, 2018 (0.00162)
- Total phenolics above the objective of 0.001 mg/L on November 19 (0.0017), and December 17 (0.0012)
- Phosphorus above the objective of 0.01 mg/L on February 22 (0.0159J), April 23 (0.0255J), August 28 (0.0277J), November 7 (0.0192J), November 19 (0.0272), and December 17 (0.0267)
- Aluminum above the objective of 0.075 mg/L on February 22 (0.085), April 23 (0.434), August 28 (0.113), November 7 (0.232), November 19 (0.282), and December 17 (0.363)
- Boron above the objective of 0.2 mg/L on August 28 (0.357)
- Iron above the objective of 0.3 mg/L on April 23 (0.444), November 19 (0.308), and December 17 (0.377)
- Molybdenum above the objective of 0.04 mg/L on August 28 (0.0495), November 7 (0.0442), November 19 (0.0460) and December 17 (0.0739)

The qualifier of 'J' following a result in Table 6 indicates an estimated value. The qualifier of 'R' following a result in Table 6 indicates that the analytical results were rejected. The rationale for the qualification of a result is provided in the associated QA/QC memorandum provided in Appendix C. The analytical results for hexavalent chromium VI, total cyanide, nitrite, total phenolics, VOC and sVOC for the sample taken on August 28 were rejected due to the high temperature of the sample upon arrival at the lab.

It was noted that a number of sVOC parameters had reporting limits that were above their associated PWQO, with bis(2-Ethylhexyl)phthalate (DEHP) the highest with a reporting limit of 2.0 µg/L and PWQO of 0.6 µg/L.

The off-site up-stream sample location, STN6, provides the general surface water quality in the area. The Site has a clayey overburden and as such the surface water is impacted by the natural materials that present within the overburden. Comparison of the background sample results provided in Table 10 indicates that of the 7 parameters for the EQ Pond results noted to have an exceedance of the PWQOs, the background location also has exceedances for total phenolics, phosphorus, aluminum, and iron that are higher than the EQ Pond. Boron and hexavalent chromium VI are elevated over the PWQO for only one of the six results. Total phenolics are elevated over the PWQO for only two of the six results. Molybdenum is elevated over the PWQO for only three of the six results.

4.2.2 Toxicity Monitoring

Toxicity monitoring samples from the Equalization Pond were taken on February 26, April 23, August 28, November 12, November 19, and December 17, 2018.

The results of the toxicity monitoring are presented in Table 7.

All samples analyzed were within the specified limits to characterize the samples as being non-toxic in accordance with the SW ECA.



4.2.3 Visual Observation

Quarterly visual Site inspections were undertaken by GHD on March 21, June 4, September 24, and November 26, 2018 including of the surface water management system. The presence of live fish in the Equalization Pond was confirmed during the second quarterly inspection. No fish were observed in the equalization pond at the time of the first, third, or fourth quarterly inspection. Water levels in the equalization pond were noted to be moderate during the first quarterly inspection and high during the third and fourth quarterly inspections. The water is often murky at the time of the quarterly inspections, making it difficult to observe fish if they are in the deeper water. It is also likely that the fish were near the bottom of the pond given the colder temperatures at the time of inspection.

A summary of the quarterly Site inspections are included in the Landfill Annual Monitoring Report.

4.2.4 Surface Water Characterization

Supplementary monitoring of the East and West Ponds for general chemistry, metals, VOCs, and sVOCs was undertaken on February 22, April 23, August 28, November 7, November 19, and December 17, 2018. The results of the chemical monitoring for the East and West Ponds are presented in Tables 8 and 9, respectively.

As compared to the PWQO, the analytical results for the East Pond were generally below the PWQO with exception of the following:

- Total phenolics above the objective of 0.001 mg/L on February 22 (0.0023J), August 28 (0.0143J), November 7 (0.0017J), November 19 (0.0015) and December 17 (0.0025)
- Phosphorus above the objective of 0.01 mg/L on February 22 (0.0315J), April 23 (0.0315J) August 28 (0.0709J), November 7 (0.0542J), November 19 (0.0440) and December 17 (0.0527)
- Unionized ammonia above the objective of 0.02 mg/L on November 19 (0.0245)
- Aluminum above the objective of 0.075 mg/L on February 22 (0.289), April 23 (0.436), August 28 (1.24), November 7 (1.31), November 19 (0.817) and December 17 (0.706)
- Cobalt above the objective of 0.0009 mg/L on August 28 (0.00122) and November 7 (0.00121)
- Copper above the objective of 0.005 mg/L on November 19 (0.0051)
- Iron above the objective of 0.3 mg/L on February 22 (0.386), April 23 (0.410), August 28 (1.61), November 7 (1.68), November 19 (2.42) and December 17 (0.785)
- Molybdenum above the objective of 0.04 mg/L on April 23 (0.0453), August 28 (0.0604), November 7 (0.0582), November 19 (0.0631) and December 17 (0.0736)

As compared to the PWQO, the analytical results for the West Pond were generally below the PWQO with exception of the following:

- Chromium VI (hexavalent) above the objective of 0.001 mg/L on December 17, 2018 (0.00219)
- Total phenolics above the objective of 0.001 mg/L on February 22 (0.0013J), November 7 (0.0013J), November 19 (0.0015), and December 17 (0.0013)
- Phosphorus above the objective of 0.01 mg/L on February 22 (0.0239J), April 23 (0.0260J), August 28 (0.0234J), November 7 (0.0296J), November 19 (0.0301), and December 17 (0.0458)



- Unionized ammonia above the objective of 0.02 mg/L on November 7 (0.0536J)
- Aluminum above the objective of 0.075 mg/L on February 22 (0.381), April 23 (0.550), August 28 (0.256), November 7 (0.564), November 19 (0.411) and December 17 (0.348)
- Iron above the objective of 0.3 mg/L on February 22 (0.425), April 23 (0.522), November 7 (0.628), November 19 (0.425) and December 17 (0.363)
- Molybdenum above the objective of 0.04 mg/L on August 28 (0.0435), November 7 (0.0469), November 19 (0.0469) and December 17 (0.0772)

The qualifier of 'J' following a result in Table 8 or 9 indicates an estimated value. The qualifier of 'R' following a result in Table 6 indicates that the analytical results were rejected. The rationale for the qualification of a result is provided in the associated QA/QC memorandum provided in Appendix C. The analytical results for hexavalent chromium VI, total cyanide, nitrite, total phenolics, VOC and sVOC for the sample taken on August 28 were rejected due to the high temperature of the sample upon arrival at the lab.

It was noted that a number of sVOC parameters had reporting limits that were above their associated PWQO, with bis(2-Ethylhexyl)phthalate (DEHP) the highest with a reporting limit of 2.0 µg/L and PWQO of 0.6 µg/L.

A comparison of the chemical monitoring to the Equalization Pond and off-Site monitoring locations discussed in Section 4.3 indicates the following:

- The analytical results for total phenolics at all five sampling locations is on approximately the same order of magnitude with no discernable trend noted between the concentrations at the five sampling locations.
- The concentrations of phosphorus are slightly higher at both the upstream and downstream off-Site sampling locations than the on-Site sampling locations.
- Individual concentrations of metals including aluminum and iron are generally higher at both the East and West Ponds as well as the off-site monitoring locations, with no discernable trend at this time.
- The East Pond had a single reported result for unionized ammonia and copper above the PWQOs during the reporting period.
- The West Pond had a single reported result for hexavalent chromium VI and unionized ammonia above the PWQOs during the reporting period.
- Comparison between the off-site background and on-site data indicates that the water is similar and is generally reflective of clay overburden (surface) water chemistry.

4.3 Off-Site Surface Water Monitoring

Supplementary chemical monitoring of the background (STN6) and downstream (STN6A) off-Site monitoring locations for general chemistry, metals, VOCs, and sVOCs was undertaken for STN6A on February 22, 2018 and for both STN6 and STN6A on November 20, 2018. The results are presented on Table 10.



As compared to the PWQO, the analytical results for background station STN6 were generally below the PWQO with exception of the following:

- Total phenolics above the objective of 0.001 mg/L on November 20 (0.0047)
- Phosphorus above the objective of 0.01 mg/L on November 20 (0.0902)
- Aluminum above the objective of 0.075 mg/L on November 20 (0.804)
- Iron above the objective of 0.3 mg/L on November 20 (0.710)

As compared to the PWQO, the analytical results for the downstream station STN6A were generally below the PWQO with exception of the following:

- Total phenolics above the objective of 0.001 mg/L on November 20 (0.0032)
- Phosphorus above the objective of 0.01 mg/L on February 22 (0.323J) and November 20 (0.101)
- Aluminum above the objective of 0.075 mg/L on February 22 (3.64) and November 20 (0.668)
- Cobalt above the objective of 0.0009 mg/L on February 22 (0.00141)
- Copper above the objective of 0.005 mg/L on February 22 (0.0054)
- Iron above the objective of 0.3 mg/L on February 22 (3.58) and November 20 (0.570)
- Vanadium above the objective of 0.006 mg/L on February 22 (0.00671)

The off-site water quality is representative of a clay surface overburden regime with regard to the metal components and the phosphorus levels are representative of agricultural impacts.

A comparison of the chemical monitoring results for the upstream versus downstream off-Site monitoring locations indicates the following:

- The analytical results for all parameters analyzed are on approximately the same order of magnitude for both sampling locations at this time.

5. Conclusions and Recommendations

5.1 Conclusions

Based on the findings as documented in this report, the following conclusions are provided:

1. SW ECA effluent criteria were met during each active day of discharge from the Equalization Pond.
2. Based on analysis of the daily and monthly discharge chemical monitoring data collected during the monitoring period, no detrimental long-term trends for surface water quality were identified.
3. Based on comparison of the on- and off-Site surface water monitoring data, the surface water being collected and treated for discharge from the Lambton Facility is not having a detrimental effect on off-Site downstream water.



4. Comparison between various on-site surface water monitoring locations indicate that the surface water quality improves as the water moves from the East Pond to the West Pond and through the SWTP and the Equalization Pond.
5. Toxicity monitoring indicates that none of the Equalization Pond samples collected in 2018 resulted in toxicity to microorganisms.
6. The surface water characterization has a limited data set, but no significant differences are noted between sampling locations.

5.2 Recommendations

The following recommendations are provided for consideration:

1. The monitoring programs detailed within this report and completed in accordance with the requirements of the MECP-approved Surface Water Monitoring Program and Surface Water Characterization Program should continue in subsequent years.
2. The Clean Harbors Compliance Manager should review the monitoring program requirements with the Clean Harbors sample staff on an annual basis to ensure that the sampling staff understands the surface water program and sample needs. This will ensure that surface water samples are not missed.

6. References

GHD. 2017 Annual Surface Water Report, Clean Harbors Lambton Facility. February 9, 2018.

GHD (Formerly Conestoga-Rovers and Associates). Engineering and Design, Existing Conditions Report. October 2014.

Tetra Tech WEI Inc. Design and Operations Report – Lambton Landfill Expansion, Clean Harbors Canada, Inc. – Lambton Landfill Site. October 2015.



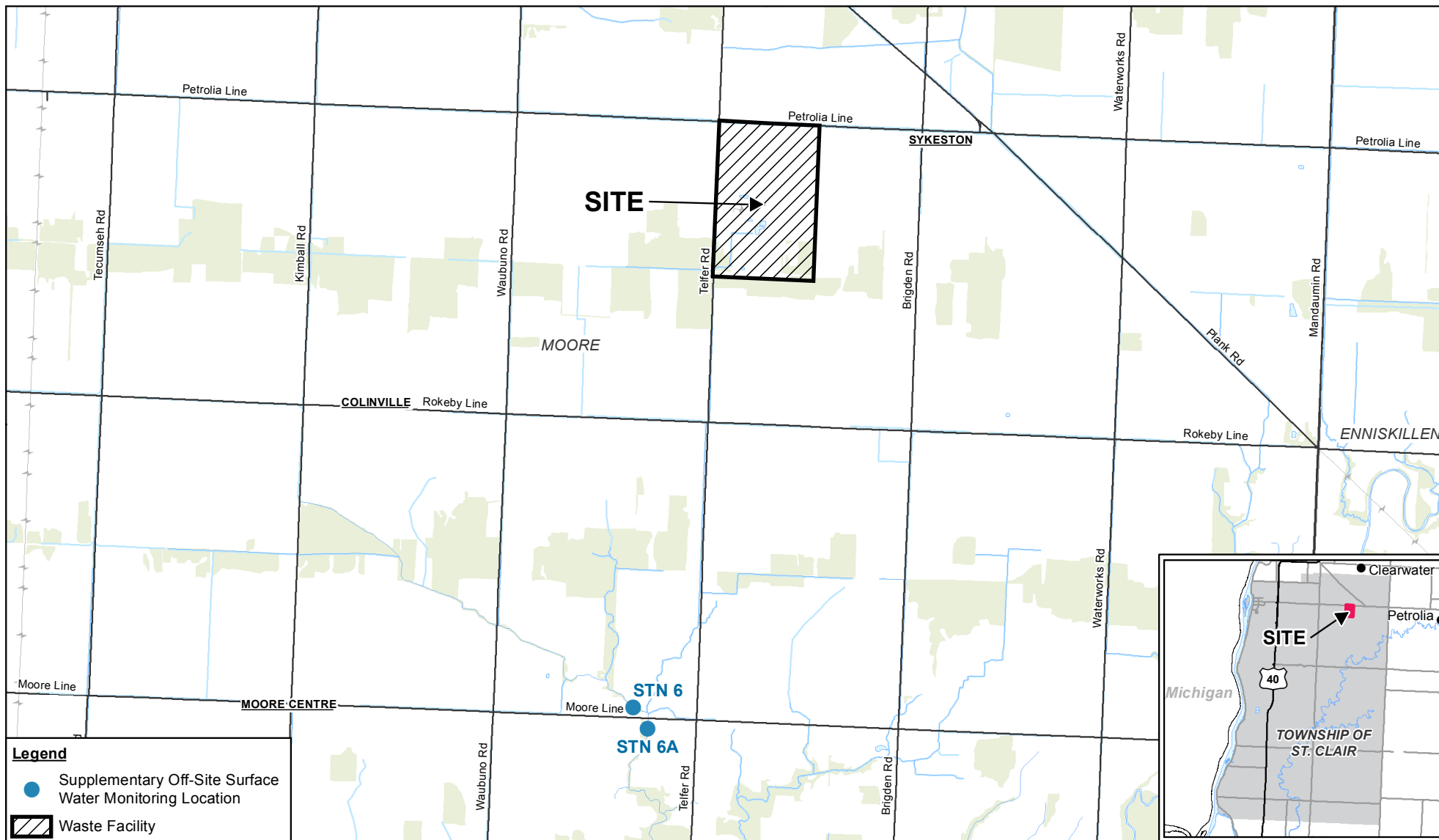
All of Which is Respectfully Submitted

Diana Ball

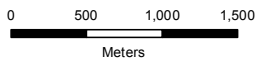
Diana M. Ball, P. Eng.

James R. Yardley
LICENSED PROFESSIONAL ENGINEER
J. R. YARDLEY
01-25-19
PROVINCE OF ONTARIO

James R. Yardley, P. Eng.



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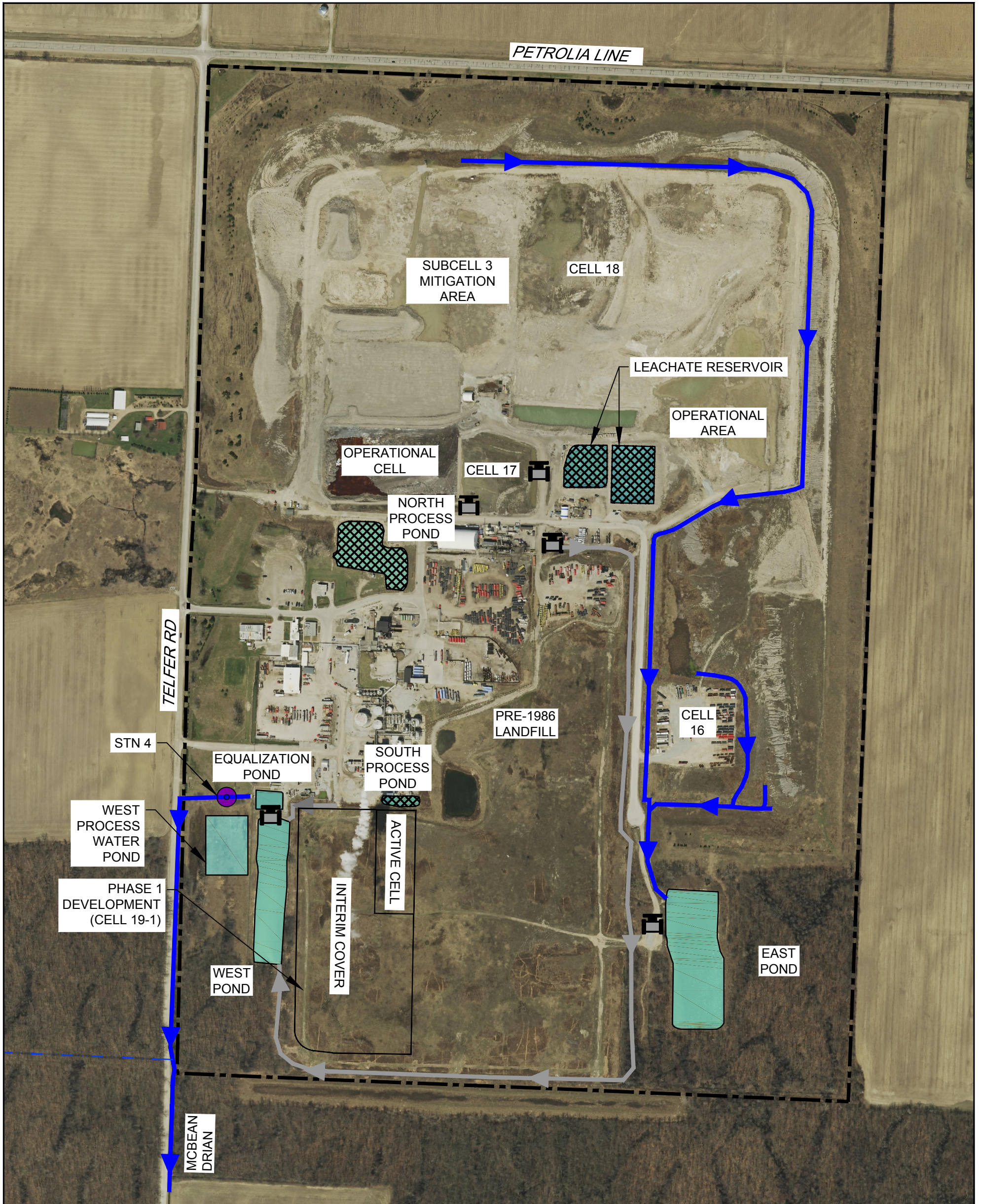


CLEAN HARBORS CANADA INC.
LAMBTON COUNTY, ONTARIO









SUPPLEMENTARY OFF-SITE MONITORING LOCATIONS AND SITE LOCATION MAP

44985-20
Jan 14, 2019

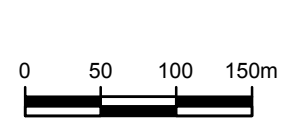
FIGURE 1



LEGEND

- | | | | |
|---|---------------------------------|---|---------------------------------|
|  | PROPERTY LINE |  | LOCATION OF PUMPING EQUIPMENT |
|  | WATER QUALITY STATION |  | TREATED SURFACE WATER RESERVOIR |
|  | PRE-1986 LANDFILL DITCH SYSTEM |  | PROCESS RESERVOIR |
|  | POST-1988 LANDFILL DITCH SYSTEM |  | PERMANENT STREAM |

Source: SWOOP 2015.



CLEAN HARBORS
LAMBTON, ONTARIO
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44985-98
Jan 15, 2019

SURFACE WATER MANAGEMENT SYSTEM

FIGURE 2

**Surface Water Monitoring Program
2018 Annual Surface Water Quality Monitoring Report
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Clean Harbors Canada Inc.**

Monitoring Location	Parameter ⁽¹⁾	Proposed Surface Water Sampling Program		
		Daily Discharge	Monthly Discharge	Spring and late Summer/Fall
Equalization Reservoir Discharge	pH, Conductivity, TSS, Total Phenols, Chloride, Solvent Extractables Microtox General Chemistry Metals VOCs sVOCs	■	■ ⁽²⁾ ■ ⁽²⁾ ■ ⁽²⁾ ■ ⁽²⁾ ■ ⁽²⁾	
Equalization Reservoir	Fish Presence		■	
West Pond	General Chemistry Metals VOCs sVOCs		■ ■ ■ ■	
East Pond	General Chemistry Metals VOCs sVOCs		■ ■ ■ ■	
STN6 (off-site background)	General Chemistry Metals			■ ⁽³⁾ ■ ⁽³⁾
STN6A (off-site downstream)	General Chemistry Metals			■ ⁽³⁾ ■ ⁽³⁾

Notes:

1. General Chemistry, metals, VOC, and sVOC parameters as per detailed list provided in Table 3.
 2. Prior to discharge sample would be collected from the Equalization Pond.
 3. Samples to be collected during discharge from Site and on same day as Monthly Discharge samples.
- VOC - Volatile Organic Compounds
 SVOC - Semi-Volatile Organic Compounds
 TSS - Total Suspended Solids

Surface Water Monitoring Parameters
2018 Annual Surface Water Quality Monitoring Report
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Clean Harbors Canada Inc.

Parameter	Analytes
General Chemistry Parameters	Alkalinity (total as CaCO ₃), Ammonia-N, Bromide (dissolved), Chemical Oxygen Demand (COD), Chloride (dissolved), Conductivity (umhos/cm), Cyanide (total), Dissolved Organic Carbon (DOC), Fluoride, Hardness, Nitrate (as N), Nitrite (as N), pH (field), pH (lab), Phenolics (total), Phosphorus (total), Sulfate (dissolved), Temperature (field), Total Dissolved Solids (TDS), Total Kjeldahl Nitrogen (TKN), Total Suspended Solids (TSS), Un-ionized Ammonia
Metals (Total)	Aluminium, Antimony, Arsenic, Barium, Beryllium, Bismuth, Boron, Cadmium, Calcium, Chromium (Hexavalent), Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Mercury, Molybdenum, Nickel, Potassium, Selenium, Silicon, Silver, Sodium, Strontium, Thallium, Tin, Vanadium, Zinc
Volatile Organic Compounds (VOC)	1,1,1,2-Tetrachloroethane, 1,1,1-Trichloroethane, 1,1,2,2-Tetrachloroethane, 1,1,2-Trichloroethane, 1,1-Dichloroethane, 1,1-Dichloroethene, 1,2-Dibromoethane (Ethylene dibromide), 1,2-Dichlorobenzene, 1,2-Dichloroethane, 1,2-Dichloropropane, 1,3-Dichlorobenzene, 1,4-Dichlorobenzene, 2-Butanone (Methyl ethyl ketone), 4-Methyl-2-pentanone (Methyl isobutyl ketone), Acetone, Benzene, Bromodichloromethane, Bromoform, Bromomethane (Methyl bromide), Carbon tetrachloride, Chlorobenzene, Chloroethane, Chloroform (Trichloromethane), cis-1,2-Dichloroethene, cis-1,3-Dichloropropene, Dibromochloromethane, Dichlorodifluoromethane (CFC-12), Ethylbenzene, Hexane, m&p-Xylenes, Methyl tert butyl ether (MTBE), Methylene chloride, o-Xylene, Styrene, Tetrachloroethene, Toluene, trans-1,2-Dichloroethene, trans-1,3-Dichloropropene, Trichloroethene, Trichlorofluoromethane (CFC-11), Vinyl Chloride, Xylenes (total)
Semi-Volatile Organic Compounds (sVOC)	1,2,4-Trichlorobenzene, 1,2-Dichlorobenzene, 1,3-Dichlorobenzene, 1,4-Dichlorobenzene, 1-Methylnaphthalene, 2,3,4,5-Tetrachlorophenol/2,3,4,6-Tetrachlorophenol, 2,3,6-Trichlorophenol, 2,4,5-Trichlorophenol, 2,4,6-Trichlorophenol, 2,4-Dichlorophenol, 2,4-Dimethylphenol, 2,4-Dinitrophenol, 2,4-Dinitrotoluene, 2,6-Dinitrotoluene, 2-Chlorophenol, 2-Methylnaphthalene, 3,3'-Dichlorobenzidine, 4-Chloroaniline, Acenaphthene, Acenaphthylene, Anthracene, Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene/Benzo(j)fluoranthene, Benzo(g,h,i)perylene, Benzo(k)fluoranthene, bis(2-Chloroethoxy)ether, bis(ethylhexy)phthalate (DEHP), Chrysene, Dibenz(a,h)anthracene, Diethyl phthalate, Dimethyl phthalate, Fluoranthene, Fluorene, Hexachlorobenzene, Hexachlorobutadiene, Indeno(1,2,3-cd)pyrene, Naphthalene, Pentachlorophenol, Perylene, Phenanthrene, Pyrene

Table 4

**Effluent Discharge Limits
2018 Annual Surface Water Quality Monitoring Report
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Clean Harbors Canada Inc.**

Effluent Parameter	Concentration Limit (mg/L) ⁽¹⁾
Total Suspended Solids (TSS)	15.0
Solvent Extractables	15.0
Phenols	0.02
pH of the effluent maintained between 5.5 to 9.5, inclusive, at all times	

Notes:

Source: SW ECA No. 1065-9VVJSW dated October 19, 2015.

1. Units of mg/L unless otherwise indicated.

Daily Chemical Analysis - Equalization Pond
2018 Annual Surface Water Quality Monitoring Report
Lambton Facility
Clean Harbors Canada Inc.

Date	pH	Conductivity (mS/cm)	TSS (mg/L)	Phenol (mg/L)	Solvent Extractables (mg/L)	Chloride (mg/L)	Sulphate (mg/L)	Flow Rate (LPM)	Daily Flow (L)	Comments
2/22/18	6.76	0.682	3	<0.005	<5	NA	NA	635	914,400	
2/23/18	7.26	0.669	4	<0.005	<5	NA	NA	1040	1,497,600	
2/24/18	7.05	0.640	3.8	<0.005	<5	NA	NA	997	1,435,680	
2/25/18	7.13	0.670	3.7	<0.005	<5	NA	NA	780	1,123,200	
2/26/18	7.55	0.700	4.6	<0.005	<5	NA	NA	800	1,152,000	
2/27/18	7.22	0.720	3.9	<0.005	<5	NA	NA	775	1,116,000	
2/28/18	7.37	0.765	9	<0.010	<5	NA	NA	740	1,065,600	
3/1/18	7.58	0.776	5.4	<0.005	<5	NA	NA	770	1,108,800	
3/2/18	7.35	0.680	5.5	<0.010	<5	NA	NA	975	1,404,000	
3/3/18	7.35	0.550	5.6	<0.005	<5	NA	NA	995	1,432,800	
3/4/18	7.65	0.500	0.2	<0.005	<5	NA	NA	950	1,368,000	
3/5/18	7.25	0.690	8.1	<0.005	<5	NA	NA	970	1,396,800	
3/6/18	7.46	0.697	3	<0.005	<5	NA	NA	945	1,360,800	
3/7/18	7.32	0.636	4	<0.005	<5	NA	NA	900	1,296,000	
3/8/18	7.56	0.670	9.8	<0.010	<5	NA	NA	900	1,296,000	
3/9/18	7.30	0.680	5.3	<0.005	<5	NA	NA	1007	1,450,080	
3/10/18	7.68	0.640	5.3	<0.005	<5	NA	NA	1126	1,621,440	
3/11/18	7.32	0.722	4.9	<0.005	<5	NA	NA	1050	1,512,000	
3/12/18	7.41	0.737	4.6	<0.005	<5	NA	NA	1000	1,440,000	
3/13/18	7.54	0.653	4	<0.010	<5	NA	NA	1049	1,510,560	
3/14/18	7.37	0.720	6.7	<0.010	<5	NA	NA	950	1,368,000	
3/15/18	7.50	0.720	1.3	<0.010	<5	NA	NA	950	1,368,000	
3/16/18	7.69	0.540	1	<0.010	7.4	NA	NA	820	1,180,800	
3/17/18	7.27	0.738	2	<0.005	<5	NA	NA	935	1,346,400	
3/18/18	7.76	0.806	2	<0.005	7.3	NA	NA	850	1,224,000	
3/19/18	7.33	0.776	4	<0.010	<5	NA	NA	847	1,219,680	
3/20/18	7.73	0.841	5.3	0.0011	<5	NA	NA	800	1,152,000	
3/21/18	7.53	0.740	4.3	0.0011	<5	NA	NA	925	1,332,000	
3/22/18	7.62	0.770	6.3	0.0017	<5	NA	NA	1025	1,476,000	
3/23/18	7.70	0.811	4.8	0.0014	<5	NA	NA	975	1,404,000	
3/24/18	7.34	0.789	7.9	0.001	<5	NA	NA	940	1,353,600	
3/25/18	7.62	0.697	5.1	0.0014	<5	NA	NA	950	1,368,000	
3/26/18	7.44	0.600	4.4	<0.001	<5	NA	NA	886	1,275,840	
3/27/18	7.47	0.610	0.2	0.001	<5	NA	NA	737	1,061,280	
3/28/18	7.64	0.610	5.7	0.001	<5	NA	NA	889	1,280,160	
3/29/18	7.11	0.732	9	<0.001	<5	NA	NA	1105	1,591,200	
3/30/18	7.26	0.757	4	<0.001	<5	NA	NA	1060	1,526,400	
3/31/18	7.58	0.760	4	<0.001	<5	NA	NA	1044	1,503,360	
4/1/18	7.18	0.620	8.2	<0.001	<5	NA	NA	975	1,404,000	
4/2/18	7.42	0.740	7.2	<0.001	<5	NA	NA	995	1,432,800	
4/3/18	7.29	0.800	6.5	<0.001	<5	NA	NA	950	1,368,000	
4/4/18	7.49	0.768	5.7	<0.001	<5	NA	NA	1166	1,679,040	
4/5/18	7.28	0.740	9	<0.001	<5	NA	NA	1163	1,674,720	
4/6/18	7.37	0.743	10	<0.002	<5	NA	NA	1127	1,622,880	
4/7/18	7.50	0.750	6.5	<0.002	<5	NA	NA	1114	1,604,160	
4/8/18	7.51	0.580	4.1	<0.002	<5	NA	NA	1090	1,569,600	
4/9/18	7.59	0.600	5.5	<0.002	<5	NA	NA	1115	1,605,600	
4/10/18	7.19	0.593	6	0.0013	<5	NA	NA	1123	1,617,120	
4/11/18	7.51	0.808	6	0.0018	<5	NA	NA	1077	1,550,880	
4/12/18	7.57	0.794	6	0.0011	<5	NA	NA	1100	1,584,000	
4/13/18	7.54	0.790	8.9	<0.002	<5	NA	NA	1105	1,591,200	
4/14/18	7.68	0.770	10.4	<0.002	<5	NA	NA	1245	1,792,800	
4/15/18	7.52	0.760	14.4	<0.002	<5	NA	NA	1212	1,745,280	
4/16/18	7.30	0.777	8.7	<0.002	<5	NA	NA	1200	1,728,000	
4/17/18	7.30	0.767	4.8	<0.002	<5	NA	NA	1200	1,728,000	
4/18/18	7.29	0.768	5.7	<0.002	<5	NA	NA	1150	1,656,000	
4/19/18	7.49	0.740	4	0.0013	<5	NA	NA	1300	1,872,000	
4/21/18	7.70	0.660	7.9	<0.001	<5	NA	NA	1325	1,908,000	

Daily Chemical Analysis - Equalization Pond
2018 Annual Surface Water Quality Monitoring Report
Lambton Facility
Clean Harbors Canada Inc.

Date	pH	Conductivity (mS/cm)	TSS (mg/L)	Phenol (mg/L)	Solvent Extractables (mg/L)	Chloride (mg/L)	Sulphate (mg/L)	Flow Rate (LPM)	Daily Flow (L)	Comments
4/22/18	7.40	0.756	12	<0.001	<5	NA	NA	1300	1,872,000	
4/23/18	7.67	0.711	7	<0.001	<5	NA	NA	1344	1,935,360	
4/24/18	7.28	0.712	8	<0.001	<5	NA	NA	1340	1,929,600	
4/25/18	7.97	0.700	5.8	<0.001	<5	NA	NA	1214	1,748,160	
4/26/18	7.73	0.680	4.1	<0.001	<5	NA	NA	1210	1,742,400	
4/27/18	7.79	0.710	6	0.0012	<5	NA	NA	1587	2,285,280	
4/28/18	7.58	0.719	9.3	<0.001	<5	NA	NA	1397	2,011,680	
4/29/18	7.46	0.667	13.5	<0.001	<5	NA	NA	1340	1,929,600	
4/30/18	7.59	0.722	10.2	<0.001	<5	NA	NA	1350	1,944,000	
5/1/18	7.60	0.700	2	0.001	<5	NA	NA	1350	1,944,000	
5/2/18	7.78	0.630	7.4	<0.001	<5	NA	NA	1350	1,944,000	
5/3/18	7.97	0.720	4.3	<0.001	<5	NA	NA	1416	2,039,040	
5/4/18	7.83	0.688	5	0.0013	<5	NA	NA	1371	1,974,240	
5/5/18	7.73	0.649	3	<0.001	<5	NA	NA	1391	2,003,040	
5/6/18	7.84	0.690	7	<0.001	<5	NA	NA	1261	1,815,840	
5/7/18	7.62	0.660	7.3	<0.001	<5	NA	NA	1265	1,821,600	
5/8/18	7.93	0.700	5.6	0.0012	<5	NA	NA	829	1,193,760	
5/9/18	7.71	0.670	5.8	<0.001	<5	NA	NA	1385	1,994,400	
5/10/18	7.37	0.735	4.2	<0.001	<5	NA	NA	1350	1,944,000	
8/27/18	7.80	0.660	3.5	<0.001	<5	NA	NA	NA	RECIRC	
8/28/18	7.63	0.650	2	<0.001	<5	NA	NA	815	1,173,600	
8/29/18	7.48	0.610	4.5	<0.001	<5	NA	NA	757	1,090,080	
8/30/18	7.78	0.580	0	<0.001	<5	NA	NA	615	885,600	
8/31/18	7.75	0.520	3.9	0.0016	<5	NA	NA	1000	1,440,000	
9/1/18	7.70	0.584	3.4	0.001	<5	NA	NA	1198	1,725,120	
9/2/18	7.84	0.563	4.4	<0.001	<5	NA	NA	648	933,120	
9/3/18	7.48	0.575	2	0.0012	<5	NA	NA	1108	1,595,520	
9/4/18	7.00	0.550	3.8	0.0017	<5	NA	NA	1090	1,569,600	
9/5/18	7.34	0.590	2.6	0.0013	<5	NA	NA	1100	1,584,000	
9/6/18	7.88	0.590	10.2	0.0026	<5	NA	NA	1077	1,550,880	
9/7/18	7.50	0.580	4.2	0.0024	<5	NA	NA	1075	1,548,000	
9/8/18	7.54	0.530	4.7	0.0023	<5	NA	NA	1107	1,594,080	
9/9/18	7.67	0.540	7.6	0.0023	<5	NA	NA	1080	1,555,200	
9/10/18	7.71	0.500	11.2	0.0019	<5	NA	NA	1068	1,537,920	
9/11/18	7.82	0.540	6	0.0028	<5	NA	NA	1075	1,548,000	
9/12/18	7.90	0.470	10.2	0.0024	<5	NA	NA	1062	1,529,280	
9/13/18	7.54	0.567	7.1	<0.015	<5	NA	NA	1097	1,579,680	
9/14/18	7.51	0.567	4.9	<0.001	<5	NA	NA	1064	1,532,160	
9/15/18	7.65	0.572	5.7	0.0012	<5	NA	NA	1065	1,533,600	
9/16/18	7.90	0.470	12.4	0.0014	<5	NA	NA	915	1,317,600	
11/7/18	8.20	0.544	8.8	<0.001	<5	NA	NA	RECIRC	-	
11/8/18	7.72	0.585	11.5	<0.001	<5	NA	NA	1097	1,579,680	
11/9/18	7.81	0.480	7.5	<0.001	<5	NA	NA	1045	1,504,800	
11/10/18	7.80	0.470	5.1	<0.001	<5	NA	NA	1000	1,440,000	Flow meter not working
11/11/18	7.73	0.470	7.4	<0.001	<5	NA	NA	1000	1,440,000	Flow meter not working
11/12/18	7.57	0.561	4	<0.001	<5	NA	NA	1000	1,440,000	Flow meter not working
11/13/18	7.73	0.636	4	<0.001	<5	NA	NA	1000	1,440,000	Flow meter not working
11/14/18	7.68	0.577	7.6	<0.001	<5	NA	NA	1000	1,440,000	Flow meter not working
11/15/18	8.06	0.642	5	<0.001	<5	NA	NA	1000	1,440,000	Flow meter not working
11/16/18	8.01	0.550	6.3	0.0011	<5	NA	NA	1000	1,440,000	Flow meter not working
11/17/18	7.67	0.655	5	<0.001	<5	NA	NA	1000	1,440,000	Flow meter not working
11/18/18	8.18	0.647	3.4	<0.001	<5	NA	NA	1000	1,440,000	Flow meter not working
11/19/18	7.75	0.659	<1	0.001	<5	NA	NA	1000	1,440,000	Flow meter not working
11/20/18	8.08	0.659	3	<0.001	<5	NA	NA	1000	1,440,000	Flow meter not working
11/21/18	7.76	0.520	9.6	<0.001	<5	NA	NA	1000	1,440,000	Flow meter not working
11/22/18	7.64	0.570	7.6	0.0013	<5	NA	NA	1000	1,440,000	Flow meter not working

Daily Chemical Analysis - Equalization Pond
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Clean Harbors Canada Inc.

Date	pH	Conductivity (mS/cm)	TSS (mg/L)	Phenol (mg/L)	Solvent Extractables (mg/L)	Chloride (mg/L)	Sulphate (mg/L)	Flow Rate (LPM)	Daily Flow (L)	Comments
11/23/18	8.10	0.610	7.1	0.0017	<5	NA	NA	1000	1,440,000	Flow meter not working
11/24/18	7.39	0.669	7	0.0017	<5	NA	NA	1000	1,440,000	Flow meter not working
11/25/18	7.44	0.655	5	0.002	<5	NA	NA	1000	1,440,000	Flow meter not working
11/26/18	7.76	0.665	4	0.0017	<5	NA	NA	1000	1,440,000	Flow meter not working
11/27/18	7.93	0.640	7.4	0.0017	<5	NA	NA	1410	2,030,400	
11/28/18	7.33	0.600	12.3	0.0017	<5	NA	NA	1420	2,044,800	
11/29/18	7.65	0.620	4.4	0.0017	<5	NA	NA	1420	2,044,800	
11/30/18	7.56	0.680	5.1	<0.001	<5	NA	NA	1420	2,044,800	
12/1/18	8.20	0.697	4.1	<0.001	<5	NA	NA	1000	1,440,000	Flow meter not working
12/2/18	7.90	0.686	4	<0.001	<5	NA	NA	1000	1,440,000	Flow meter not working
12/4/18	7.80	0.590	5.4	0.0011	<5	NA	NA	1000	1,440,000	Flow meter not working
12/5/18	7.91	0.560	8.3	<0.001	<5	NA	NA	1000	1,440,000	
12/6/18	7.58	0.819	6	<0.001	<5	NA	NA	1213	1,746,720	
12/7/18	8.32	0.720	4	<0.001	<5	NA	NA	1014	1,460,160	
12/8/18	7.40	0.718	5	<0.001	<5	NA	NA	1021	1,470,240	
12/9/18	7.66	0.630	6.2	<0.001	<5	NA	NA	1159	1,668,960	
12/10/18	7.70	0.740	2.4	<0.001	<5	NA	NA	1186	1,707,840	
12/11/18	7.77	0.710	1.6	0.0011	<5	NA	NA	1200	1,728,000	
12/12/18	8.20	0.737	1	<0.001	<5	NA	NA	1200	1,728,000	
12/13/18	7.84	0.740	0.5	<0.001	<5	NA	NA	1135	1,634,400	
12/14/18	7.65	0.660	2.6	<0.001	<5	NA	NA	1150	1,656,000	
12/15/18	7.91	0.670	3.6	<0.001	<5	NA	NA	1177	1,694,880	
12/16/18	7.61	0.670	3.8	<0.001	<5	NA	NA	1178	1,696,320	
12/18/18	7.68	0.709	<1	<0.001	<5	NA	NA	1189	1,712,160	
12/19/18	7.87	0.724	2	<0.001	<5	NA	NA	1190	1,713,600	
12/20/18	7.11	0.650	3	<0.001	<5	NA	NA	1150	1,656,000	
12/21/18	7.50	0.720	3.8	<0.001	<5	NA	NA	1170	1,684,800	
12/31/18	7.64	0.718	<1		<5	NA	NA	RECIRC	-	

Notes:

Data and comments provided by Clean Harbours Canada Inc.

TSS - Total Suspended Solids

Phenol - Total Phenols

LPM - litres per minute

ppm - parts per million

Table 6

**Monthly Discharge Chemical Monitoring – Equalization Pond, General Chemistry, Metals, and VOCs/sVOCs
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Lambton Facility
Clean Harbors Canada Inc.**

Sample Location:			EQ Pond	EQ Pond	EQ Pond	EQ Pond	EQ Pond	EQ Pond
Sample ID:			EQ POND DISCHARGE	EQ POND DISCHARGE	EQ POND DISCHARGE	EQ SAMPLE DISCHARGE	EQ POND DISCHARGE EQP	EQ POND DISCHARGE
Sample Date:			2/22/2018	4/23/2018	8/28/2018	11/7/2018	11/19/2018	12/17/2018
Parameters	Units	PWQO						
General Chemistry								
Alkalinity, total (as CaCO3)	mg/L	-	149 J	142 J	83 J	111 J	146	169
Ammonia-N	mg/L	-	2.28 J	0.827 J	0.252 J	0.507 J	1.21	0.401
Bromide	mg/L	-	0.48 J	1.00 J	0.69 J	0.66 J	0.72	1.01
Chemical oxygen demand (COD)	mg/L	-	16 J	17 J	25 J	18 J	26	17
Chloride	mg/L	-	60.3 J	67.6 J	59.3 J	50.3 J	65.5	66.4
Chromium VI (hexavalent)	mg/L	0.001	ND (0.0010) J	ND (0.0010) J	R	ND (0.00050) J	ND (0.00050)	0.00162
Conductivity	umhos/cm	-	729 J	780 J	626 J	605 J	667	745
Cyanide (total)	mg/L	0.005	ND (0.0020) J	ND (0.0020) J	R	ND (0.0020) J	ND (0.0020)	ND (0.0020)
Dissolved organic carbon (DOC) (dissolved)	mg/L	-	4.4 J	4.4 J	4.83 J	4.58 J	4.80	5.86
Fluoride	mg/L	-	0.568 J	0.483 J	0.508 J	0.543 J	0.503	0.572
Hardness	mg/L	-	266 J	277 J	220 J	226 J	238 J	279 J
Nitrate (as N)	mg/L	-	0.377 J	0.776 J	0.060 J	0.136 J	0.214	0.225
Nitrite (as N)	mg/L	-	0.015 J	0.017 J	R	ND (0.010) J	ND (0.010)	ND (0.010)
pH, lab	s.u.	6.5-8.5	7.62 J	8.06 J	7.95 J	7.95 J	7.86	7.99
Phenolics (total)	mg/L	0.001	ND (0.0010) J	ND (0.0010) J	R	ND (0.0010) J	0.0017	0.0012
Phosphorus	mg/L	0.01	0.0159 J	0.0255 J	0.0277 J	0.0192 J	0.0272	0.0267
Sulfate	mg/L	-	131 J	156 J	143 J	111 J	113	141
Total dissolved solids (TDS)	mg/L	-	395 J	482 J	386 J	369 J	445	500
Total kjeldahl nitrogen (TKN)	mg/L	-	2.86 J	0.80 J	0.57 J	0.72 J	1.85	0.93
Total suspended solids (TSS)	mg/L	-	3.4 J	5.6 J	2.2 J	6.2 J	5.7	3.3
Un-ionized ammonia	mg/L	0.02	0.00218 J	0.00928 J	0.00777 J	0.0138 J	0.0098	0.00323
Field Parameters								
pH, field	s.u.	6.5-8.5	6.80	7.70	7.63	8.30	7.80	7.80
Temperature, field	deg C	-	5.0	10.0	26.0	4.0	3.0	3.0
Metals								
Aluminum	mg/L	0.075	0.085	0.434	0.113	0.232	0.282	0.363
Antimony	mg/L	0.02	0.00035	0.00038	0.00042	0.00042	0.00041	0.00064
Arsenic	mg/L	0.005	0.00107	0.00087	0.00179	0.00129	0.00116	0.00282
Barium	mg/L	-	0.0421	0.0477	0.0390	0.0398	0.0558	0.0614
Beryllium	mg/L	0.011	ND (0.00010)	ND (0.00010)	ND (0.00010)	ND (0.00010)	ND (0.00010)	ND (0.00010)
Bismuth	mg/L	-	ND (0.000050)	ND (0.000050)	ND (0.000050)	ND (0.000050)	ND (0.000050)	ND (0.000050)
Boron	mg/L	0.2	0.126	0.121	0.357	0.153	0.129	0.112
Cadmium	mg/L	0.0002	ND (0.000030)	ND (0.000055)	ND (0.000040)	ND (0.000030)	ND (0.000040)	0.000118
Calcium	mg/L	-	73.1	75.9	55.8	60.9	66.3	78.4
Cobalt	mg/L	0.0009	0.00018	0.00043	0.00014	0.00024	0.00035	0.00038
Copper	mg/L	0.005	ND (0.0010)	0.0017	ND (0.0010)	0.0013	0.0016	0.0024
Iron	mg/L	0.3	0.082	0.444	0.087	0.267	0.308	0.377
Lead	mg/L	0.005	0.00013	0.00033	ND (0.00010)	0.00020	0.00029	0.00041
Magnesium	mg/L	-	20.2	21.3	19.6	18.1	17.7	20.3
Manganese	mg/L	-	0.111	0.0306	0.0835	0.0629	0.0307	0.0204
Mercury	mg/L	0.0002	ND (0.000010)	ND (0.0000050)	ND (0.000010)	ND (0.000010)	ND (0.000010)	ND (0.000010)
Molybdenum	mg/L	0.04	0.0364	0.0378	0.0495	0.0442	0.0460	0.0739
Nickel	mg/L	0.025	0.00267	0.00437	0.00301	0.00341	0.00380	0.00694
Potassium	mg/L	-	5.79	7.16	6.71	7.64	9.05	16.2
Selenium	mg/L	0.1	0.000652	0.00187	0.00117	0.000888	0.000917	0.00177
Silicon	mg/L	-	1.52	2.29	1.13	2.17	2.73	3.22
Silver	mg/L	0.0001	ND (0.000050)	ND (0.000050)	ND (0.000050)	ND (0.000050)	ND (0.000050)	ND (0.000050)
Sodium	mg/L	-	34.8	37.3	34.3	32.7	35.1	40.2

Table 6

**Monthly Discharge Chemical Monitoring – Equalization Pond, General Chemistry, Metals, and VOCs/sVOCs
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Clean Harbors Canada Inc.**

Sample Location:			EQ Pond	EQ Pond	EQ Pond	EQ Pond	EQ Pond	EQ Pond
Sample ID:			EQ POND DISCHARGE	EQ POND DISCHARGE	EQ POND DISCHARGE	EQ SAMPLE DISCHARGE	EQ POND DISCHARGE EQP	EQ POND DISCHARGE
Sample Date:			2/22/2018	4/23/2018	8/28/2018	11/7/2018	11/19/2018	12/17/2018
Parameters	Units	PWQO						
Strontium	mg/L	-	0.617	0.606	0.542	0.510	0.551	0.595
Thallium	mg/L	0.0003	0.000011	0.000023	0.000026	0.000015	0.000016	0.000036
Tin	mg/L	-	ND (0.00010)	ND (0.00010)	ND (0.00010)	ND (0.00010)	ND (0.00010)	ND (0.00010)
Vanadium	mg/L	0.006	ND (0.00050)	0.00132	0.00072	0.00084	0.00093	0.00119
Zinc	mg/L	0.03	0.0034	ND (0.0030)	ND (0.0030)	ND (0.0030)	ND (0.0030)	0.0045
Volatiles								
1,1,1,2-Tetrachloroethane	ug/L	20	ND (0.50) J	ND (0.50) J	R	ND (0.50) J	ND (0.50)	ND (0.50)
1,1,1-Trichloroethane	ug/L	10	ND (0.50) J	ND (0.50) J	R	ND (0.50) J	ND (0.50)	ND (0.50)
1,1,2,2-Tetrachloroethane	ug/L	70	ND (0.50) J	ND (0.50) J	R	ND (0.50) J	ND (0.50)	ND (0.50)
1,1,2-Trichloroethane	ug/L	800	ND (0.50) J	ND (0.50) J	R	ND (0.50) J	ND (0.50)	ND (0.50)
1,1-Dichloroethane	ug/L	200	ND (0.50) J	ND (0.50) J	R	ND (0.50) J	ND (0.50)	ND (0.50)
1,1-Dichloroethene	ug/L	40	ND (0.50) J	ND (0.50) J	R	ND (0.50) J	ND (0.50)	ND (0.50)
1,2-Dibromoethane (Ethylene dibromide)	ug/L	5	ND (0.20) J	ND (0.20) J	R	ND (0.20) J	ND (0.20)	ND (0.20)
1,2-Dichlorobenzene	ug/L	2.5	ND (0.50) J	ND (0.50) J	R	ND (0.50) J	ND (0.50)	ND (0.50)
1,2-Dichloroethane	ug/L	100	ND (0.50) J	ND (0.50) J	R	ND (0.50) J	ND (0.50)	ND (0.50)
1,2-Dichloropropane	ug/L	0.7	ND (0.50) J	ND (0.50) J	R	ND (0.50) J	ND (0.50)	ND (0.50)
1,3-Dichlorobenzene	ug/L	2.5	ND (0.50) J	ND (0.50) J	R	ND (0.50) J	ND (0.50)	ND (0.50)
1,4-Dichlorobenzene	ug/L	4	ND (0.50) J	ND (0.50) J	R	ND (0.50) J	ND (0.50)	ND (0.50)
2-Butanone (Methyl ethyl ketone) (MEK)	ug/L	400	ND (20) J	ND (20) J	R	ND (20) J	ND (20)	ND (20)
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	ug/L	-	ND (20) J	ND (20) J	R	ND (20) J	ND (20)	ND (20)
Acetone	ug/L	-	ND (20) J	ND (20) J	R	ND (20) J	ND (20)	ND (20)
Benzene	ug/L	100	ND (0.50) J	ND (0.50) J	R	ND (0.50) J	ND (0.50)	ND (0.50)
Bromodichloromethane	ug/L	200	ND (1.0) J	ND (1.0) J	R	ND (1.0) J	ND (1.0)	ND (1.0)
Bromoform	ug/L	60	ND (1.0) J	ND (1.0) J	R	ND (1.0) J	ND (1.0)	ND (1.0)
Bromomethane (Methyl bromide)	ug/L	0.9	ND (0.50) J	ND (0.50) J	R	ND (0.50) J	ND (0.50)	ND (0.50)
Carbon tetrachloride	ug/L	-	ND (0.50) J	ND (0.50) J	R	ND (0.50) J	ND (0.50)	ND (0.50)
Chlorobenzene	ug/L	15	ND (0.50) J	ND (0.50) J	R	ND (0.50) J	ND (0.50)	ND (0.50)
Chloroethane	ug/L	-	ND (1.0) J	ND (1.0) J	R	ND (1.0) J	ND (1.0)	ND (1.0)
Chloroform (Trichloromethane)	ug/L	-	ND (1.0) J	ND (1.0) J	R	ND (1.0) J	ND (1.0)	ND (1.0)
cis-1,2-Dichloroethene	ug/L	200	ND (0.50) J	ND (0.50) J	R	ND (0.50) J	ND (0.50)	ND (0.50)
cis-1,3-Dichloropropene	ug/L	-	ND (0.50) J	ND (0.50) J	R	ND (0.50) J	ND (0.50)	ND (0.50)
Dibromochloromethane	ug/L	40	ND (1.0) J	ND (1.0) J	R	ND (1.0) J	ND (1.0)	ND (1.0)
Dichlorodifluoromethane (CFC-12)	ug/L	-	ND (1.0) J	ND (1.0) J	R	ND (1.0) J	ND (1.0)	ND (1.0)
Ethylbenzene	ug/L	8	ND (0.50) J	ND (0.50) J	R	ND (0.50) J	ND (0.50)	ND (0.50)
Hexane	ug/L	-	ND (0.50) J	ND (0.50) J	R	ND (0.50) J	ND (0.50)	ND (0.50)
m&p-Xylenes	ug/L	2	ND (1.0) J	ND (1.0) J	R	ND (1.0) J	ND (1.0)	ND (1.0)
Methyl tert butyl ether (MTBE)	ug/L	200	ND (0.50) J	ND (0.50) J	R	ND (0.50) J	ND (0.50)	ND (0.50)
Methylene chloride	ug/L	100	ND (2.0) J	ND (2.0) J	R	ND (2.0) J	ND (2.0)	ND (2.0)
o-Xylene	ug/L	40	ND (0.50) J	ND (0.50) J	R	ND (0.50) J	ND (0.50)	ND (0.50)
Styrene	ug/L	4	ND (0.50) J	ND (0.50) J	R	ND (0.50) J	ND (0.50)	ND (0.50)
Tetrachloroethene	ug/L	50	ND (0.50) J	ND (0.50) J	R	ND (0.50) J	ND (0.50)	ND (0.50)
Toluene	ug/L	0.8	ND (0.50) J	ND (0.50) J	R	ND (0.50) J	ND (0.50)	ND (0.50)
trans-1,2-Dichloroethene	ug/L	200	ND (0.50) J	ND (0.50) J	R	ND (0.50) J	ND (0.50)	ND (0.50)
trans-1,3-Dichloropropene	ug/L	7	ND (0.50) J	ND (0.50) J	R	ND (0.50) J	ND (0.50)	ND (0.50)
Trichloroethene	ug/L	20	ND (0.50) J	ND (0.50) J	R	ND (0.50) J	ND (0.50)	ND (0.50)
Trichlorofluoromethane (CFC-11)	ug/L	-	ND (1.0) J	ND (1.0) J	R	ND (1.0) J	ND (1.0)	ND (1.0)
Trihalomethanes	ug/L	-	ND (2.0) J	ND (2.0) J	R	ND (2.0) J	ND (2.0)	ND (2.0)
Vinyl chloride	ug/L	600	ND (0.50) J	ND (0.50) J	R	ND (0.50) J	ND (0.50)	ND (0.50)
Xylenes (total)	ug/L	-	ND (1.1) J	ND (1.1) J	R	ND (1.1) J	ND (1.1)	ND (1.1)

Table 6

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Sample Location:	EQ Pond	EQ Pond	EQ Pond	EQ Pond	EQ Pond	EQ Pond		
Sample ID:	EQ POND DISCHARGE	EQ POND DISCHARGE	EQ POND DISCHARGE	EQ SAMPLE DISCHARGE	EQ POND DISCHARGE EQP	EQ POND DISCHARGE		
Sample Date:	2/22/2018	4/23/2018	8/28/2018	11/7/2018	11/19/2018	12/17/2018		
Parameters	Units	PWQO						
Semi-Volatiles								
1,2,4-Trichlorobenzene	ug/L	0.5	ND (0.40) J	ND (0.40) J	R	ND (0.40) J	ND (0.40)	ND (0.40)
1,2-Dichlorobenzene	ug/L	2.5	ND (0.40) J	ND (0.40) J	R	ND (0.40) J	ND (0.40)	ND (0.40)
1,3-Dichlorobenzene	ug/L	2.5	ND (0.40) J	ND (0.40) J	R	ND (0.40) J	ND (0.40)	ND (0.40)
1,4-Dichlorobenzene	ug/L	4	ND (0.40) J	ND (0.40) J	R	ND (0.40) J	ND (0.40)	ND (0.40)
1-Methylnaphthalene	ug/L	2	ND (0.40) J	ND (0.40) J	R	ND (0.40) J	ND (0.40)	ND (0.40)
2,3,4,5-Tetrachlorophenol	ug/L	-	ND (0.50) J	ND (0.50) J	R	ND (0.50) J	ND (0.50)	ND (0.50)
2,3,4,6-Tetrachlorophenol	ug/L	-	ND (0.50) J	ND (0.50) J	R	ND (0.50) J	ND (0.50)	ND (0.50)
2,3,6-Trichlorophenol	ug/L	-	ND (0.50) J	ND (0.50) J	R	ND (0.50) J	ND (0.50)	ND (0.50)
2,4,5-Trichlorophenol	ug/L	18	ND (0.50) J	ND (0.50) J	R	ND (0.50) J	ND (0.50)	ND (0.50)
2,4,6-Trichlorophenol	ug/L	18	ND (0.50) J	ND (0.50) J	R	ND (0.50) J	ND (0.50)	ND (0.50)
2,4-Dichlorophenol	ug/L	0.2	ND (0.30) J	ND (0.30) J	R	ND (0.30) J	ND (0.30)	ND (0.30)
2,4-Dimethylphenol	ug/L	10	ND (0.50) J	ND (0.50) J	R	ND (0.50) J	ND (0.50)	ND (0.50)
2,4-Dinitrophenol	ug/L	-	ND (1.0) J	ND (1.0) J	R	ND (1.0) J	ND (1.0)	ND (1.0)
2,4-Dinitrotoluene	ug/L	4	ND (0.40) J	ND (0.40) J	R	ND (0.40) J	ND (0.40)	ND (0.40)
2,6-Dinitrotoluene	ug/L	6	ND (0.40) J	ND (0.40) J	R	ND (0.40) J	ND (0.40)	ND (0.40)
2-Chlorophenol	ug/L	7	ND (0.30) J	ND (0.30) J	R	ND (0.30) J	ND (0.30)	ND (0.30)
2-Methylnaphthalene	ug/L	2	ND (0.40) J	ND (0.40) J	R	ND (0.40) J	ND (0.40)	ND (0.40)
3,3'-Dichlorobenzidine	ug/L	0.6	ND (0.40) J	ND (0.40) J	R	ND (0.40) J	ND (0.40)	ND (0.40)
4-Chloroaniline	ug/L	-	ND (0.40) J	ND (0.40) J	R	ND (0.40) J	ND (0.40)	ND (0.40)
Acenaphthene	ug/L	-	ND (0.20) J	ND (0.20) J	R	ND (0.20) J	ND (0.20)	ND (0.20)
Acenaphthylene	ug/L	-	ND (0.20) J	ND (0.20) J	R	ND (0.20) J	ND (0.20)	ND (0.20)
Anthracene	ug/L	0.0008	ND (0.20) J	ND (0.20) J	R	ND (0.20) J	ND (0.20)	ND (0.20)
Benzo(a)anthracene	ug/L	0.0004	ND (0.20) J	ND (0.20) J	R	ND (0.20) J	ND (0.20)	ND (0.20)
Benzo(a)pyrene	ug/L	-	ND (0.050) J	ND (0.050) J	R	ND (0.050) J	ND (0.050)	ND (0.050)
Benzo(b)fluoranthene	ug/L	-	ND (0.20) J	ND (0.20) J	R	ND (0.20) J	ND (0.20)	ND (0.20)
Benzo(g,h,i)perylene	ug/L	0.00002	ND (0.20) J	ND (0.20) J	R	ND (0.20) J	ND (0.20)	ND (0.20)
Benzo(k)fluoranthene	ug/L	0.0002	ND (0.20) J	ND (0.20) J	R	ND (0.20) J	ND (0.20)	ND (0.20)
bis(2-Chloroethyl)ether	ug/L	200	ND (0.40) J	ND (0.40) J	R	ND (0.40) J	ND (0.40)	ND (0.40)
bis(2-Ethylhexyl)phthalate (DEHP)	ug/L	0.6	ND (2.0) J	ND (2.0) J	R	ND (2.0) J	ND (2.0)	ND (2.0)
Chrysene	ug/L	0.0001	ND (0.20) J	ND (0.20) J	R	ND (0.20) J	ND (0.20)	ND (0.20)
Dibenz(a,h)anthracene	ug/L	0.002	ND (0.20) J	ND (0.20) J	R	ND (0.20) J	ND (0.20)	ND (0.20)
Diethyl phthalate	ug/L	-	ND (0.20) J	ND (0.20) J	R	ND (0.20) J	ND (0.20)	ND (0.20)
Dimethyl phthalate	ug/L	-	ND (0.20) J	ND (0.20) J	R	ND (0.20) J	ND (0.20)	ND (0.20)
Fluoranthene	ug/L	0.0008	ND (0.20) J	ND (0.20) J	R	ND (0.20) J	ND (0.20)	ND (0.20)
Fluorene	ug/L	0.2	ND (0.20) J	ND (0.20) J	R	ND (0.20) J	ND (0.20)	ND (0.20)
Hexachlorobenzene	ug/L	0.0065	ND (0.040) J	ND (0.040) J	R	ND (0.040) J	ND (0.040)	ND (0.040)
Hexachlorobutadiene	ug/L	0.009	ND (0.20) J	ND (0.20) J	R	ND (0.20) J	ND (0.20)	ND (0.20)
Indeno(1,2,3-cd)pyrene	ug/L	-	ND (0.20) J	ND (0.20) J	R	ND (0.20) J	ND (0.20)	ND (0.20)
Naphthalene	ug/L	7	ND (0.20) J	ND (0.20) J	R	ND (0.20) J	ND (0.20)	ND (0.20)
Pentachlorophenol	ug/L	0.5	ND (0.50) J	ND (0.50) J	R	ND (0.50) J	ND (0.50)	ND (0.50)
Perylene	ug/L	0.00007	ND (0.20) J	ND (0.20) J	R	ND (0.20) J	ND (0.20)	ND (0.20)
Phenanthrene	ug/L	0.03	ND (0.20) J	ND (0.20) J	R	ND (0.20) J	ND (0.20)	ND (0.20)
Pyrene	ug/L	-	ND (0.20) J	ND (0.20) J	R	ND (0.20) J	ND (0.20)	ND (0.20)

Notes:

- 0.01 Analytical results above the Provincial Water Quality Objectives (PWQO).
- J - Estimated concentration.
- ND - Not detected at the associated reporting limit.
- - Not applicable.

**Monthly Discharge Chemical Monitoring – Equalization Pond, Microtox
2018 Annual Surface Water Quality Monitoring Report
Lambton Facility
Clean Harbors Canada Inc.**

Sample Location:	EQ Pond		EQ Pond		EQ Pond		EQ Pond	
Sample ID:	EQ POND DISCHARGE	EQ POND DISCHARGE	EQ POND DISCHARGE	EQ POND DISCHARGE	EQ POND DISCHARGE	EQ POND DISCHARGE	EQ POND DISCHARGE	EQ POND DISCHARGE
Sample Date:	2/26/2018	4/23/2018	8/28/2018	11/12/2018	11/19/2018	EQP	EQ POND DISCHARGE	12/17/2018
Parameters	Units							
Clarification	none	CENTRIFUGED	NONE	NONE	NONE	NONE	NONE	NONE
Color (true)	none	COLOURLESS	COLOURLESS	COLOURLESS	COLOURLESS	COLOURLESS	COLOURLESS	COLOURLESS
EC 20 (15min)	%	100 >J	100 >J	100 >J	100 >J	100 >	100 >	100 >
EC 20 (5min)	%	100 >J	100 >J	100 >J	100 >J	86.2	100 >	100 >
EC 50 (15min)	%	100 >J	100 >J	100 >J	100 >J	100 >	100 >	100 >
EC 50 (5min)	%	100 >J	100 >J	100 >J	100 >J	100 >	100 >	100 >
Final pH	s.u.	7.6	8.0	8.0	8.1	7.9	7.9	7.9
Initial pH	s.u.	7.6	8.0	8.0	8.1	7.9	7.9	7.9
Interpretation	none	NON TOXIC	NON TOXIC	NON TOXIC	NON TOXIC	NON TOXIC	NON TOXIC	NON TOXIC
Turbidity	none	LOW	N/A	LOW	N/A	N/A	N/A	N/A

Notes:
 > - Greater than reported value.
 J - Estimated concentration.
 N/A - Result not available.

Table 8

**Surface Water Characterization – East Pond
2018 Annual Surface Water Quality Monitoring Report
Lambton Facility
Clean Harbors Canada Inc.**

Sample Location:		East Pond	East Pond	East Pond	East Pond	East Pond	East Pond
Sample ID:		EAST STORM WATER POND	EAST STORM WATER POND	EAST STORM WATER POND	EAST STORM WATER POND	EAST STORM WATER POND ERP	EAST STORM WATER POND
Sample Date:		2/22/2018	4/23/2018	8/28/2018	11/7/2018	11/19/2018	12/17/2018
Parameters	Units PWQO						
General Chemistry							
Alkalinity, total (as CaCO3)	mg/L -	166 J	114 J	115 J	144 J	143	169
Ammonia-N	mg/L -	1.46 J	0.959 J	0.240 J	0.584 J	3.82	0.607
Bromide	mg/L -	0.54 J	0.38 J	0.40 J	0.76 J	0.64	0.61
Chemical oxygen demand (COD)	mg/L -	29 J	24 J	33 J	32 J	30	23
Chloride	mg/L -	76.4 J	42.5 J	34.8 J	54.8 J	47.2	56.1
Chromium VI (hexavalent)	mg/L 0.001	ND (0.0010) J	ND (0.0010) J	R	0.00053 J	0.00060	ND (0.00050)
Conductivity	umhos/cm -	815 J	657 J	516 J	662 J	636	746
Cyanide (total)	mg/L 0.005	ND (0.0020) J	ND (0.0020) J	R	ND (0.0020) J	ND (0.0020)	ND (0.0020)
Dissolved organic carbon (DOC) (dissolved)	mg/L -	5.3 J	4.6 J	5.34 J	7.26 J	5.60	5.73
Fluoride	mg/L -	0.541 J	0.549 J	0.561 J	0.574 J	0.562	0.541
Hardness	mg/L -	287 J	244 J	198 J	251 J	231 J	298 J
Nitrate (as N)	mg/L -	0.539 J	0.320 J	0.023 J	0.072 J	0.056	0.083
Nitrite (as N)	mg/L -	0.010 J	ND (0.010) J	R	ND (0.010) J	ND (0.010)	ND (0.010)
pH, lab	s.u. 6.5-8.5	7.66 J	8.08 J	7.82 J	7.78 J	7.79	7.88
Phenolics (total)	mg/L 0.001	0.0023 J	ND (0.0010) J	0.0143 J	0.0017 J	0.0015	0.0025
Phosphorus	mg/L 0.01	0.0315 J	0.0315 J	0.0709 J	0.0542 J	0.0440	0.0527
Sulfate	mg/L -	138 J	155 J	90.3 J	113 J	122	153
Total dissolved solids (TDS)	mg/L -	470 J	429 J	319 J	433 J	433	492
Total kjeldahl nitrogen (TKN)	mg/L -	1.90 J	1.02 J	0.88 J	1.31 J	4.73	1.18
Total suspended solids (TSS)	mg/L -	7.8 J	5.2 J	14.1 J	15.0 J	2.3	11.7
Un-ionized ammonia	mg/L 0.02	0.00350 J	0.00117 J	0.00588 J	0.0186 J	0.0245	0.00205
Field Parameters							
pH, field	s.u. 6.5-8.5	7.20	6.70	7.62	8.30	7.70	7.42
Temperature, field	deg C -	5.0	11.0	23.0	6.0	3.0	3.0
Metals							
Aluminum	mg/L 0.075	0.289	0.436	1.24	1.31	0.817	0.706
Antimony	mg/L 0.02	0.00034	0.00041	0.00046	0.00055	0.00049	0.00045
Arsenic	mg/L 0.005	0.00112	0.00081	0.00469	0.00209	0.00169	0.00129
Barium	mg/L -	0.0529	0.0435	0.0749	0.0649	0.0638	0.0675
Beryllium	mg/L 0.011	ND (0.00010)	ND (0.00010)	ND (0.00010)	ND (0.00010)	ND (0.00010)	ND (0.00010)
Bismuth	mg/L -	ND (0.000050)	ND (0.000050)	ND (0.000050)	ND (0.000050)	ND (0.000050)	ND (0.000050)
Boron	mg/L 0.2	0.115	0.067	0.085	0.099	0.085	0.087
Cadmium	mg/L 0.0002	ND (0.000060)	ND (0.000010)	ND (0.00020)	ND (0.00020)	ND (0.000085)	0.000106
Calcium	mg/L -	80.3	66.8	56.0	69.5	63.6	83.2
Cobalt	mg/L 0.0009	0.00052	0.00052	0.00122	0.00121	0.00080	0.00065
Copper	mg/L 0.005	0.0016	0.0020	0.0037	0.0034	0.0051	0.0026
Iron	mg/L 0.3	0.386	0.410	1.61	1.68	2.42	0.785
Lead	mg/L 0.005	0.00052	0.00220	0.00232	0.00259	0.00157	0.00108
Magnesium	mg/L -	21.0	18.8	14.2	18.9	17.5	21.9
Manganese	mg/L -	0.194	0.0235	0.175	0.0809	0.0483	0.0414
Mercury	mg/L 0.0002	ND (0.000010)	0.0000050	0.000033	0.000053	0.000022	0.000019
Molybdenum	mg/L 0.04	0.0315	0.0453	0.0604	0.0582	0.0631	0.0736
Nickel	mg/L 0.025	0.00408	0.00675	0.00522	0.00624	0.00594	0.00395
Potassium	mg/L -	6.18	7.24	12.4	16.8	16.1	19.3
Selenium	mg/L 0.1	0.000790	0.00280	0.00107	0.00121	0.00118	0.00168
Silicon	mg/L -	2.27	2.29	4.81	5.20	4.09	3.94
Silver	mg/L 0.0001	ND (0.000050)	ND (0.000050)	ND (0.000050)	ND (0.000050)	ND (0.000050)	ND (0.000050)
Sodium	mg/L -	39.3	25.9	22.2	35.6	27.2	33.5
Strontium	mg/L -	0.618	0.611	0.512	0.560	0.568	0.670
Thallium	mg/L 0.0003	0.000023	0.000036	0.000034	0.000046	0.000037	0.000043
Tin	mg/L -	ND (0.00010)	ND (0.00010)	0.00011	0.00013	ND (0.00010)	ND (0.00010)
Vanadium	mg/L 0.006	0.00082	0.00137	0.00303	0.00330	0.00219	0.00176
Zinc	mg/L 0.03	0.0044	0.0072	0.0157	0.0176	0.0132	0.0111

Table 8

Surface Water Characterization – East Pond
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 Lambton Facility
 Clean Harbors Canada Inc.

Sample Location:	East Pond	East Pond	East Pond	East Pond	East Pond	East Pond		
Sample ID:	EAST STORM WATER POND	EAST STORM WATER POND	EAST STORM WATER POND	EAST STORM WATER POND	EAST STORM WATER POND ERP	EAST STORM WATER POND		
Sample Date:	2/22/2018	4/23/2018	8/28/2018	11/7/2018	11/19/2018	12/17/2018		
Parameters	Units	PWQO						
Volatiles								
1,1,1,2-Tetrachloroethane	ug/L	20	ND (0.50) J	ND (0.50) J	R	ND (0.50) J	ND (0.50)	ND (0.50)
1,1,1-Trichloroethane	ug/L	10	ND (0.50) J	ND (0.50) J	R	ND (0.50) J	ND (0.50)	ND (0.50)
1,1,2,2-Tetrachloroethane	ug/L	70	ND (0.50) J	ND (0.50) J	R	ND (0.50) J	ND (0.50)	ND (0.50)
1,1,2-Trichloroethane	ug/L	800	ND (0.50) J	ND (0.50) J	R	ND (0.50) J	ND (0.50)	ND (0.50)
1,1-Dichloroethane	ug/L	200	ND (0.50) J	ND (0.50) J	R	ND (0.50) J	ND (0.50)	ND (0.50)
1,1-Dichloroethene	ug/L	40	ND (0.50) J	ND (0.50) J	R	ND (0.50) J	ND (0.50)	ND (0.50)
1,2-Dibromoethane (Ethylene dibromide)	ug/L	5	ND (0.20) J	ND (0.20) J	R	ND (0.20) J	ND (0.20)	ND (0.20)
1,2-Dichlorobenzene	ug/L	2.5	ND (0.50) J	ND (0.50) J	R	ND (0.50) J	ND (0.50)	ND (0.50)
1,2-Dichloroethane	ug/L	100	ND (0.50) J	ND (0.50) J	R	ND (0.50) J	ND (0.50)	ND (0.50)
1,2-Dichloropropane	ug/L	0.7	ND (0.50) J	ND (0.50) J	R	ND (0.50) J	ND (0.50)	ND (0.50)
1,3-Dichlorobenzene	ug/L	2.5	ND (0.50) J	ND (0.50) J	R	ND (0.50) J	ND (0.50)	ND (0.50)
1,4-Dichlorobenzene	ug/L	4	ND (0.50) J	ND (0.50) J	R	ND (0.50) J	ND (0.50)	ND (0.50)
2-Butanone (Methyl ethyl ketone) (MEK)	ug/L	400	ND (20) J	ND (20) J	R	ND (20) J	ND (20)	ND (20)
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	ug/L	-	ND (20) J	ND (20) J	R	ND (20) J	ND (20)	ND (20)
Acetone	ug/L	-	ND (20) J	ND (20) J	R	ND (20) J	ND (20)	ND (20)
Benzene	ug/L	100	ND (0.50) J	ND (0.50) J	R	ND (0.50) J	ND (0.50)	ND (0.50)
Bromodichloromethane	ug/L	200	ND (1.0) J	ND (1.0) J	R	ND (1.0) J	ND (1.0)	ND (1.0)
Bromoform	ug/L	60	ND (1.0) J	ND (1.0) J	R	ND (1.0) J	ND (1.0)	ND (1.0)
Bromomethane (Methyl bromide)	ug/L	0.9	ND (0.50) J	ND (0.50) J	R	ND (0.50) J	ND (0.50)	ND (0.50)
Carbon tetrachloride	ug/L	-	ND (0.50) J	ND (0.50) J	R	ND (0.50) J	ND (0.50)	ND (0.50)
Chlorobenzene	ug/L	15	ND (0.50) J	ND (0.50) J	R	ND (0.50) J	ND (0.50)	ND (0.50)
Chloroethane	ug/L	-	ND (1.0) J	ND (1.0) J	R	ND (1.0) J	ND (1.0)	ND (1.0)
Chloroform (Trichloromethane)	ug/L	-	ND (1.0) J	ND (1.0) J	R	ND (1.0) J	ND (1.0)	ND (1.0)
cis-1,2-Dichloroethene	ug/L	200	ND (0.50) J	ND (0.50) J	R	ND (0.50) J	ND (0.50)	ND (0.50)
cis-1,3-Dichloropropene	ug/L	-	ND (0.50) J	ND (0.50) J	R	ND (0.50) J	ND (0.50)	ND (0.50)
Dibromochloromethane	ug/L	40	ND (1.0) J	ND (1.0) J	R	ND (1.0) J	ND (1.0)	ND (1.0)
Dichlorodifluoromethane (CFC-12)	ug/L	-	ND (1.0) J	ND (1.0) J	R	ND (1.0) J	ND (1.0)	ND (1.0)
Ethylbenzene	ug/L	8	ND (0.50) J	ND (0.50) J	R	ND (0.50) J	ND (0.50)	ND (0.50)
Hexane	ug/L	-	ND (0.50) J	ND (0.50) J	R	ND (0.50) J	ND (0.50)	ND (0.50)
m&p-Xylenes	ug/L	2	ND (1.0) J	ND (1.0) J	R	ND (1.0) J	ND (1.0)	ND (1.0)
Methyl tert butyl ether (MTBE)	ug/L	200	ND (0.50) J	ND (0.50) J	R	ND (0.50) J	ND (0.50)	ND (0.50)
Methylene chloride	ug/L	100	ND (2.0) J	ND (2.0) J	R	ND (2.0) J	ND (2.0)	ND (2.0)
o-Xylene	ug/L	40	ND (0.50) J	ND (0.50) J	R	ND (0.50) J	ND (0.50)	ND (0.50)
Styrene	ug/L	4	ND (0.50) J	ND (0.50) J	R	ND (0.50) J	ND (0.50)	ND (0.50)
Tetrachloroethene	ug/L	50	ND (0.50) J	ND (0.50) J	R	ND (0.50) J	ND (0.50)	ND (0.50)
Toluene	ug/L	0.8	ND (0.50) J	ND (0.50) J	R	ND (0.50) J	ND (0.50)	ND (0.50)
trans-1,2-Dichloroethene	ug/L	200	ND (0.50) J	ND (0.50) J	R	ND (0.50) J	ND (0.50)	ND (0.50)
trans-1,3-Dichloropropene	ug/L	7	ND (0.50) J	ND (0.50) J	R	ND (0.50) J	ND (0.50)	ND (0.50)
Trichloroethene	ug/L	20	ND (0.50) J	ND (0.50) J	R	ND (0.50) J	ND (0.50)	ND (0.50)
Trichlorofluoromethane (CFC-11)	ug/L	-	ND (1.0) J	ND (1.0) J	R	ND (1.0) J	ND (1.0)	ND (1.0)
Trihalomethanes	ug/L	-	ND (2.0) J	ND (2.0) J	R	ND (2.0) J	ND (2.0)	ND (2.0)
Vinyl chloride	ug/L	600	ND (0.50) J	ND (0.50) J	R	ND (0.50) J	ND (0.50)	ND (0.50)
Xylenes (total)	ug/L	-	ND (1.1) J	ND (1.1) J	R	ND (1.1) J	ND (1.1)	ND (1.1)
Semi-Volatiles								
1,2,4-Trichlorobenzene	ug/L	0.5	ND (0.40) J	ND (0.40) J	R	ND (0.40) J	ND (0.40)	ND (0.40)
1,2-Dichlorobenzene	ug/L	2.5	ND (0.40) J	ND (0.40) J	R	ND (0.40) J	ND (0.40)	ND (0.40)
1,3-Dichlorobenzene	ug/L	2.5	ND (0.40) J	ND (0.40) J	R	ND (0.40) J	ND (0.40)	ND (0.40)
1,4-Dichlorobenzene	ug/L	4	ND (0.40) J	ND (0.40) J	R	ND (0.40) J	ND (0.40)	ND (0.40)
1-Methylnaphthalene	ug/L	2	ND (0.40) J	ND (0.40) J	R	ND (0.40) J	ND (0.40)	ND (0.40)
2,3,4,5-Tetrachlorophenol	ug/L	-	ND (0.50) J	ND (0.50) J	R	ND (0.50) J	ND (0.50)	ND (0.50)
2,3,4,6-Tetrachlorophenol	ug/L	-	ND (0.50) J	ND (0.50) J	R	ND (0.50) J	ND (0.50)	ND (0.50)
2,3,6-Trichlorophenol	ug/L	-	ND (0.50) J	ND (0.50) J	R	ND (0.50) J	ND (0.50)	ND (0.50)
2,4,5-Trichlorophenol	ug/L	18	ND (0.50) J	ND (0.50) J	R	ND (0.50) J	ND (0.50)	ND (0.50)
2,4,6-Trichlorophenol	ug/L	18	ND (0.50) J	ND (0.50) J	R	ND (0.50) J	ND (0.50)	ND (0.50)
2,4-Dichlorophenol	ug/L	0.2	ND (0.30) J	ND (0.30) J	R	ND (0.30) J	ND (0.30)	ND (0.30)
2,4-Dimethylphenol	ug/L	10	ND (0.50) J	ND (0.50) J	R	ND (0.50) J	ND (0.50)	ND (0.50)

Table 8

Surface Water Characterization – East Pond
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Sample Location:	East Pond	East Pond	East Pond	East Pond	East Pond	East Pond		
Sample ID:	EAST STORM WATER POND	EAST STORM WATER POND	EAST STORM WATER POND	EAST STORM WATER POND	EAST STORM WATER POND ERP	EAST STORM WATER POND		
Sample Date:	2/22/2018	4/23/2018	8/28/2018	11/7/2018	11/19/2018	12/17/2018		
Parameters	Units	PWQO						
2,4-Dinitrophenol	ug/L	-	ND (1.0) J	ND (1.0) J	R	ND (1.0) J	ND (1.0)	ND (1.0)
2,4-Dinitrotoluene	ug/L	4	ND (0.40) J	ND (0.40) J	R	ND (0.40) J	ND (0.40)	ND (0.40)
2,6-Dinitrotoluene	ug/L	6	ND (0.40) J	ND (0.40) J	R	ND (0.40) J	ND (0.40)	ND (0.40)
2-Chlorophenol	ug/L	7	ND (0.30) J	ND (0.30) J	R	ND (0.30) J	ND (0.30)	ND (0.30)
2-Methylnaphthalene	ug/L	2	ND (0.40) J	ND (0.40) J	R	ND (0.40) J	ND (0.40)	ND (0.40)
3,3'-Dichlorobenzidine	ug/L	0.6	ND (0.40) J	ND (0.40) J	R	ND (0.40) J	ND (0.40)	ND (0.40)
4-Chloroaniline	ug/L	-	ND (0.40) J	ND (0.40) J	R	ND (0.40) J	ND (0.40)	ND (0.40)
Acenaphthene	ug/L	-	ND (0.20) J	ND (0.20) J	R	ND (0.20) J	ND (0.20)	ND (0.20)
Acenaphthylene	ug/L	-	ND (0.20) J	ND (0.20) J	R	ND (0.20) J	ND (0.20)	ND (0.20)
Anthracene	ug/L	0.0008	ND (0.20) J	ND (0.20) J	R	ND (0.20) J	ND (0.20)	ND (0.20)
Benzo(a)anthracene	ug/L	0.0004	ND (0.20) J	ND (0.20) J	R	ND (0.20) J	ND (0.20)	ND (0.20)
Benzo(a)pyrene	ug/L	-	ND (0.050) J	ND (0.050) J	R	ND (0.050) J	ND (0.050)	ND (0.050)
Benzo(b)fluoranthene	ug/L	-	ND (0.20) J	ND (0.20) J	R	ND (0.20) J	ND (0.20)	ND (0.20)
Benzo(g,h,i)perylene	ug/L	0.00002	ND (0.20) J	ND (0.20) J	R	ND (0.20) J	ND (0.20)	ND (0.20)
Benzo(k)fluoranthene	ug/L	0.0002	ND (0.20) J	ND (0.20) J	R	ND (0.20) J	ND (0.20)	ND (0.20)
bis(2-Chloroethyl)ether	ug/L	200	ND (0.40) J	ND (0.40) J	R	ND (0.40) J	ND (0.40)	ND (0.40)
bis(2-Ethylhexyl)phthalate (DEHP)	ug/L	0.6	7.0 J	ND (2.0) J	R	ND (2.0) J	ND (2.0)	ND (2.0)
Chrysene	ug/L	0.0001	ND (0.20) J	ND (0.20) J	R	ND (0.20) J	ND (0.20)	ND (0.20)
Dibenz(a,h)anthracene	ug/L	0.002	ND (0.20) J	ND (0.20) J	R	ND (0.20) J	ND (0.20)	ND (0.20)
Diethyl phthalate	ug/L	-	ND (0.20) J	ND (0.20) J	R	ND (0.20) J	ND (0.20)	ND (0.20)
Dimethyl phthalate	ug/L	-	ND (0.20) J	ND (0.20) J	R	ND (0.20) J	ND (0.20)	ND (0.20)
Fluoranthene	ug/L	0.0008	ND (0.20) J	ND (0.20) J	R	ND (0.20) J	ND (0.20)	ND (0.20)
Fluorene	ug/L	0.2	ND (0.20) J	ND (0.20) J	R	ND (0.20) J	ND (0.20)	ND (0.20)
Hexachlorobenzene	ug/L	0.0065	ND (0.040) J	ND (0.040) J	R	ND (0.040) J	ND (0.040)	ND (0.040)
Hexachlorobutadiene	ug/L	0.009	ND (0.20) J	ND (0.20) J	R	ND (0.20) J	ND (0.20)	ND (0.20)
Indeno(1,2,3-cd)pyrene	ug/L	-	ND (0.20) J	ND (0.20) J	R	ND (0.20) J	ND (0.20)	ND (0.20)
Naphthalene	ug/L	7	ND (0.20) J	ND (0.20) J	R	ND (0.20) J	ND (0.20)	ND (0.20)
Pentachlorophenol	ug/L	0.5	ND (0.50) J	ND (0.50) J	R	ND (0.50) J	ND (0.50)	ND (0.50)
Perylene	ug/L	0.00007	ND (0.20) J	ND (0.20) J	R	ND (0.20) J	ND (0.20)	ND (0.20)
Phenanthrene	ug/L	0.03	ND (0.20) J	ND (0.20) J	R	ND (0.20) J	ND (0.20)	ND (0.20)
Pyrene	ug/L	-	ND (0.20) J	ND (0.20) J	R	ND (0.20) J	ND (0.20)	ND (0.20)

Notes:

- 0.01** Analytical results above the Provincial Water Quality Objectives (PWQO).
- J - Estimated concentration.
- ND - Not detected at the associated reporting limit.
- Not applicable.

Table 9

**Surface Water Characterization – West Pond
2018 Annual Surface Water Quality Monitoring Report
Lambton Facility
Clean Harbors Canada Inc.**

Sample Location:		West Pond	West Pond	West Pond	West Pond	West Pond	West Pond	
Sample ID:		WEST STORM WATER POND	WEST STORM WATER POND	WEST STORM WATER POND	WEST STORM WATER POND	WEST STORM WATER POND WRP	WEST STORM WATER POND	
Sample Date:		2/22/2018	4/23/2018	8/28/2018	11/7/2018	11/19/2018	12/17/2018	
Parameters	Units PWQO							
General Chemistry								
Alkalinity, total (as CaCO3)	mg/L	-	160 J	142 J	88 J	131 J	151	166
Ammonia-N	mg/L	-	1.44 J	0.729 J	0.073 J	1.68 J	4.01	2.54
Bromide	mg/L	-	0.54 J	0.88 J	0.66 J	0.71 J	0.73	1.11
Chemical oxygen demand (COD)	mg/L	-	25 J	30 J	25 J	20 J	28	22
Chloride	mg/L	-	76.3 J	63.4 J	52.0 J	57.3 J	66.1	65.6
Chromium VI (hexavalent)	mg/L	0.001	ND (0.0010) J	ND (0.0010) J	R	ND (0.00050) J	ND (0.00050)	0.00219
Conductivity	umhos/cm	-	817 J	760 J	580 J	643 J	669	741
Cyanide (total)	mg/L	0.005	ND (0.0020) J	ND (0.0020) J	R	ND (0.0020) J	ND (0.0020)	ND (0.0020)
Dissolved organic carbon (DOC) (dissolved)	mg/L	-	5.3 J	4.8 J	4.50 J	6.16 J	5.25	6.50
Fluoride	mg/L	-	0.555 J	0.494 J	0.499 J	0.515 J	0.506	0.577
Hardness	mg/L	-	288 J	271 J	217 J	244 J	246 J	278 J
Nitrate (as N)	mg/L	-	0.533 J	0.530 J	0.084 J	0.155 J	0.173	0.145
Nitrite (as N)	mg/L	-	ND (0.010) J	0.011 J	R	ND (0.010) J	ND (0.010)	ND (0.010)
pH, lab	s.u.	6.5-8.5	7.43 J	8.16 J	7.94 J	8.08 J	7.85	8.04
Phenolics (total)	mg/L	0.001	0.0013 J	ND (0.0010) J	0.0010 J	0.0013 J	0.0015	0.0013
Phosphorus	mg/L	0.01	0.0239 J	0.0260 J	0.0234 J	0.0296 J	0.0301	0.0458
Sulfate	mg/L	-	138 J	156 J	125 J	108 J	114	137
Total dissolved solids (TDS)	mg/L	-	465 J	480 J	350 J	383 J	452	480
Total kjeldahl nitrogen (TKN)	mg/L	-	1.25 J	1.02 J	0.43 J	2.55 J	4.96	3.68
Total suspended solids (TSS)	mg/L	-	6.3 J	5.8 J	4.5 J	7.9 J	7.9	4.5
Un-ionized ammonia	mg/L	0.02	0.00160 J	0.00281 J	0.00252 J	0.0536 J	0.0163	0.0103
Field Parameters								
pH, field	s.u.	6.5-8.5	6.90	7.20	7.74	8.30	7.50	7.50
Temperature, field	deg C	-	4.0	11.0	24.0	6.0	3.0	3.0
Metals								
Aluminum	mg/L	0.075	0.381	0.550	0.256	0.564	0.411	0.348
Antimony	mg/L	0.02	0.00036	0.00037	0.00041	0.00041	0.00041	0.00073
Arsenic	mg/L	0.005	0.00112	0.00088	0.00207	0.00136	0.00122	0.00394
Barium	mg/L	-	0.0548	0.0440	0.0386	0.0552	0.0592	0.0613
Beryllium	mg/L	0.011	ND (0.00010)	ND (0.00010)	ND (0.00010)	ND (0.00010)	ND (0.00010)	ND (0.00010)
Bismuth	mg/L	-	ND (0.000050)	ND (0.000050)	ND (0.000050)	ND (0.000050)	ND (0.000050)	ND (0.000050)
Boron	mg/L	0.2	0.117	0.114	0.149	0.172	0.139	0.114
Cadmium	mg/L	0.0002	ND (0.000060)	ND (0.000010)	ND (0.000050)	ND (0.000040)	ND (0.000040)	0.000190
Calcium	mg/L	-	80.3	74.2	59.4	67.7	69.0	77.0
Cobalt	mg/L	0.0009	0.00052	0.00051	0.00028	0.00051	0.00044	0.00043
Copper	mg/L	0.005	0.0018	0.0020	0.0033	0.0036	0.0019	0.0028
Iron	mg/L	0.3	0.425	0.522	0.285	0.628	0.425	0.363
Lead	mg/L	0.005	0.00049	0.00044	0.00055	0.00055	0.00039	0.00047
Magnesium	mg/L	-	21.1	20.9	16.6	18.2	17.9	20.9
Manganese	mg/L	-	0.173	0.0347	0.0299	0.0369	0.0439	0.0274
Mercury	mg/L	0.0002	ND (0.000010)	ND (0.0000050)	ND (0.000010)	ND (0.000010)	ND (0.000010)	ND (0.000010)
Molybdenum	mg/L	0.04	0.0325	0.0396	0.0435	0.0469	0.0469	0.0772
Nickel	mg/L	0.025	0.00403	0.00497	0.00361	0.00438	0.00405	0.00863
Potassium	mg/L	-	6.38	7.15	6.08	9.66	9.07	16.4
Selenium	mg/L	0.1	0.000826	0.00212	0.00141	0.000956	0.000946	0.00196
Silicon	mg/L	-	2.54	2.51	1.89	3.03	3.04	3.06
Silver	mg/L	0.0001	ND (0.000050)	ND (0.000050)	ND (0.000050)	ND (0.000050)	ND (0.000050)	ND (0.000050)
Sodium	mg/L	-	41.1	35.8	31.2	37.0	36.0	41.1
Strontium	mg/L	-	0.632	0.593	0.569	0.519	0.538	0.581
Thallium	mg/L	0.0003	0.000019	0.000026	0.000024	0.000022	0.000020	0.000049
Tin	mg/L	-	ND (0.00010)	ND (0.00010)	ND (0.00010)	ND (0.00010)	ND (0.00010)	ND (0.00010)
Vanadium	mg/L	0.006	0.00099	0.00157	0.00088	0.00144	0.00117	0.00134
Zinc	mg/L	0.03	0.0174	0.0058	0.0045	0.0052	ND (0.0030)	0.0061
Volatiles								

Table 9

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Clean Harbors Canada Inc.**

Sample Location:			West Pond	West Pond	West Pond	West Pond	West Pond	West Pond
Sample ID:			WEST STORM WATER POND	WEST STORM WATER POND	WEST STORM WATER POND	WEST STORM WATER POND	WEST STORM WATER POND WRP	WEST STORM WATER POND
Sample Date:			2/22/2018	4/23/2018	8/28/2018	11/7/2018	11/19/2018	12/17/2018
Parameters	Units	PWQO						
1,1,1,2-Tetrachloroethane	ug/L	20	ND (0.50) J	ND (0.50) J	R	ND (0.50) J	ND (0.50)	ND (0.50)
1,1,1-Trichloroethane	ug/L	10	ND (0.50) J	ND (0.50) J	R	ND (0.50) J	ND (0.50)	ND (0.50)
1,1,2,2-Tetrachloroethane	ug/L	70	ND (0.50) J	ND (0.50) J	R	ND (0.50) J	ND (0.50)	ND (0.50)
1,1,2-Trichloroethane	ug/L	800	ND (0.50) J	ND (0.50) J	R	ND (0.50) J	ND (0.50)	ND (0.50)
1,1-Dichloroethane	ug/L	200	ND (0.50) J	ND (0.50) J	R	ND (0.50) J	ND (0.50)	ND (0.50)
1,1-Dichloroethene	ug/L	40	ND (0.50) J	ND (0.50) J	R	ND (0.50) J	ND (0.50)	ND (0.50)
1,2-Dibromoethane (Ethylene dibromide)	ug/L	5	ND (0.20) J	ND (0.20) J	R	ND (0.20) J	ND (0.20)	ND (0.20)
1,2-Dichlorobenzene	ug/L	2.5	ND (0.50) J	ND (0.50) J	R	ND (0.50) J	ND (0.50)	ND (0.50)
1,2-Dichloroethane	ug/L	100	ND (0.50) J	ND (0.50) J	R	ND (0.50) J	ND (0.50)	ND (0.50)
1,2-Dichloropropane	ug/L	0.7	ND (0.50) J	ND (0.50) J	R	ND (0.50) J	ND (0.50)	ND (0.50)
1,3-Dichlorobenzene	ug/L	2.5	ND (0.50) J	ND (0.50) J	R	ND (0.50) J	ND (0.50)	ND (0.50)
1,4-Dichlorobenzene	ug/L	4	ND (0.50) J	ND (0.50) J	R	ND (0.50) J	ND (0.50)	ND (0.50)
2-Butanone (Methyl ethyl ketone) (MEK)	ug/L	400	ND (20) J	ND (20) J	R	ND (20) J	ND (20)	ND (20)
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	ug/L	-	ND (20) J	ND (20) J	R	ND (20) J	ND (20)	ND (20)
Acetone	ug/L	-	ND (20) J	ND (20) J	R	ND (20) J	ND (20)	ND (20)
Benzene	ug/L	100	ND (0.50) J	ND (0.50) J	R	ND (0.50) J	ND (0.50)	ND (0.50)
Bromodichloromethane	ug/L	200	ND (1.0) J	ND (1.0) J	R	ND (1.0) J	ND (1.0)	ND (1.0)
Bromoform	ug/L	60	ND (1.0) J	ND (1.0) J	R	ND (1.0) J	ND (1.0)	ND (1.0)
Bromomethane (Methyl bromide)	ug/L	0.9	ND (0.50) J	ND (0.50) J	R	ND (0.50) J	ND (0.50)	ND (0.50)
Carbon tetrachloride	ug/L	-	ND (0.50) J	ND (0.50) J	R	ND (0.50) J	ND (0.50)	ND (0.50)
Chlorobenzene	ug/L	15	ND (0.50) J	ND (0.50) J	R	ND (0.50) J	ND (0.50)	ND (0.50)
Chloroethane	ug/L	-	ND (1.0) J	ND (1.0) J	R	ND (1.0) J	ND (1.0)	ND (1.0)
Chloroform (Trichloromethane)	ug/L	-	ND (1.0) J	ND (1.0) J	R	ND (1.0) J	ND (1.0)	ND (1.0)
cis-1,2-Dichloroethene	ug/L	200	ND (0.50) J	ND (0.50) J	R	ND (0.50) J	ND (0.50)	ND (0.50)
cis-1,3-Dichloropropene	ug/L	-	ND (0.50) J	ND (0.50) J	R	ND (0.50) J	ND (0.50)	ND (0.50)
Dibromochloromethane	ug/L	40	ND (1.0) J	ND (1.0) J	R	ND (1.0) J	ND (1.0)	ND (1.0)
Dichlorodifluoromethane (CFC-12)	ug/L	-	ND (1.0) J	ND (1.0) J	R	ND (1.0) J	ND (1.0)	ND (1.0)
Ethylbenzene	ug/L	8	ND (0.50) J	ND (0.50) J	R	ND (0.50) J	ND (0.50)	ND (0.50)
Hexane	ug/L	-	ND (0.50) J	ND (0.50) J	R	ND (0.50) J	ND (0.50)	ND (0.50)
m&p-Xylenes	ug/L	2	ND (1.0) J	ND (1.0) J	R	ND (1.0) J	ND (1.0)	ND (1.0)
Methyl tert butyl ether (MTBE)	ug/L	200	ND (0.50) J	ND (0.50) J	R	ND (0.50) J	ND (0.50)	ND (0.50)
Methylene chloride	ug/L	100	ND (2.0) J	ND (2.0) J	R	ND (2.0) J	ND (2.0)	ND (2.0)
o-Xylene	ug/L	40	ND (0.50) J	ND (0.50) J	R	ND (0.50) J	ND (0.50)	ND (0.50)
Styrene	ug/L	4	ND (0.50) J	ND (0.50) J	R	ND (0.50) J	ND (0.50)	ND (0.50)
Tetrachloroethene	ug/L	50	ND (0.50) J	ND (0.50) J	R	ND (0.50) J	ND (0.50)	ND (0.50)
Toluene	ug/L	0.8	ND (0.50) J	ND (0.50) J	R	ND (0.50) J	ND (0.50)	ND (0.50)
trans-1,2-Dichloroethene	ug/L	200	ND (0.50) J	ND (0.50) J	R	ND (0.50) J	ND (0.50)	ND (0.50)
trans-1,3-Dichloropropene	ug/L	7	ND (0.50) J	ND (0.50) J	R	ND (0.50) J	ND (0.50)	ND (0.50)
Trichloroethene	ug/L	20	ND (0.50) J	ND (0.50) J	R	ND (0.50) J	ND (0.50)	ND (0.50)
Trichlorofluoromethane (CFC-11)	ug/L	-	ND (1.0) J	ND (1.0) J	R	ND (1.0) J	ND (1.0)	ND (1.0)
Trihalomethanes	ug/L	-	ND (2.0) J	ND (2.0) J	R	ND (2.0) J	ND (2.0)	ND (2.0)
Vinyl chloride	ug/L	600	ND (0.50) J	ND (0.50) J	R	ND (0.50) J	ND (0.50)	ND (0.50)
Xylenes (total)	ug/L	-	ND (1.1) J	ND (1.1) J	R	ND (1.1) J	ND (1.1)	ND (1.1)
Semi-Volatiles								
1,2,4-Trichlorobenzene	ug/L	0.5	ND (0.40) J	ND (0.40) J	R	ND (0.40) J	ND (0.40)	ND (0.40)
1,2-Dichlorobenzene	ug/L	2.5	ND (0.40) J	ND (0.40) J	R	ND (0.40) J	ND (0.40)	ND (0.40)
1,3-Dichlorobenzene	ug/L	2.5	ND (0.40) J	ND (0.40) J	R	ND (0.40) J	ND (0.40)	ND (0.40)
1,4-Dichlorobenzene	ug/L	4	ND (0.40) J	ND (0.40) J	R	ND (0.40) J	ND (0.40)	ND (0.40)
1-Methylnaphthalene	ug/L	2	ND (0.40) J	ND (0.40) J	R	ND (0.40) J	ND (0.40)	ND (0.40)
2,3,4,5-Tetrachlorophenol	ug/L	-	ND (0.50) J	ND (0.50) J	R	ND (0.50) J	ND (0.50)	ND (0.50)
2,3,4,6-Tetrachlorophenol	ug/L	-	ND (0.50) J	ND (0.50) J	R	ND (0.50) J	ND (0.50)	ND (0.50)
2,3,6-Trichlorophenol	ug/L	-	ND (0.50) J	ND (0.50) J	R	ND (0.50) J	ND (0.50)	ND (0.50)
2,4,5-Trichlorophenol	ug/L	18	ND (0.50) J	ND (0.50) J	R	ND (0.50) J	ND (0.50)	ND (0.50)
2,4,6-Trichlorophenol	ug/L	18	ND (0.50) J	ND (0.50) J	R	ND (0.50) J	ND (0.50)	ND (0.50)
2,4-Dichlorophenol	ug/L	0.2	ND (0.30) J	ND (0.30) J	R	ND (0.30) J	ND (0.30)	ND (0.30)
2,4-Dimethylphenol	ug/L	10	ND (0.50) J	ND (0.50) J	R	ND (0.50) J	ND (0.50)	ND (0.50)
2,4-Dinitrophenol	ug/L	-	ND (1.0) J	ND (1.0) J	R	ND (1.0) J	ND (1.0)	ND (1.0)

Table 9

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Sample Location:	West Pond		West Pond		West Pond		West Pond		West Pond	
Sample ID:	WEST STORM WATER POND		WEST STORM WATER POND		WEST STORM WATER POND		WEST STORM WATER POND		WEST STORM WATER POND WRP	
Sample Date:	2/22/2018		4/23/2018		8/28/2018		11/7/2018		11/19/2018	
Parameters	Units	PWQO								
2,4-Dinitrotoluene	ug/L	4	ND (0.40) J	ND (0.40) J	R	ND (0.40) J	ND (0.40)	ND (0.40)		
2,6-Dinitrotoluene	ug/L	6	ND (0.40) J	ND (0.40) J	R	ND (0.40) J	ND (0.40)	ND (0.40)		
2-Chlorophenol	ug/L	7	ND (0.30) J	ND (0.30) J	R	ND (0.30) J	ND (0.30)	ND (0.30)		
2-Methylnaphthalene	ug/L	2	ND (0.40) J	ND (0.40) J	R	ND (0.40) J	ND (0.40)	ND (0.40)		
3,3'-Dichlorobenzidine	ug/L	0.6	ND (0.40) J	ND (0.40) J	R	ND (0.40) J	ND (0.40)	ND (0.40)		
4-Chloroaniline	ug/L	-	ND (0.40) J	ND (0.40) J	R	ND (0.40) J	ND (0.40)	ND (0.40)		
Acenaphthene	ug/L	-	ND (0.20) J	ND (0.20) J	R	ND (0.20) J	ND (0.20)	ND (0.20)		
Acenaphthylene	ug/L	-	ND (0.20) J	ND (0.20) J	R	ND (0.20) J	ND (0.20)	ND (0.20)		
Anthracene	ug/L	0.0008	ND (0.20) J	ND (0.20) J	R	ND (0.20) J	ND (0.20)	ND (0.20)		
Benzo(a)anthracene	ug/L	0.0004	ND (0.20) J	ND (0.20) J	R	ND (0.20) J	ND (0.20)	ND (0.20)		
Benzo(a)pyrene	ug/L	-	ND (0.050) J	ND (0.050) J	R	ND (0.050) J	ND (0.050)	ND (0.050)		
Benzo(b)fluoranthene	ug/L	-	ND (0.20) J	ND (0.20) J	R	ND (0.20) J	ND (0.20)	ND (0.20)		
Benzo(g,h,i)perylene	ug/L	0.00002	ND (0.20) J	ND (0.20) J	R	ND (0.20) J	ND (0.20)	ND (0.20)		
Benzo(k)fluoranthene	ug/L	0.0002	ND (0.20) J	ND (0.20) J	R	ND (0.20) J	ND (0.20)	ND (0.20)		
bis(2-Chloroethyl)ether	ug/L	200	ND (0.40) J	ND (0.40) J	R	ND (0.40) J	ND (0.40)	ND (0.40)		
bis(2-Ethylhexyl)phthalate (DEHP)	ug/L	0.6	ND (2.0) J	ND (2.0) J	R	ND (2.0) J	ND (2.0)	ND (2.0)		
Chrysene	ug/L	0.0001	ND (0.20) J	ND (0.20) J	R	ND (0.20) J	ND (0.20)	ND (0.20)		
Dibenz(a,h)anthracene	ug/L	0.002	ND (0.20) J	ND (0.20) J	R	ND (0.20) J	ND (0.20)	ND (0.20)		
Diethyl phthalate	ug/L	-	ND (0.20) J	ND (0.20) J	R	ND (0.20) J	ND (0.20)	ND (0.20)		
Dimethyl phthalate	ug/L	-	ND (0.20) J	ND (0.20) J	R	ND (0.20) J	ND (0.20)	ND (0.20)		
Fluoranthene	ug/L	0.0008	ND (0.20) J	ND (0.20) J	R	ND (0.20) J	ND (0.20)	ND (0.20)		
Fluorene	ug/L	0.2	ND (0.20) J	ND (0.20) J	R	ND (0.20) J	ND (0.20)	ND (0.20)		
Hexachlorobenzene	ug/L	0.0065	ND (0.040) J	ND (0.040) J	R	ND (0.040) J	ND (0.040)	ND (0.040)		
Hexachlorobutadiene	ug/L	0.009	ND (0.20) J	ND (0.20) J	R	ND (0.20) J	ND (0.20)	ND (0.20)		
Indeno(1,2,3-cd)pyrene	ug/L	-	ND (0.20) J	ND (0.20) J	R	ND (0.20) J	ND (0.20)	ND (0.20)		
Naphthalene	ug/L	7	ND (0.20) J	ND (0.20) J	R	ND (0.20) J	ND (0.20)	ND (0.20)		
Pentachlorophenol	ug/L	0.5	ND (0.50) J	ND (0.50) J	R	ND (0.50) J	ND (0.50)	ND (0.50)		
Perylene	ug/L	0.00007	ND (0.20) J	ND (0.20) J	R	ND (0.20) J	ND (0.20)	ND (0.20)		
Phenanthrene	ug/L	0.03	ND (0.20) J	ND (0.20) J	R	ND (0.20) J	ND (0.20)	ND (0.20)		
Pyrene	ug/L	-	ND (0.20) J	ND (0.20) J	R	ND (0.20) J	ND (0.20)	ND (0.20)		

Notes:
0.01 Analytical results above the Provincial Water Quality Objectives (PWQO).
 J - Estimated concentration.
 ND - Not detected at the associated reporting limit.
 - - Not applicable.

Table 10

**Supplementary Chemical Monitoring – Off-Site Monitoring Locations
2018 Annual Surface Water Quality Monitoring Report
Lambton Facility
Clean Harbors Canada Inc.**

Sample Location:		STN6	STN6A	STN6A	
Sample ID:		STN6	STN 6A	STN6A	
Sample Date:		11/20/2018	2/22/2018	11/20/2018	
Parameters	Units	PWQO			
General Chemistry					
Alkalinity, total (as CaCO ₃)	mg/L	-	279	90 J	269
Ammonia-N	mg/L	-	0.520	2.32 J	1.26
Bromide	mg/L	-	ND (0.10)	ND (0.10) J	ND (0.10)
Chemical oxygen demand (COD)	mg/L	-	26	51 J	25
Chloride	mg/L	-	30.1	14.4 J	35.4
Chromium VI (hexavalent)	mg/L	0.001	ND (0.00050)	ND (0.0010) J	ND (0.00050)
Conductivity	umhos/cm	-	739	323 J	757
Cyanide (total)	mg/L	0.005	ND (0.0020)	ND (0.0020) J	ND (0.0020)
Dissolved organic carbon (DOC) (dissolved)	mg/L	-	8.47	9.6 J	8.21
Fluoride	mg/L	-	0.230	0.189 J	0.271
Hardness	mg/L	-	382 J	144 J	372 J
Nitrate (as N)	mg/L	-	4.50	4.86 J	4.27
Nitrite (as N)	mg/L	-	ND (0.010)	0.037 J	ND (0.010)
pH, lab	s.u.	6.5-8.5	8.16	7.46 J	8.16
Phenolics (total)	mg/L	0.001	0.0047	ND (0.0010) J	0.0032
Phosphorus	mg/L	0.01	0.0902	0.323 J	0.101
Sulfate	mg/L	-	99.1	30.2 J	97.8
Total dissolved solids (TDS)	mg/L	-	498	227 J	491
Total kjeldahl nitrogen (TKN)	mg/L	-	1.01	4.40 J	2.08
Total suspended solids (TSS)	mg/L	-	3.8	31.0 J	4.1
Un-ionized ammonia	mg/L	0.02	0.00198	0.00512 J	0.00344
Field Parameters					
pH, field	s.u.	6.5-8.5	7.46	7.20	7.33
Temperature, field	deg C	-	3.3	4.0	3.0
Metals					
Aluminum	mg/L	0.075	0.804	3.64	0.668
Antimony	mg/L	0.02	0.00014	0.00014	0.00014
Arsenic	mg/L	0.005	0.00064	0.00142	0.00067
Barium	mg/L	-	0.0339	0.0398	0.0348
Beryllium	mg/L	0.011	ND (0.00010)	0.00015	ND (0.00010)
Bismuth	mg/L	-	ND (0.000050)	ND (0.000050)	ND (0.000050)
Boron	mg/L	0.2	0.038	0.020	0.044
Cadmium	mg/L	0.0002	0.000028	0.000083	0.000023
Calcium	mg/L	-	83.5	36.3	83.7
Cobalt	mg/L	0.0009	0.00033	0.00141	0.00029
Copper	mg/L	0.005	0.0021	0.0054	0.0020
Iron	mg/L	0.3	0.710	3.58	0.570
Lead	mg/L	0.005	0.00042	0.00248	0.00036
Magnesium	mg/L	-	42.2	12.9	39.5
Manganese	mg/L	-	0.0147	0.0352	0.0150
Mercury	mg/L	0.0002	ND (0.000010)	ND (0.000010)	ND (0.000010)
Molybdenum	mg/L	0.04	0.00362	0.00285	0.00677
Nickel	mg/L	0.025	0.00155	0.00559	0.00161
Potassium	mg/L	-	2.55	3.31	3.11
Selenium	mg/L	0.1	0.00141	0.000712	0.00128
Silicon	mg/L	-	5.11	8.05	4.93
Silver	mg/L	0.0001	ND (0.000050)	ND (0.000050)	ND (0.000050)
Sodium	mg/L	-	18.1	6.08	19.5
Strontium	mg/L	-	0.383	0.115	0.393
Thallium	mg/L	0.0003	0.000018	0.000060	0.000014
Tin	mg/L	-	ND (0.00010)	ND (0.00010)	ND (0.00010)
Vanadium	mg/L	0.006	0.00218	0.00671	0.00193
Zinc	mg/L	0.03	0.0032	0.0130	ND (0.0030)

Notes:

0.01

Analytical results above the Provincial Water Quality Objectives (PWQC)

Appendices

Appendix A
Letter to Erica Carabott from GHD
Re: Surface Water Monitoring Program and
Surface Water Characterization Program
dated December 9, 2015



December 9, 2015

Reference No. 044985

Ms. Erica Carabott
Facility Compliance Manager
Clean Harbors Canada, Inc.
4090 Telfer Road, RR #1
Corunna, Ontario
N0N 1G0

Dear Ms. Carabott:

**Re: Surface Water Monitoring Program and Surface Water Characterization Program
Lambton Facility, Corunna, Ontario**

1. Introduction

Clean Harbors Canada Inc. (Clean Harbors) operates a hazardous waste disposal facility in Corunna, Ontario. The solid hazardous waste landfill component located at the facility operates in accordance with ECA A031806 (Waste ECA) issued by the Ministry of Environment and Climate Change (MOECC). The most recent amendment is Notice 9 dated October 19, 2015. The surface water management system at the facility is operated and management in accordance with ECA 1065-9VVJSW dated October 19, 2015 (SW ECA). Both the Waste and SW ECA have conditions that relate to surface water monitoring requirements.

Condition 9(a)(i) of the Waste ECA requires that by December 15, 2015 Clean Harbors submit an updated surface water monitoring program to the Regional Director for approval, while Condition 8 of the SW ECA requires that within six (6) months of issuance that Clean Harbors prepare and submit to the Director for approval a proposal for the characterization of storm water from the facility. This letter provides the proposed surface water monitoring program (Section 3.1) and the proposed storm water characterization program (Section 3.2).

2. Current Surface Water Monitoring Program

The surface water monitoring program that was conducted in 2015 was developed over the years and reflects monitoring requirements that were initiated to address a specific issue or to understand how the surface water system was operating after initial construction. Portions of the surface water monitoring program were conducted as a result of ECA requirements, while other portions were conducted by Clean Harbors based on their decisions over the years.

The surface water management system at the facility is unique when compared to other surface water management systems at waste disposal operations in Ontario. All surface water released from the

facility is required to be treated prior to discharge; as well, surface water is used as quench water for the incinerator during portions of the year. In addition, the surface water system is designed to accommodate the final landfill design, thus providing additional storage during the active disposal period. As such, the facility has large surface water storage ponds and historically discharges treated surface water during May to September of each year with no to minimal discharge during the October to April period.

The surface water at the facility represents water generated during precipitation events from the perimeter buffer zones and portions of the disposal area that have final or interim cover applied. Storm water from areas of the facility that are active with regard to waste movement and disposal operations have a separate water collection and storage system and the water is classified as process water. Water that is generated from the active disposal cells is classified as leachate and stored within covered leachate ponds. Both the process water and leachate generated are disposed of in the incinerator.

Understanding the operation of the surface water system is a key component that must be incorporated into the monitoring and characterization programs. Attachment A provides the current configuration of the surface water system (prior to construction of works proposed in the Waste ECA and SW ECA). Amendments to the surface water system will be conducted as the active disposal area moves to that specific area of the Site.

The current surface water monitoring program conducted is based on monitoring events being conducted when a discharge from the facility is occurring. The monitoring consists of daily monitoring of key indicator parameters associated with surface water quality, monitoring of chemical parameters during the initial discharge and later during the discharge period for both on-site and off-site locations, monitoring of acute and chronic toxicity of the discharge, and benthic monitoring of the Equalization Pond (EQ Pond) that stores the treated water prior to discharge. Table 1 provides a summary of the current monitoring program for reference purposes.

3. Surface Water Monitoring and Characterization Program

3.1 Surface Water Monitoring

A review of the last few surface water annual reports and associated data was provided to assess the general surface water quality and the value of specific tests, as well as how the surface water system operates, and will operate in the future. Monitoring results have not indicated an issue with the surface water quality over the years. When issues have been noted, operational adjustments have been made to eliminate the potential source/concern with the objective of maintaining a satisfactory surface water quality for the overall facility.

Surface water is stored for the majority of the year and the treated surface water is mainly discharged during the spring/summer periods. As such, the surface water discharge quality is not influenced by a specific precipitation event, but provides a normal or consistent quality for a period of time and year over year. Acute and chronic toxicity have been conducted for more than 15 years and have not indicated issues. As such acute and chronic toxicity monitoring is proposed to be removed from the monitoring program, and be replaced with additional assessment of chemical parameters that will

allow trends and early detection of potential concerns. As well, the EQ pond currently has a sustainable fish population and the presence of fish provide a general indicator of toxicity to aquatic species.

The proposed surface water monitoring program for the Site is summarized on Table 2. The monitoring consists of daily discharge monitoring, monthly discharge monitoring conducted during discharge periods at on-site locations, and seasonal monitoring at off-site locations. The following section provides information with regard to the proposed surface water monitoring program.

3.1.1 Daily Discharge Monitoring

Location: EQ Pond discharge

Frequency: Daily when the EQ Pond is discharging to the off-site drainage ditch

Parameters: pH, specific conductivity, total suspended solids (TSS), phenols, chloride, and solvent extractables (oil & grease). Analysis to be conducted by either Clean Harbors laboratory or external laboratory.

Rationale: The parameters represent routine parameters that are representative of general surface water quality during the discharge period and will indicate the overall performance of the treatment plant. Four parameters have established site specific discharge criteria – pH, TSS, phenols, solvent extractables.

3.1.2 Monthly Discharge Monitoring

The monthly discharge monitoring program consists of three components: chemical parameter monitoring, toxicity monitoring and visual monitoring.

3.1.2.1 Monthly Discharge Chemical Monitoring

Location: EQ Pond discharge, West Storm Water Pond, East Storm Water Pond

Frequency: a) Prior to discharge, within 25 to 35 days after discharge commencement, and within 25 to 35 days after the previous sample collection when discharge occurring.

b) If discharge ceases for less than 30 days and discharge recommences, the initial monitoring schedule shall continue. If discharge ceases for greater than 30 days, monitoring shall revert as per item a)

c) Discharge to commence after initial sample results received and forwarded to MOECC.

Parameters: General Chemistry, total metals, volatile organic compounds (VOC), and semi-volatile organic compounds (sVOC) as specified in Table 3. Analytical testing to be conducted by external Canadian certified laboratory

Rationale: Provides a detailed chemical profile of the water prior to and during discharge periods for both pre- and post-treatment of the water. Parameters represent chemical

constituents that are accepted at the facility and as such may be present in the surface water system.

3.1.2.2 Toxicity Monitoring

Location: EQ Pond discharge

Frequency: As per the Monthly Discharge Chemical Monitoring Program

Parameters: Microtox for fresh water in accordance with Environment Canada test method and protocols

Rationale: Monitors the overall water quality toxicity with an approved program

3.1.2.3 Visual Observations

Location: EQ Pond

Frequency: As per the Monthly Discharge Chemical Monitoring Program

Parameters: Presence/ absence of fish in the EQ Pond through observation with food application at several locations around the EQ Pond perimeter

Rationale: Monitors whether fish are present in the pond and a general understanding of the overall health of the EQ Pond and water quality with regard to aquatic life

3.1.3 Off-Site Surface Water Monitoring

Location: STN6 (upstream of discharge) and STN6A (downstream of discharge). See Attachment A for monitoring locations.

Frequency: Two samples per year, one in the spring and one in the late summer/fall period. Samples to be collected when a discharge is occurring and on the same day as the monthly discharge samples are collected. The time period between the spring and late summer/fall sample should be a minimum of 80 days.

Parameters: General Chemistry, total metals, volatile organic compounds (VOC), and semi-volatile organic compounds (sVOC) as specified in Table 3. Analytical testing to be conducted by external Canadian certified laboratory

Rationale: Provides a detailed chemical profile of the water in a downstream drainage system prior to and after the discharge of water from the drainage ditch that serves the facility. Parameters are consistent with the discharge monitoring parameters.

3.2 Surface Water Characterization Program

The surface water characterization program noted in Condition 8 of the SW ECA relates to concerns expressed during the vertical expansion approval and the potential changes that may occur with the surface water management system due to changes in the landfill operations and methods. A key

concern is the potential for dust/operational impacts since the initial disposal cells (Cell 19 and 20) are in close proximity to the West Surface Water Pond, which is the main surface water storage pond prior to water treatment, and these cells will be filled in the first five years of the landfill expansion program.

Review of historic data associated with the Clean Harbors facility with regard to surface water and process water quality have indicated that metals are the dominate set of parameters that change as a result of operational changes or changes in disposal location. The VOC and sVOC parameters also indicate some differences, but these are sporadic and low level (below criteria).

As such, the surface water characterization program proposed has been incorporated within the surface water monitoring program by monitoring the East and West Surface Water Ponds prior to and during discharge periods for general chemistry, metals, VOCs, and sVOCs. These represent periods when water is present within the ponds, or in the case of pre-discharge, a period of long-term water storage. The monitoring for a period of five years after commencement of the landfill expansion will allow a database to be established that will provide a long-term database for the new surface water management set-up. Amendments to the surface water characterization program that is part of the surface water monitoring program will be handled through the annual monitoring program and any modifications would require the approval of the Regional Director.

3.3 Amendments to Surface Water Monitoring Program

Once a five year database of surface water monitoring post-commencement of the landfill expansion has been collected, Clean Harbors may assess the data and recommend changes to the surface water monitoring program. The assessment will be conducted as part of the Annual Report and specific amendments to the surface water program will be provided in the report recommendations section. Changes to the surface water monitoring program will require review by MOECC Regional staff and approval of the recommendations by the Regional Director.

Clean Harbors may collect additional surface water samples that relate to specific events or to collect additional information with regard to the management and operation of the surface water system. These additional events/ samples will only become part of the official monitoring program if recommended by Clean Harbors in the Annual Report and approved by the Regional Director.

3.4 Annual Reporting

Annual reporting shall continue to be conducted in accordance with Condition 15 of the Waste ECA.

4. Summary

A revised surface water monitoring program has been developed that addresses the surface water characterization concerns and adjusts the program to be proactive in data collection so that trends and changing conditions can be monitored to assess performance and make adjustments that are beneficial to the natural environment.

The revised program is presented on Tables 2 and 3.

Should you have any questions or comments with respect to the work program proposed, please do not hesitate to contact the undersigned.

Sincerely,

GHD

A handwritten signature in blue ink, reading "James R. Yardley". The signature is fluid and cursive, with a long horizontal stroke extending from the end of the name.

James R. Yardley

JRY/mg/2

cc: Mike Parker, Clean Harbors Canada

**Current Surface Water Monitoring Program
Lambton Facility, Clean Harbors**

Monitoring Location	Parameter	Current Surface Water Sampling Program		
		Daily During Discharge	Spring	Fall
EQ Pond Discharge	pH, conductivity, TSS, Total phenols, chloride, sulphate, solvent extractables, COD Microtox Acute Toxicity - 96 hr - Rainbow Trout Acute Toxicity - 48 hr - Daphnia Magna Chronic Toxicity - 7 day - Flathead Minnows Chronic Toxicity - 7 day - Ceriodaphnia Dubia Free cyanide, nitrite, nitrate, TKN, Metals	<ul style="list-style-type: none"> ■ ■ 	<ul style="list-style-type: none"> ■ consecutive day samples ■ consecutive day samples ■ ■ ■ consecutive day samples ■ consecutive day samples 	<ul style="list-style-type: none"> ■ consecutive day samples ■ consecutive day samples ■ consecutive day samples ■ consecutive day samples
EQ Pond	Benthic Invertebrates Fish Presence Dissolved Oxygen Profile Secchi depth profile		<ul style="list-style-type: none"> ■ ■ ■ ■ 	
Effluent from SWTP	General Chemistry (1) Metals sVOCs Pesticides		<ul style="list-style-type: none"> ■ ■ ■ ■ 	<ul style="list-style-type: none"> ■ ■ ■ ■
Influent to SWTP	General Chemistry (1) Metals sVOCs Pesticides		<ul style="list-style-type: none"> ■ ■ ■ ■ 	<ul style="list-style-type: none"> ■ ■ ■ ■
STN6 (off-site background)	General Chemistry (1) Metals		<ul style="list-style-type: none"> ■ ■ 	<ul style="list-style-type: none"> ■ ■
STN6A (off-site downstream)	General Chemistry (1) Metals		<ul style="list-style-type: none"> ■ ■ 	<ul style="list-style-type: none"> ■ ■

Notes:

- (1) General Chemistry includes pH, conductivity, free cyanide, total ammonia, COD, phenols, total phosphorus, TSS, chloride, dissolved sulphate
- (2) Consecutive day samples means one sample/day for 3 consecutive days

**Proposed Surface Water Monitoring Program
Lambton Facility, Clean Harbors**

Monitoring Location	Parameter (1)	Proposed Surface Water Sampling Program		
		Daily Discharge	Monthly Discharge	Spring and late Summer/Fall
EQ Pond Discharge	pH, conductivity, TSS, Total phenols, chloride, solvent extractables Microtox General Chemistry Metals VOCs sVOCs	■	■ (2) ■ (2) ■ (2) ■ (2) ■ (2)	
EQ Pond	Fish Presence		■	
West Storm Water Pond	General Chemistry Metals VOCs sVOCs		■ ■ ■ ■	
East Storm Water Pond	General Chemistry Metals VOCs sVOCs		■ ■ ■ ■	
STN6 (off-site background)	General Chemistry Metals			■ (3) ■ (3)
STN6A (off-site downstream)	General Chemistry Metals			■ (3) ■ (3)

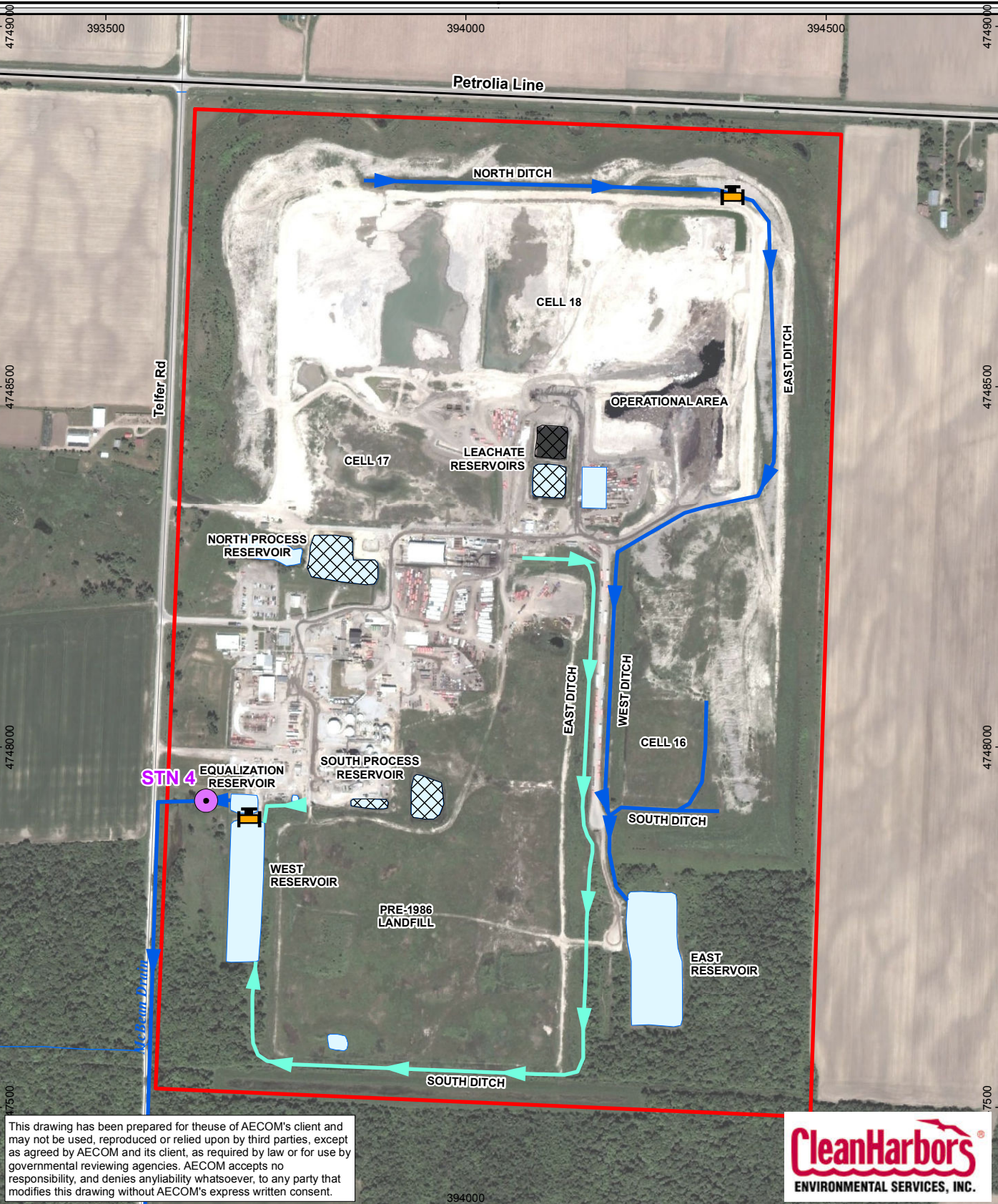
Notes:

- (1) General Chemistry, metals, VOC, and sVOC parameters as per detailed list provided in Table 3
- (2) Prior to discharge sample would be collected from the EQ Pond
- (3) Samples to be collected during discharge from Site and on same day as Monthly Discharge samples

**Surface Water Monitoring Parameters
Lambton Facility, Clean Harbors**

Parameter	Analytes
General Chemistry Parameters	Alkalinity (total as CaCO ₃), Ammonia-N, Bromide (dissolved), Chemical Oxygen Demand (COD), Chloride (dissolved), Conductivity (umhos/cm), Cyanide (total), Dissolved Organic Carbon (DOC), Fluoride, Hardness, Nitrate (as N), Nitrite (as N), pH (field), pH (lab), Phenolics (total), Phosphorus (total), Sulfate (dissolved), Temperature (field), Total Dissolved Solids (TDS), Total Kjeldahl Nitrogen (TKN), Total Suspended Solids (TSS), Un-ionized Ammonia
Metals (Total)	Aluminium, Antimony, Arsenic, Barium, Beryllium, Bismuth, Boron, Cadmium, Calcium, Chromium (Hexavalent), Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Mercury, Molybdenum, Nickel, Potassium, Selenium, Silicon, Silver, Sodium, Strontium, Thallium, Tin, Vanadium, Zinc
Volatile Organic Compounds (VOC)	1,1,1,2-Tetrachloroethane, 1,1,1-Trichloroethane, 1,1,2,2-Tetrachloroethane, 1,1,2-Trichloroethane, 1,1-Dichloroethane, 1,1-Dichloroethene, 1,2-Dibromoethane (Ethylene dibromide), 1,2-Dichlorobenzene, 1,2-Dichloroethane, 1,2-Dichloropropane, 1,3-Dichlorobenzene, 1,4-Dichlorobenzene, 2-Butanone (Methyl ethyl ketone), 4-Methyl-2-pentanone (Methyl isobutyl ketone), Acetone, Benzene, Bromodichloromethane, Bromoform, Bromomethane (Methyl bromide), Carbon tetrachloride, Chlorobenzene, Chloroethane, Chloroform (Trichloromethane), cis-1,2-Dichloroethene, cis-1,3-Dichloropropene, Dibromochloromethane, Dichlorodifluoromethane (CFC-12), Ethylbenzene, Hexane, m&p-Xylenes, Methyl tert butyl ether (MTBE), Methylene chloride, o-Xylene, Styrene, Tetrachloroethene, Toluene, trans-1,2-Dichloroethene, trans-1,3-Dichloropropene, Trichloroethene, Trichlorofluoromethane (CFC-11), Vinyl Chloride, Xylenes (total)
Semi-Volatile Organic Compounds (sVOC)	1,2,4-Trichlorobenzene, 1,2-Dichlorobenzene, 1,3-Dichlorobenzene, 1,4-Dichlorobenzene, 1-Methylnaphthalene, 2,3,4,5-Tetrachlorophenol/2,3,4,6-Tetrachlorophenol, 2,3,6-Trichlorophenol, 2,4,5-Trichlorophenol, 2,4,6-Trichlorophenol, 2,4-Dichlorophenol, 2,4-Dimethylphenol, 2,4-Dinitrophenol, 2,4-Dinitrotoluene, 2,6-Dinitrotoluene, 2-Chlorophenol, 2-Methylnaphthalene, 3,3'-Dichlorobenzidine, 4-Chloroaniline, Acenaphthene, Acenaphthylene, Anthracene, Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene/Benzo(j)fluoranthene, Benzo(g,h,i)perylene, Benzo(k)fluoranthene, bis(2-Chloroethyl)ether, bis(ethylhexy)phthalate (DEHP), Chrysene, Dibenz(a,h)anthracene, Diethyl phthalate, Dimethyl phthalate, Fluoranthene, Fluorene, Hexachlorobenzene, Hexachlorobutadiene, Indeno(1,2,3-cd)pyrene, Naphthalene, Pentachlorophenol, Perylene, Phenanthrene, Pyrene

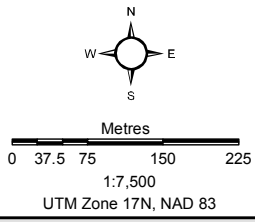
Attachment A



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Basemapping from Ontario Ministry of Natural Resources Orthophotography:



Legend

- | | |
|---------------------------------|--|
| Water Quality Station | Non-Impacted/Treated Surface Water Reservoir |
| Pre-1986 Landfill Ditch System | Process Reservoir |
| Post-1986 Landfill Ditch System | Permanent Stream |
| Pumping Equipment | |

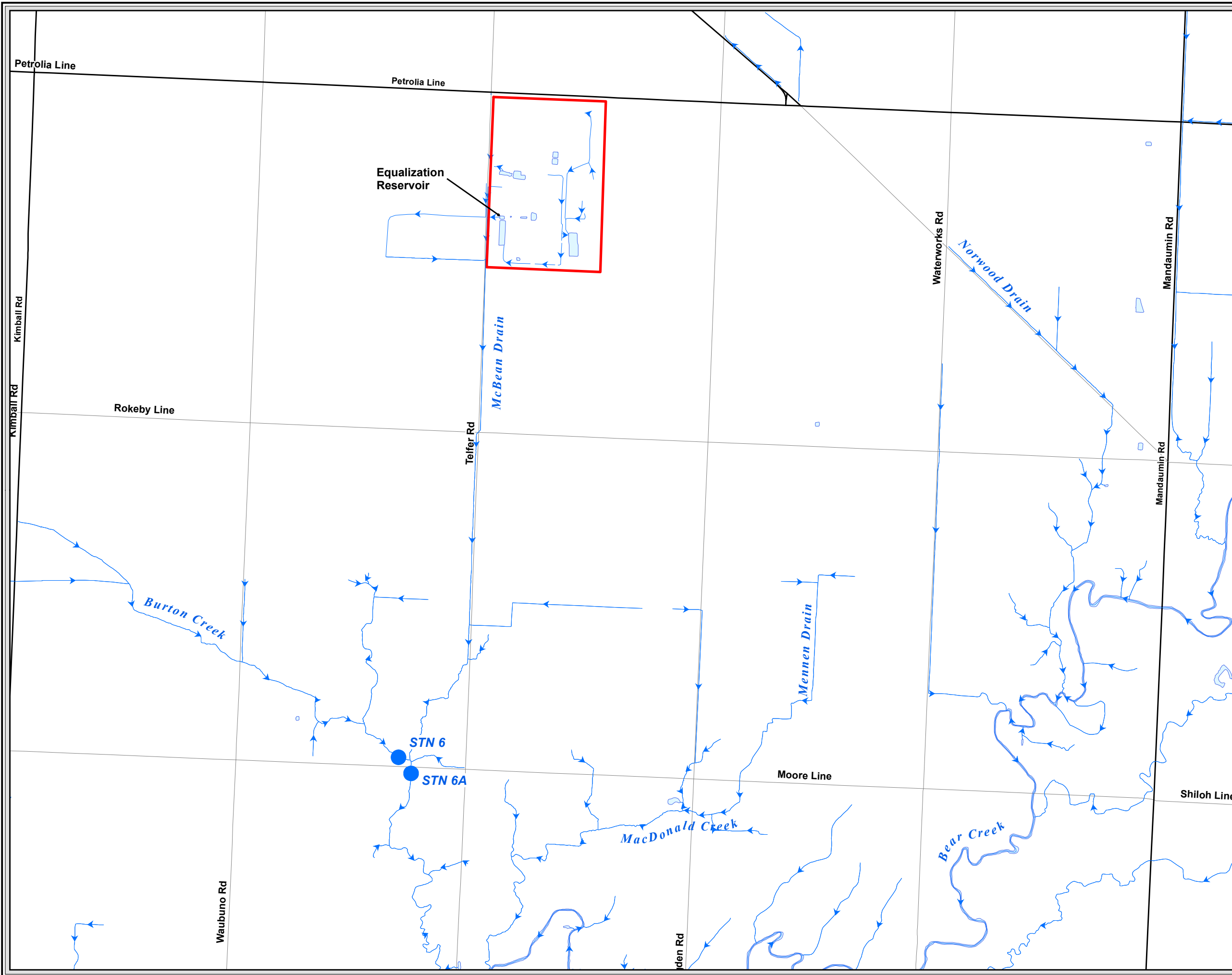
Clean Harbors, Lambton, Ontario

Surface Water Management System

October 2014
60316888



Figure 3



Legend

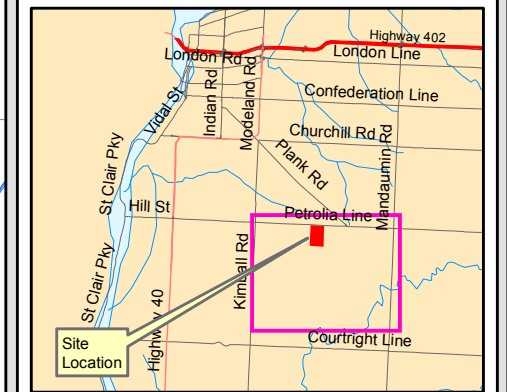
- Supplementary Off-Site Surface Water Monitoring Locations
- Waste Facility

Roads

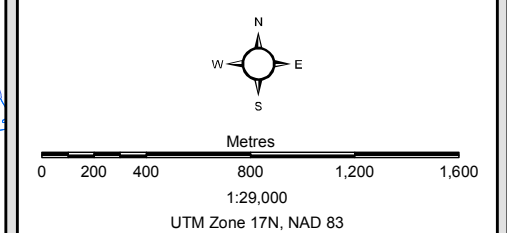
- Major Road
- Local Road

Water Features

- Intermittent Stream
- Permanent Stream
- Waterbody



Basemapping from Ontario Ministry of Natural Resources Orthophotography:



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CleanHarbors
Clean Harbors Canada, Inc.

Supplementary Off-Site Surface Water Monitoring Locations

October 2014
60316888

AECOM

Figure 4

Appendix B

Analytical Data Collected During Effluent Discharge



GHD Limited (Waterloo)
ATTN: JENNIFER BALKWILL
651 COLBY DRIVE
WATERLOO ON N2V 1C2

Date Received: 26-FEB-18
Report Date: 08-MAR-18 14:45 (MT)
Version: FINAL REV. 2

Client Phone: 519-884-0510

Certificate of Analysis

Lab Work Order #: L2060595
Project P.O. #: 73506479
Job Reference: 44985
C of C Numbers:
Legal Site Desc:

Comments: TDS ALS QC should read <10 mg/L. Client results are unaffected.

Rick Hawthorne
Account Manager

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ADDRESS: 60 Northland Road, Unit 1, Waterloo, ON N2V 2B8 Canada | Phone: +1 519 886 6910 | Fax: +1 519 886 9047
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ANALYTICAL GUIDELINE REPORT

44985

Sample Details		Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits			
Grouping	Analyte									
L2060595-1	EQ POND DISCHARGE									
Sampled By:	CLIENT on 22-FEB-18 @ 11:30						#1			
Matrix:	WATER									
Field Tests										
pH, Client Supplied		6.80		0.10	pH	27-FEB-18				
Temperature, Client		5.0		-50	Deg. C	27-FEB-18				
Physical Tests										
Conductivity		729		3.0	umhos/cm	27-FEB-18				
Hardness (as CaCO3)		266	HTC	10	mg/L	28-FEB-18				
pH		7.62	PEHT	0.10	pH units	26-FEB-18	6.5-8.5			
Total Suspended Solids		3.4		2.0	mg/L	02-MAR-18				
Total Dissolved Solids		395		20	mg/L	27-FEB-18				
Anions and Nutrients										
Alkalinity, Total (as CaCO3)		149		10	mg/L	27-FEB-18				
Unionized ammonia		0.00218		0.000096	mg/L	02-MAR-18	0.02			
Ammonia, Total (as N)		2.28	DLHC	0.10	mg/L	02-MAR-18				
Bromide (Br)		0.48		0.10	mg/L	28-FEB-18				
Chloride (Cl)		60.3		0.50	mg/L	28-FEB-18				
Fluoride (F)		0.568		0.020	mg/L	28-FEB-18				
Nitrate (as N)		0.377		0.020	mg/L	28-FEB-18				
Nitrite (as N)		0.015		0.010	mg/L	28-FEB-18				
Total Kjeldahl Nitrogen		2.86		0.15	mg/L	06-MAR-18				
Phosphorus, Total		0.0159		0.0030	mg/L	01-MAR-18	*0.01			
Sulfate (SO4)		131		0.30	mg/L	28-FEB-18				
Cyanides										
Cyanide, Total		<0.0020		0.0020	mg/L	27-FEB-18	0.0050			
Organic / Inorganic Carbon										
Dissolved Organic Carbon		4.4		1.0	mg/L	26-FEB-18				
Total Metals										
Aluminum (Al)-Total		0.085		0.010	mg/L	26-FEB-18	*0.015			
Antimony (Sb)-Total		0.00035		0.00010	mg/L	26-FEB-18	0.02			
Arsenic (As)-Total		0.00107		0.00010	mg/L	26-FEB-18	0.005			
Barium (Ba)-Total		0.0421		0.00020	mg/L	26-FEB-18				
Beryllium (Be)-Total		<0.00010		0.00010	mg/L	26-FEB-18	0.011			
Bismuth (Bi)-Total		<0.000050		0.000050	mg/L	26-FEB-18				
Boron (B)-Total		0.126		0.010	mg/L	26-FEB-18	0.2			
Cadmium (Cd)-Total		<0.000030	DLM	0.000030	mg/L	26-FEB-18	0.0001			
Calcium (Ca)-Total		73.1		0.50	mg/L	26-FEB-18				
Cobalt (Co)-Total		0.00018		0.00010	mg/L	26-FEB-18	0.0009			
Copper (Cu)-Total		<0.0010		0.0010	mg/L	26-FEB-18	0.001			
Iron (Fe)-Total		0.082		0.050	mg/L	26-FEB-18	0.3			
Lead (Pb)-Total		0.00013		0.00010	mg/L	26-FEB-18	0.001			
Magnesium (Mg)-Total		20.2		0.050	mg/L	26-FEB-18				
Manganese (Mn)-Total		0.111		0.00050	mg/L	26-FEB-18				
Mercury (Hg)-Total		<0.000010		0.000010	mg/L	27-FEB-18	0.0002			
Molybdenum (Mo)-Total		0.0364		0.000050	mg/L	27-FEB-18	0.04			
Nickel (Ni)-Total		0.00267		0.00050	mg/L	26-FEB-18	0.025			
Potassium (K)-Total		5.79		0.050	mg/L	26-FEB-18				
Selenium (Se)-Total		0.000652		0.000050	mg/L	26-FEB-18	0.1			
Silicon (Si)-Total		1.52		0.10	mg/L	26-FEB-18				

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.

* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Surface Water PWQO

#1: Surface Water PWQO



ANALYTICAL GUIDELINE REPORT

44985

Sample Details		Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits			
Grouping	Analyte									
L2060595-1	EQ POND DISCHARGE									
Sampled By: CLIENT on 22-FEB-18 @ 11:30							#1			
Matrix: WATER										
Total Metals										
	Silver (Ag)-Total	<0.000050		0.000050	mg/L	26-FEB-18	0.0001			
	Sodium (Na)-Total	34.8		0.50	mg/L	26-FEB-18				
	Strontium (Sr)-Total	0.617		0.0010	mg/L	26-FEB-18				
	Thallium (Tl)-Total	0.000011		0.000010	mg/L	26-FEB-18	0.0003			
	Tin (Sn)-Total	<0.00010		0.00010	mg/L	26-FEB-18				
	Vanadium (V)-Total	<0.00050		0.00050	mg/L	26-FEB-18	0.006			
	Zinc (Zn)-Total	0.0034		0.0030	mg/L	26-FEB-18	0.02			
Speciated Metals										
	Chromium, Hexavalent	<0.0010		0.0010	mg/L	28-FEB-18	0.001			
Aggregate Organics										
	COD	16		10	mg/L	04-MAR-18				
	Phenols (4AAP)	<0.0010		0.0010	mg/L	28-FEB-18	0.001			
Volatile Organic Compounds										
	Acetone	<20		20	ug/L	28-FEB-18				
	Benzene	<0.50		0.50	ug/L	28-FEB-18	100			
	Bromodichloromethane	<1.0		1.0	ug/L	28-FEB-18	200			
	Bromoform	<1.0		1.0	ug/L	28-FEB-18	60			
	Bromomethane	<0.50		0.50	ug/L	28-FEB-18				
	Carbon tetrachloride	<0.50		0.50	ug/L	28-FEB-18				
	Chlorobenzene	<0.50		0.50	ug/L	28-FEB-18	15			
	Dibromochloromethane	<1.0		1.0	ug/L	28-FEB-18	40			
	Chloroethane	<1.0		1.0	ug/L	28-FEB-18				
	Chloroform	<1.0		1.0	ug/L	28-FEB-18				
	1,2-Dibromoethane	<0.20		0.20	ug/L	28-FEB-18	5			
	1,2-Dichlorobenzene	<0.50		0.50	ug/L	28-FEB-18	2.5			
	1,3-Dichlorobenzene	<0.50		0.50	ug/L	28-FEB-18	2.5			
	1,4-Dichlorobenzene	<0.50		0.50	ug/L	28-FEB-18	4			
	Dichlorodifluoromethane	<1.0		1.0	ug/L	28-FEB-18				
	1,1-Dichloroethane	<0.50		0.50	ug/L	28-FEB-18	200			
	1,2-Dichloroethane	<0.50		0.50	ug/L	28-FEB-18	100			
	1,1-Dichloroethylene	<0.50		0.50	ug/L	28-FEB-18	40			
	cis-1,2-Dichloroethylene	<0.50		0.50	ug/L	28-FEB-18				
	trans-1,2-Dichloroethylene	<0.50		0.50	ug/L	28-FEB-18				
	Dichloromethane	<2.0		2.0	ug/L	28-FEB-18	100			
	1,2-Dichloropropane	<0.50		0.50	ug/L	28-FEB-18	0.7			
	cis-1,3-Dichloropropene	<0.50		0.50	ug/L	28-FEB-18				
	trans-1,3-Dichloropropene	<0.50		0.50	ug/L	28-FEB-18	7			
	Ethylbenzene	<0.50		0.50	ug/L	28-FEB-18	8			
	n-Hexane	<0.50		0.50	ug/L	28-FEB-18				
	Methyl Ethyl Ketone	<20		20	ug/L	28-FEB-18	400			
	Methyl Isobutyl Ketone	<20		20	ug/L	28-FEB-18				
	MTBE	<0.50		0.50	ug/L	28-FEB-18				
	Styrene	<0.50		0.50	ug/L	28-FEB-18	4			
	1,1,1,2-Tetrachloroethane	<0.50		0.50	ug/L	28-FEB-18	20.0			
	1,1,2,2-Tetrachloroethane	<0.50		0.50	ug/L	28-FEB-18	70			
	Tetrachloroethylene	<0.50		0.50	ug/L	28-FEB-18	50			

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Surface Water PWQO

#1: Surface Water PWQO



ANALYTICAL GUIDELINE REPORT

44985

Sample Details		Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits				
Grouping	Analyte										
L2060595-1	EQ POND DISCHARGE										
Sampled By: CLIENT on 22-FEB-18 @ 11:30											
Matrix: WATER											
							#1				
Volatile Organic Compounds											
	Toluene	<0.50		0.50	ug/L	28-FEB-18	0.8				
	1,1,1-Trichloroethane	<0.50		0.50	ug/L	28-FEB-18	10				
	1,1,2-Trichloroethane	<0.50		0.50	ug/L	28-FEB-18	800				
	Trichloroethylene	<0.50		0.50	ug/L	28-FEB-18	20				
	Trichlorofluoromethane	<1.0		1.0	ug/L	28-FEB-18					
	Vinyl chloride	<0.50		0.50	ug/L	28-FEB-18	600				
	o-Xylene	<0.50		0.50	ug/L	28-FEB-18	40				
	m+p-Xylenes	<1.0		1.0	ug/L	28-FEB-18	2				
	Xylenes (Total)	<1.1		1.1	ug/L	28-FEB-18					
	Surrogate: 4-Bromofluorobenzene	102.8		70-130	%	28-FEB-18					
	Surrogate: 1,4-Difluorobenzene	94.7		70-130	%	28-FEB-18					
Trihalomethanes											
	Total THMs	<2.0		2.0	ug/L	28-FEB-18					
Acid Extractables											
	2,3,6-Trichlorophenol	<0.50		0.50	ug/L	07-MAR-18	18				
	Surrogate: 2,4,6-Tribromophenol	138.3		40-150	%	07-MAR-18					
Semi-Volatile Organics											
	Acenaphthene	<0.20		0.20	ug/L	07-MAR-18					
	Acenaphthylene	<0.20		0.20	ug/L	07-MAR-18					
	Anthracene	<0.20		0.20	ug/L	07-MAR-18	**0.0008				
	Benzo(a)anthracene	<0.20		0.20	ug/L	07-MAR-18	**0.0004				
	Benzo(a)pyrene	<0.050		0.050	ug/L	07-MAR-18					
	Benzo(b)fluoranthene	<0.20		0.20	ug/L	07-MAR-18					
	Benzo(ghi)perylene	<0.20		0.20	ug/L	07-MAR-18	**0.00002				
	Benzo(k)fluoranthene	<0.20		0.20	ug/L	07-MAR-18	**0.0002				
	4-Chloroaniline	<0.40		0.40	ug/L	07-MAR-18					
	Bis(2-chloroethyl)ether	<0.40		0.40	ug/L	07-MAR-18	200				
	2-Chlorophenol	<0.30		0.30	ug/L	07-MAR-18					
	Chrysene	<0.20		0.20	ug/L	07-MAR-18	**0.0001				
	Dibenzo(a,h)anthracene	<0.20		0.20	ug/L	07-MAR-18	**0.002				
	1,2-Dichlorobenzene	<0.40		0.40	ug/L	07-MAR-18	2.5				
	1,3-Dichlorobenzene	<0.40		0.40	ug/L	07-MAR-18	2.5				
	1,4-Dichlorobenzene	<0.40		0.40	ug/L	07-MAR-18	4				
	3,3'-Dichlorobenzidine	<0.40		0.40	ug/L	07-MAR-18	0.6				
	2,4-Dichlorophenol	<0.30		0.30	ug/L	07-MAR-18	**0.2				
	Diethylphthalate	<0.20		0.20	ug/L	07-MAR-18					
	Dimethylphthalate	<0.20		0.20	ug/L	07-MAR-18					
	2,4-Dimethylphenol	<0.50		0.50	ug/L	07-MAR-18	10				
	2,4-Dinitrophenol	<1.0		1.0	ug/L	07-MAR-18					
	2,4-Dinitrotoluene	<0.40		0.40	ug/L	07-MAR-18	4				
	2,6-Dinitrotoluene	<0.40		0.40	ug/L	07-MAR-18	6				
	Bis(2-ethylhexyl)phthalate	<2.0		2.0	ug/L	07-MAR-18	**0.6				
	Fluoranthene	<0.20		0.20	ug/L	07-MAR-18	**0.008				
	Fluorene	<0.20		0.20	ug/L	07-MAR-18	0.2				
	Hexachlorobenzene	<0.040		0.040	ug/L	07-MAR-18	**0.0065				
	Hexachlorobutadiene	<0.20		0.20	ug/L	07-MAR-18	**0.009				

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Surface Water PWQO

#1: Surface Water PWQO



ANALYTICAL GUIDELINE REPORT

44985

Sample Details Grouping	Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits			
L2060595-1	EQ POND DISCHARGE									
Sampled By: CLIENT on 22-FEB-18 @ 11:30							#1			
Matrix: WATER										
Semi-Volatile Organics										
	Indeno(1,2,3-cd)pyrene	<0.20		0.20	ug/L	07-MAR-18				
	1-Methylnaphthalene	<0.40		0.40	ug/L	07-MAR-18	2			
	2-Methylnaphthalene	<0.40		0.40	ug/L	07-MAR-18	2			
	Naphthalene	<0.20		0.20	ug/L	07-MAR-18	7			
	Pentachlorophenol	<0.50		0.50	ug/L	07-MAR-18	0.5			
	Perylene	<0.20		0.20	ug/L	07-MAR-18	**0.00007			
	Phenanthrene	<0.20		0.20	ug/L	07-MAR-18	**0.03			
	Pyrene	<0.20		0.20	ug/L	07-MAR-18				
	2,3,4,5-Tetrachlorophenol	<0.50		0.50	ug/L	07-MAR-18	1			
	2,3,4,6-Tetrachlorophenol	<0.50		0.50	ug/L	07-MAR-18	1			
	1,2,4-Trichlorobenzene	<0.40		0.40	ug/L	07-MAR-18	0.5			
	2,4,5-Trichlorophenol	<0.50		0.50	ug/L	07-MAR-18	18			
	2,4,6-Trichlorophenol	<0.50		0.50	ug/L	07-MAR-18	18			
	Surrogate: 2-Fluorobiphenyl	95.0		40-130	%	07-MAR-18				
	Surrogate: Nitrobenzene d5	113.7		50-130	%	07-MAR-18				
	Surrogate: p-Terphenyl d14	108.2		40-130	%	07-MAR-18				
L2060595-2	WEST STORM WATER POND									
Sampled By: CLIENT on 22-FEB-18 @ 11:30							#1			
Matrix: WATER										
Field Tests										
	pH, Client Supplied	6.90		0.10	pH	27-FEB-18				
	Temperature, Client	4.0		-50	Deg. C	27-FEB-18				
Physical Tests										
	Conductivity	817		3.0	umhos/cm	27-FEB-18				
	Hardness (as CaCO3)	288	HTC	10	mg/L	28-FEB-18				
	pH	7.43	PEHT	0.10	pH units	26-FEB-18	6.5-8.5			
	Total Suspended Solids	6.3		2.0	mg/L	02-MAR-18				
	Total Dissolved Solids	465		20	mg/L	27-FEB-18				
Anions and Nutrients										
	Alkalinity, Total (as CaCO3)	160		10	mg/L	27-FEB-18				
	Unionized ammonia	0.00160		0.000044	mg/L	02-MAR-18	0.02			
	Ammonia, Total (as N)	1.44	DLHC	0.040	mg/L	02-MAR-18				
	Bromide (Br)	0.54		0.10	mg/L	28-FEB-18				
	Chloride (Cl)	76.3		0.50	mg/L	28-FEB-18				
	Fluoride (F)	0.555		0.020	mg/L	28-FEB-18				
	Nitrate (as N)	0.533		0.020	mg/L	28-FEB-18				
	Nitrite (as N)	<0.010		0.010	mg/L	28-FEB-18				
	Total Kjeldahl Nitrogen	1.25		0.15	mg/L	03-MAR-18				
	Phosphorus, Total	0.0239		0.0030	mg/L	01-MAR-18	*0.01			
	Sulfate (SO4)	138		0.30	mg/L	28-FEB-18				
Cyanides										
	Cyanide, Total	<0.0020		0.0020	mg/L	27-FEB-18	0.0050			
Organic / Inorganic Carbon										
	Dissolved Organic Carbon	5.3		1.0	mg/L	26-FEB-18				
Total Metals										

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.

* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Surface Water PWQO

#1: Surface Water PWQO



ANALYTICAL GUIDELINE REPORT

44985

Sample Details		Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits			
Grouping	Analyte						#1			
L2060595-2	WEST STORM WATER POND									
Sampled By:	CLIENT on 22-FEB-18 @ 11:30									
Matrix:	WATER									
Total Metals										
	Aluminum (Al)-Total	0.381		0.010	mg/L	26-FEB-18	*0.015			
	Antimony (Sb)-Total	0.00036		0.00010	mg/L	26-FEB-18	0.02			
	Arsenic (As)-Total	0.00112		0.00010	mg/L	26-FEB-18	0.005			
	Barium (Ba)-Total	0.0548		0.00020	mg/L	26-FEB-18				
	Beryllium (Be)-Total	<0.00010		0.00010	mg/L	26-FEB-18	0.011			
	Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	26-FEB-18				
	Boron (B)-Total	0.117		0.010	mg/L	26-FEB-18	0.2			
	Cadmium (Cd)-Total	<0.000060	DLM	0.000060	mg/L	26-FEB-18	0.0001			
	Calcium (Ca)-Total	80.3		0.50	mg/L	26-FEB-18				
	Cobalt (Co)-Total	0.00052		0.00010	mg/L	26-FEB-18	0.0009			
	Copper (Cu)-Total	0.0018		0.0010	mg/L	26-FEB-18	*0.001			
	Iron (Fe)-Total	0.425		0.050	mg/L	26-FEB-18	*0.3			
	Lead (Pb)-Total	0.00049		0.00010	mg/L	26-FEB-18	0.001			
	Magnesium (Mg)-Total	21.1		0.050	mg/L	26-FEB-18				
	Manganese (Mn)-Total	0.173		0.00050	mg/L	26-FEB-18				
	Mercury (Hg)-Total	<0.000010		0.000010	mg/L	27-FEB-18	0.0002			
	Molybdenum (Mo)-Total	0.0325		0.000050	mg/L	27-FEB-18	0.04			
	Nickel (Ni)-Total	0.00403		0.00050	mg/L	26-FEB-18	0.025			
	Potassium (K)-Total	6.38		0.050	mg/L	26-FEB-18				
	Selenium (Se)-Total	0.000826		0.000050	mg/L	26-FEB-18	0.1			
	Silicon (Si)-Total	2.54		0.10	mg/L	26-FEB-18				
	Silver (Ag)-Total	<0.000050		0.000050	mg/L	26-FEB-18	0.0001			
	Sodium (Na)-Total	41.1		0.50	mg/L	26-FEB-18				
	Strontium (Sr)-Total	0.632		0.0010	mg/L	26-FEB-18				
	Thallium (Tl)-Total	0.000019		0.000010	mg/L	26-FEB-18	0.0003			
	Tin (Sn)-Total	<0.00010		0.00010	mg/L	26-FEB-18				
	Vanadium (V)-Total	0.00099		0.00050	mg/L	26-FEB-18	0.006			
	Zinc (Zn)-Total	0.0174		0.0030	mg/L	26-FEB-18	0.02			
Speciated Metals										
	Chromium, Hexavalent	<0.0010		0.0010	mg/L	28-FEB-18	0.001			
Aggregate Organics										
	COD	25		10	mg/L	04-MAR-18				
	Phenols (4AAP)	0.0013		0.0010	mg/L	28-FEB-18	*0.001			
Volatile Organic Compounds										
	Acetone	<20		20	ug/L	28-FEB-18				
	Benzene	<0.50		0.50	ug/L	28-FEB-18	100			
	Bromodichloromethane	<1.0		1.0	ug/L	28-FEB-18	200			
	Bromoform	<1.0		1.0	ug/L	28-FEB-18	60			
	Bromomethane	<0.50		0.50	ug/L	28-FEB-18				
	Carbon tetrachloride	<0.50		0.50	ug/L	28-FEB-18				
	Chlorobenzene	<0.50		0.50	ug/L	28-FEB-18	15			
	Dibromochloromethane	<1.0		1.0	ug/L	28-FEB-18	40			
	Chloroethane	<1.0		1.0	ug/L	28-FEB-18				
	Chloroform	<1.0		1.0	ug/L	28-FEB-18				
	1,2-Dibromoethane	<0.20		0.20	ug/L	28-FEB-18	5			
	1,2-Dichlorobenzene	<0.50		0.50	ug/L	28-FEB-18	2.5			

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Surface Water PWQO

#1: Surface Water PWQO



ANALYTICAL GUIDELINE REPORT

44985

Sample Details		Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits			
Grouping	Analyte						#1			
L2060595-2	WEST STORM WATER POND									
Sampled By: CLIENT on 22-FEB-18 @ 11:30										
Matrix: WATER										
Volatile Organic Compounds										
	1,3-Dichlorobenzene	<0.50		0.50	ug/L	28-FEB-18	2.5			
	1,4-Dichlorobenzene	<0.50		0.50	ug/L	28-FEB-18	4			
	Dichlorodifluoromethane	<1.0		1.0	ug/L	28-FEB-18				
	1,1-Dichloroethane	<0.50		0.50	ug/L	28-FEB-18	200			
	1,2-Dichloroethane	<0.50		0.50	ug/L	28-FEB-18	100			
	1,1-Dichloroethylene	<0.50		0.50	ug/L	28-FEB-18	40			
	cis-1,2-Dichloroethylene	<0.50		0.50	ug/L	28-FEB-18				
	trans-1,2-Dichloroethylene	<0.50		0.50	ug/L	28-FEB-18				
	Dichloromethane	<2.0		2.0	ug/L	28-FEB-18	100			
	1,2-Dichloropropane	<0.50		0.50	ug/L	28-FEB-18	0.7			
	cis-1,3-Dichloropropene	<0.50		0.50	ug/L	28-FEB-18				
	trans-1,3-Dichloropropene	<0.50		0.50	ug/L	28-FEB-18	7			
	Ethylbenzene	<0.50		0.50	ug/L	28-FEB-18	8			
	n-Hexane	<0.50		0.50	ug/L	28-FEB-18				
	Methyl Ethyl Ketone	<20		20	ug/L	28-FEB-18	400			
	Methyl Isobutyl Ketone	<20		20	ug/L	28-FEB-18				
	MTBE	<0.50		0.50	ug/L	28-FEB-18				
	Styrene	<0.50		0.50	ug/L	28-FEB-18	4			
	1,1,1,2-Tetrachloroethane	<0.50		0.50	ug/L	28-FEB-18	20.0			
	1,1,2,2-Tetrachloroethane	<0.50		0.50	ug/L	28-FEB-18	70			
	Tetrachloroethylene	<0.50		0.50	ug/L	28-FEB-18	50			
	Toluene	<0.50		0.50	ug/L	28-FEB-18	0.8			
	1,1,1-Trichloroethane	<0.50		0.50	ug/L	28-FEB-18	10			
	1,1,2-Trichloroethane	<0.50		0.50	ug/L	28-FEB-18	800			
	Trichloroethylene	<0.50		0.50	ug/L	28-FEB-18	20			
	Trichlorofluoromethane	<1.0		1.0	ug/L	28-FEB-18				
	Vinyl chloride	<0.50		0.50	ug/L	28-FEB-18	600			
	o-Xylene	<0.50		0.50	ug/L	28-FEB-18	40			
	m+p-Xylenes	<1.0		1.0	ug/L	28-FEB-18	2			
	Xylenes (Total)	<1.1		1.1	ug/L	28-FEB-18				
	Surrogate: 4-Bromofluorobenzene	102.3		70-130	%	28-FEB-18				
	Surrogate: 1,4-Difluorobenzene	94.9		70-130	%	28-FEB-18				
Trihalomethanes										
	Total THMs	<2.0		2.0	ug/L	28-FEB-18				
Acid Extractables										
	2,3,6-Trichlorophenol	<0.50		0.50	ug/L	07-MAR-18	18			
	Surrogate: 2,4,6-Tribromophenol	137.1		40-150	%	07-MAR-18				
Semi-Volatile Organics										
	Acenaphthene	<0.20		0.20	ug/L	07-MAR-18				
	Acenaphthylene	<0.20		0.20	ug/L	07-MAR-18				
	Anthracene	<0.20		0.20	ug/L	07-MAR-18	**0.0008			
	Benzo(a)anthracene	<0.20		0.20	ug/L	07-MAR-18	**0.0004			
	Benzo(a)pyrene	<0.050		0.050	ug/L	07-MAR-18				
	Benzo(b)fluoranthene	<0.20		0.20	ug/L	07-MAR-18				
	Benzo(ghi)perylene	<0.20		0.20	ug/L	07-MAR-18	**0.00002			
	Benzo(k)fluoranthene	<0.20		0.20	ug/L	07-MAR-18	**0.0002			

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.

* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Surface Water PWQO

#1: Surface Water PWQO



ANALYTICAL GUIDELINE REPORT

44985

Sample Details		Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits		
Grouping	Analyte								
L2060595-2	WEST STORM WATER POND								
Sampled By: CLIENT on 22-FEB-18 @ 11:30									
Matrix: WATER									
Semi-Volatile Organics									
4-Chloroaniline		<0.40		0.40	ug/L	07-MAR-18			
Bis(2-chloroethyl)ether		<0.40		0.40	ug/L	07-MAR-18	200		
2-Chlorophenol		<0.30		0.30	ug/L	07-MAR-18			
Chrysene		<0.20		0.20	ug/L	07-MAR-18	**0.0001		
Dibenzo(a,h)anthracene		<0.20		0.20	ug/L	07-MAR-18	**0.002		
1,2-Dichlorobenzene		<0.40		0.40	ug/L	07-MAR-18	2.5		
1,3-Dichlorobenzene		<0.40		0.40	ug/L	07-MAR-18	2.5		
1,4-Dichlorobenzene		<0.40		0.40	ug/L	07-MAR-18	4		
3,3'-Dichlorobenzidine		<0.40		0.40	ug/L	07-MAR-18	0.6		
2,4-Dichlorophenol		<0.30		0.30	ug/L	07-MAR-18	**0.2		
Diethylphthalate		<0.20		0.20	ug/L	07-MAR-18			
Dimethylphthalate		<0.20		0.20	ug/L	07-MAR-18			
2,4-Dimethylphenol		<0.50		0.50	ug/L	07-MAR-18	10		
2,4-Dinitrophenol		<1.0		1.0	ug/L	07-MAR-18			
2,4-Dinitrotoluene		<0.40		0.40	ug/L	07-MAR-18	4		
2,6-Dinitrotoluene		<0.40		0.40	ug/L	07-MAR-18	6		
Bis(2-ethylhexyl)phthalate		<2.0		2.0	ug/L	07-MAR-18	**0.6		
Fluoranthene		<0.20		0.20	ug/L	07-MAR-18	**0.008		
Fluorene		<0.20		0.20	ug/L	07-MAR-18	0.2		
Hexachlorobenzene		<0.040		0.040	ug/L	07-MAR-18	**0.0065		
Hexachlorobutadiene		<0.20		0.20	ug/L	07-MAR-18	**0.009		
Indeno(1,2,3-cd)pyrene		<0.20		0.20	ug/L	07-MAR-18			
1-Methylnaphthalene		<0.40		0.40	ug/L	07-MAR-18	2		
2-Methylnaphthalene		<0.40		0.40	ug/L	07-MAR-18	2		
Naphthalene		<0.20		0.20	ug/L	07-MAR-18	7		
Pentachlorophenol		<0.50		0.50	ug/L	07-MAR-18	0.5		
Perylene		<0.20		0.20	ug/L	07-MAR-18	**0.00007		
Phenanthrene		<0.20		0.20	ug/L	07-MAR-18	**0.03		
Pyrene		<0.20		0.20	ug/L	07-MAR-18			
2,3,4,5-Tetrachlorophenol		<0.50		0.50	ug/L	07-MAR-18	1		
2,3,4,6-Tetrachlorophenol		<0.50		0.50	ug/L	07-MAR-18	1		
1,2,4-Trichlorobenzene		<0.40		0.40	ug/L	07-MAR-18	0.5		
2,4,5-Trichlorophenol		<0.50		0.50	ug/L	07-MAR-18	18		
2,4,6-Trichlorophenol		<0.50		0.50	ug/L	07-MAR-18	18		
Surrogate: 2-Fluorobiphenyl		91.1		40-130	%	07-MAR-18			
Surrogate: Nitrobenzene d5		108.7		50-130	%	07-MAR-18			
Surrogate: p-Terphenyl d14		102.6		40-130	%	07-MAR-18			
L2060595-3	EAST STORM WATER POND								
Sampled By: CLIENT on 22-FEB-18 @ 11:30									
Matrix: WATER									
Field Tests									
pH, Client Supplied		7.20		0.10	pH	27-FEB-18			
Temperature, Client		5.0		-50	Deg. C	27-FEB-18			
Physical Tests									
Conductivity		815		3.0	umhos/cm	27-FEB-18			

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.

* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Surface Water PWQO

#1: Surface Water PWQO



ANALYTICAL GUIDELINE REPORT

44985

Sample Details		Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits			
Grouping	Analyte									
L2060595-3	EAST STORM WATER POND						#1			
Sampled By: CLIENT on 22-FEB-18 @ 11:30										
Matrix: WATER										
Physical Tests										
	Hardness (as CaCO3)	287	HTC	10	mg/L	28-FEB-18				
	pH	7.66	PEHT	0.10	pH units	26-FEB-18	6.5-8.5			
	Total Suspended Solids	7.8		2.0	mg/L	02-MAR-18				
	Total Dissolved Solids	470		20	mg/L	27-FEB-18				
Anions and Nutrients										
	Alkalinity, Total (as CaCO3)	166		10	mg/L	27-FEB-18				
	Unionized ammonia	0.00350		0.000096	mg/L	02-MAR-18	0.02			
	Ammonia, Total (as N)	1.46	DLHC	0.040	mg/L	02-MAR-18				
	Bromide (Br)	0.54		0.10	mg/L	28-FEB-18				
	Chloride (Cl)	76.4		0.50	mg/L	28-FEB-18				
	Fluoride (F)	0.541		0.020	mg/L	28-FEB-18				
	Nitrate (as N)	0.539		0.020	mg/L	28-FEB-18				
	Nitrite (as N)	0.010		0.010	mg/L	28-FEB-18				
	Total Kjeldahl Nitrogen	1.90		0.15	mg/L	03-MAR-18				
	Phosphorus, Total	0.0315		0.0030	mg/L	01-MAR-18	*0.01			
	Sulfate (SO4)	138		0.30	mg/L	28-FEB-18				
Cyanides										
	Cyanide, Total	<0.0020		0.0020	mg/L	27-FEB-18	0.0050			
Organic / Inorganic Carbon										
	Dissolved Organic Carbon	5.3		1.0	mg/L	26-FEB-18				
Total Metals										
	Aluminum (Al)-Total	0.289		0.010	mg/L	26-FEB-18	*0.015			
	Antimony (Sb)-Total	0.00034		0.00010	mg/L	26-FEB-18	0.02			
	Arsenic (As)-Total	0.00112		0.00010	mg/L	26-FEB-18	0.005			
	Barium (Ba)-Total	0.0529		0.00020	mg/L	26-FEB-18				
	Beryllium (Be)-Total	<0.00010		0.00010	mg/L	26-FEB-18	0.011			
	Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	26-FEB-18				
	Boron (B)-Total	0.115		0.010	mg/L	26-FEB-18	0.2			
	Cadmium (Cd)-Total	<0.000060	DLM	0.000060	mg/L	26-FEB-18	0.0001			
	Calcium (Ca)-Total	80.3		0.50	mg/L	26-FEB-18				
	Cobalt (Co)-Total	0.00052		0.00010	mg/L	26-FEB-18	0.0009			
	Copper (Cu)-Total	0.0016		0.0010	mg/L	26-FEB-18	*0.001			
	Iron (Fe)-Total	0.386		0.050	mg/L	26-FEB-18	*0.3			
	Lead (Pb)-Total	0.00052		0.00010	mg/L	26-FEB-18	0.001			
	Magnesium (Mg)-Total	21.0		0.050	mg/L	26-FEB-18				
	Manganese (Mn)-Total	0.194		0.00050	mg/L	26-FEB-18				
	Mercury (Hg)-Total	<0.000010		0.000010	mg/L	27-FEB-18	0.0002			
	Molybdenum (Mo)-Total	0.0315		0.000050	mg/L	27-FEB-18	0.04			
	Nickel (Ni)-Total	0.00408		0.00050	mg/L	26-FEB-18	0.025			
	Potassium (K)-Total	6.18		0.050	mg/L	26-FEB-18				
	Selenium (Se)-Total	0.000790		0.000050	mg/L	26-FEB-18	0.1			
	Silicon (Si)-Total	2.27		0.10	mg/L	26-FEB-18				
	Silver (Ag)-Total	<0.000050		0.000050	mg/L	26-FEB-18	0.0001			
	Sodium (Na)-Total	39.3		0.50	mg/L	26-FEB-18				
	Strontium (Sr)-Total	0.618		0.0010	mg/L	26-FEB-18				
	Thallium (Tl)-Total	0.000023		0.000010	mg/L	26-FEB-18	0.0003			

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.

* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Surface Water PWQO

#1: Surface Water PWQO



ANALYTICAL GUIDELINE REPORT

44985

Sample Details		Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits			
Grouping	Analyte									
L2060595-3	EAST STORM WATER POND									
Sampled By: CLIENT on 22-FEB-18 @ 11:30							#1			
Matrix: WATER										
Total Metals										
	Tin (Sn)-Total	<0.00010		0.00010	mg/L	26-FEB-18				
	Vanadium (V)-Total	0.00082		0.00050	mg/L	26-FEB-18	0.006			
	Zinc (Zn)-Total	0.0044		0.0030	mg/L	26-FEB-18	0.02			
Speciated Metals										
	Chromium, Hexavalent	<0.0010		0.0010	mg/L	28-FEB-18	0.001			
Aggregate Organics										
	COD	29		10	mg/L	04-MAR-18				
	Phenols (4AAP)	0.0023		0.0010	mg/L	28-FEB-18	*0.001			
Volatile Organic Compounds										
	Acetone	<20	VTHS	20	ug/L	28-FEB-18				
	Benzene	<0.50	VTHS	0.50	ug/L	28-FEB-18	100			
	Bromodichloromethane	<1.0	VTHS	1.0	ug/L	28-FEB-18	200			
	Bromoform	<1.0	VTHS	1.0	ug/L	28-FEB-18	60			
	Bromomethane	<0.50	VTHS	0.50	ug/L	28-FEB-18				
	Carbon tetrachloride	<0.50	VTHS	0.50	ug/L	28-FEB-18				
	Chlorobenzene	<0.50	VTHS	0.50	ug/L	28-FEB-18	15			
	Dibromochloromethane	<1.0	VTHS	1.0	ug/L	28-FEB-18	40			
	Chloroethane	<1.0	VTHS	1.0	ug/L	28-FEB-18				
	Chloroform	<1.0	VTHS	1.0	ug/L	28-FEB-18				
	1,2-Dibromoethane	<0.20	VTHS	0.20	ug/L	28-FEB-18	5			
	1,2-Dichlorobenzene	<0.50	VTHS	0.50	ug/L	28-FEB-18	2.5			
	1,3-Dichlorobenzene	<0.50	VTHS	0.50	ug/L	28-FEB-18	2.5			
	1,4-Dichlorobenzene	<0.50	VTHS	0.50	ug/L	28-FEB-18	4			
	Dichlorodifluoromethane	<1.0	VTHS	1.0	ug/L	28-FEB-18				
	1,1-Dichloroethane	<0.50	VTHS	0.50	ug/L	28-FEB-18	200			
	1,2-Dichloroethane	<0.50	VTHS	0.50	ug/L	28-FEB-18	100			
	1,1-Dichloroethylene	<0.50	VTHS	0.50	ug/L	28-FEB-18	40			
	cis-1,2-Dichloroethylene	<0.50	VTHS	0.50	ug/L	28-FEB-18				
	trans-1,2-Dichloroethylene	<0.50	VTHS	0.50	ug/L	28-FEB-18				
	Dichloromethane	<2.0	VTHS	2.0	ug/L	28-FEB-18	100			
	1,2-Dichloropropane	<0.50	VTHS	0.50	ug/L	28-FEB-18	0.7			
	cis-1,3-Dichloropropene	<0.50	VTHS	0.50	ug/L	28-FEB-18				
	trans-1,3-Dichloropropene	<0.50	VTHS	0.50	ug/L	28-FEB-18	7			
	Ethylbenzene	<0.50	VTHS	0.50	ug/L	28-FEB-18	8			
	n-Hexane	<0.50	VTHS	0.50	ug/L	28-FEB-18				
	Methyl Ethyl Ketone	<20	VTHS	20	ug/L	28-FEB-18	400			
	Methyl Isobutyl Ketone	<20	VTHS	20	ug/L	28-FEB-18				
	MTBE	<0.50	VTHS	0.50	ug/L	28-FEB-18				
	Styrene	<0.50	VTHS	0.50	ug/L	28-FEB-18	4			
	1,1,1,2-Tetrachloroethane	<0.50	VTHS	0.50	ug/L	28-FEB-18	20.0			
	1,1,2,2-Tetrachloroethane	<0.50	VTHS	0.50	ug/L	28-FEB-18	70			
	Tetrachloroethylene	<0.50	VTHS	0.50	ug/L	28-FEB-18	50			
	Toluene	<0.50	VTHS	0.50	ug/L	28-FEB-18	0.8			
	1,1,1-Trichloroethane	<0.50	VTHS	0.50	ug/L	28-FEB-18	10			
	1,1,2-Trichloroethane	<0.50	VTHS	0.50	ug/L	28-FEB-18	800			
	Trichloroethylene	<0.50	VTHS	0.50	ug/L	28-FEB-18	20			

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.

* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Surface Water PWQO

#1: Surface Water PWQO



ANALYTICAL GUIDELINE REPORT

44985

Sample Details		Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits				
Grouping	Analyte										
L2060595-3	EAST STORM WATER POND										
Sampled By: CLIENT on 22-FEB-18 @ 11:30											
Matrix: WATER											
							#1				
Volatile Organic Compounds											
	Trichlorofluoromethane	<1.0	VTHS	1.0	ug/L	28-FEB-18					
	Vinyl chloride	<0.50	VTHS	0.50	ug/L	28-FEB-18	600				
	o-Xylene	<0.50	VTHS	0.50	ug/L	28-FEB-18	40				
	m+p-Xylenes	<1.0	VTHS	1.0	ug/L	28-FEB-18	2				
	Xylenes (Total)	<1.1		1.1	ug/L	28-FEB-18					
	Surrogate: 4-Bromofluorobenzene	102.1		70-130	%	28-FEB-18					
	Surrogate: 1,4-Difluorobenzene	95.5		70-130	%	28-FEB-18					
Trihalomethanes											
	Total THMs	<2.0		2.0	ug/L	28-FEB-18					
Acid Extractables											
	2,3,6-Trichlorophenol	<0.50		0.50	ug/L	07-MAR-18	18				
	Surrogate: 2,4,6-Tribromophenol	137.8		40-150	%	07-MAR-18					
Semi-Volatile Organics											
	Acenaphthene	<0.20		0.20	ug/L	07-MAR-18					
	Acenaphthylene	<0.20		0.20	ug/L	07-MAR-18					
	Anthracene	<0.20		0.20	ug/L	07-MAR-18	**0.0008				
	Benzo(a)anthracene	<0.20		0.20	ug/L	07-MAR-18	**0.0004				
	Benzo(a)pyrene	<0.050		0.050	ug/L	07-MAR-18					
	Benzo(b)fluoranthene	<0.20		0.20	ug/L	07-MAR-18					
	Benzo(ghi)perylene	<0.20		0.20	ug/L	07-MAR-18	**0.00002				
	Benzo(k)fluoranthene	<0.20		0.20	ug/L	07-MAR-18	**0.0002				
	4-Chloroaniline	<0.40		0.40	ug/L	07-MAR-18					
	Bis(2-chloroethyl)ether	<0.40		0.40	ug/L	07-MAR-18	200				
	2-Chlorophenol	<0.30		0.30	ug/L	07-MAR-18					
	Chrysene	<0.20		0.20	ug/L	07-MAR-18	**0.0001				
	Dibenzo(a,h)anthracene	<0.20		0.20	ug/L	07-MAR-18	**0.002				
	1,2-Dichlorobenzene	<0.40		0.40	ug/L	07-MAR-18	2.5				
	1,3-Dichlorobenzene	<0.40		0.40	ug/L	07-MAR-18	2.5				
	1,4-Dichlorobenzene	<0.40		0.40	ug/L	07-MAR-18	4				
	3,3'-Dichlorobenzidine	<0.40		0.40	ug/L	07-MAR-18	0.6				
	2,4-Dichlorophenol	<0.30		0.30	ug/L	07-MAR-18	**0.2				
	Diethylphthalate	<0.20		0.20	ug/L	07-MAR-18					
	Dimethylphthalate	<0.20		0.20	ug/L	07-MAR-18					
	2,4-Dimethylphenol	<0.50		0.50	ug/L	07-MAR-18	10				
	2,4-Dinitrophenol	<1.0		1.0	ug/L	07-MAR-18					
	2,4-Dinitrotoluene	<0.40		0.40	ug/L	07-MAR-18	4				
	2,6-Dinitrotoluene	<0.40		0.40	ug/L	07-MAR-18	6				
	Bis(2-ethylhexyl)phthalate	7.0		2.0	ug/L	07-MAR-18	*0.6				
	Fluoranthene	<0.20		0.20	ug/L	07-MAR-18	**0.008				
	Fluorene	<0.20		0.20	ug/L	07-MAR-18	0.2				
	Hexachlorobenzene	<0.040		0.040	ug/L	07-MAR-18	**0.0065				
	Hexachlorobutadiene	<0.20		0.20	ug/L	07-MAR-18	**0.009				
	Indeno(1,2,3-cd)pyrene	<0.20		0.20	ug/L	07-MAR-18					
	1-Methylnaphthalene	<0.40		0.40	ug/L	07-MAR-18	2				
	2-Methylnaphthalene	<0.40		0.40	ug/L	07-MAR-18	2				
	Naphthalene	<0.20		0.20	ug/L	07-MAR-18	7				

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.

* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Surface Water PWQO

#1: Surface Water PWQO



ANALYTICAL GUIDELINE REPORT

44985

Sample Details		Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits			
Grouping	Analyte									
L2060595-3	EAST STORM WATER POND									
Sampled By: CLIENT on 22-FEB-18 @ 11:30							#1			
Matrix: WATER										
Semi-Volatile Organics										
	Pentachlorophenol	<0.50		0.50	ug/L	07-MAR-18	0.5			
	Perylene	<0.20		0.20	ug/L	07-MAR-18	**0.00007			
	Phenanthrene	<0.20		0.20	ug/L	07-MAR-18	**0.03			
	Pyrene	<0.20		0.20	ug/L	07-MAR-18				
	2,3,4,5-Tetrachlorophenol	<0.50		0.50	ug/L	07-MAR-18	1			
	2,3,4,6-Tetrachlorophenol	<0.50		0.50	ug/L	07-MAR-18	1			
	1,2,4-Trichlorobenzene	<0.40		0.40	ug/L	07-MAR-18	0.5			
	2,4,5-Trichlorophenol	<0.50		0.50	ug/L	07-MAR-18	18			
	2,4,6-Trichlorophenol	<0.50		0.50	ug/L	07-MAR-18	18			
	Surrogate: 2-Fluorobiphenyl	93.4		40-130	%	07-MAR-18				
	Surrogate: Nitrobenzene d5	111.0		50-130	%	07-MAR-18				
	Surrogate: p-Terphenyl d14	110.5		40-130	%	07-MAR-18				
L2060595-4	STN 6A									
Sampled By: CLIENT on 22-FEB-18 @ 11:30							#1			
Matrix: WATER										
Field Tests										
	pH, Client Supplied	7.20		0.10	pH	27-FEB-18				
	Temperature, Client	4.0		-50	Deg. C	27-FEB-18				
Physical Tests										
	Conductivity	323		3.0	umhos/cm	27-FEB-18				
	Hardness (as CaCO3)	144	HTC	10	mg/L	28-FEB-18				
	pH	7.46	PEHT	0.10	pH units	26-FEB-18	6.5-8.5			
	Total Suspended Solids	31.0		2.0	mg/L	02-MAR-18				
	Total Dissolved Solids	227		20	mg/L	27-FEB-18				
Anions and Nutrients										
	Alkalinity, Total (as CaCO3)	90		10	mg/L	27-FEB-18				
	Unionized ammonia	0.00512		0.00022	mg/L	02-MAR-18	0.02			
	Ammonia, Total (as N)	2.32	DLHC	0.10	mg/L	02-MAR-18				
	Bromide (Br)	<0.10		0.10	mg/L	28-FEB-18				
	Chloride (Cl)	14.4		0.50	mg/L	28-FEB-18				
	Fluoride (F)	0.189		0.020	mg/L	28-FEB-18				
	Nitrate (as N)	4.86		0.020	mg/L	28-FEB-18				
	Nitrite (as N)	0.037		0.010	mg/L	28-FEB-18				
	Total Kjeldahl Nitrogen	4.40		0.15	mg/L	03-MAR-18				
	Phosphorus, Total	0.323		0.0030	mg/L	01-MAR-18	*0.01			
	Sulfate (SO4)	30.2		0.30	mg/L	28-FEB-18				
Cyanides										
	Cyanide, Total	<0.0020		0.0020	mg/L	27-FEB-18	0.0050			
Organic / Inorganic Carbon										
	Dissolved Organic Carbon	9.6		1.0	mg/L	28-FEB-18				
Total Metals										
	Aluminum (Al)-Total	3.64		0.010	mg/L	26-FEB-18	*0.015			
	Antimony (Sb)-Total	0.00014		0.00010	mg/L	26-FEB-18	0.02			
	Arsenic (As)-Total	0.00142		0.00010	mg/L	26-FEB-18	0.005			
	Barium (Ba)-Total	0.0398		0.00020	mg/L	26-FEB-18				

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.

* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Surface Water PWQO

#1: Surface Water PWQO



ANALYTICAL GUIDELINE REPORT

44985

Sample Details		Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits		
Grouping	Analyte								
L2060595-4	STN 6A								
Sampled By: CLIENT on 22-FEB-18 @ 11:30							#1		
Matrix: WATER									
Total Metals									
	Beryllium (Be)-Total	0.00015		0.00010	mg/L	26-FEB-18	0.011		
	Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	26-FEB-18			
	Boron (B)-Total	0.020		0.010	mg/L	26-FEB-18	0.2		
	Cadmium (Cd)-Total	0.000083		0.000010	mg/L	26-FEB-18	0.0001		
	Calcium (Ca)-Total	36.3		0.50	mg/L	26-FEB-18			
	Cobalt (Co)-Total	0.00141		0.00010	mg/L	26-FEB-18	*0.0009		
	Copper (Cu)-Total	0.0054		0.0010	mg/L	26-FEB-18	*0.001		
	Iron (Fe)-Total	3.58		0.050	mg/L	26-FEB-18	*0.3		
	Lead (Pb)-Total	0.00248		0.00010	mg/L	26-FEB-18	*0.001		
	Magnesium (Mg)-Total	12.9		0.050	mg/L	26-FEB-18			
	Manganese (Mn)-Total	0.0352		0.00050	mg/L	26-FEB-18			
	Mercury (Hg)-Total	<0.000010		0.000010	mg/L	27-FEB-18	0.0002		
	Molybdenum (Mo)-Total	0.00285		0.000050	mg/L	27-FEB-18	0.04		
	Nickel (Ni)-Total	0.00559		0.00050	mg/L	26-FEB-18	0.025		
	Potassium (K)-Total	3.31		0.050	mg/L	26-FEB-18			
	Selenium (Se)-Total	0.000712		0.000050	mg/L	26-FEB-18	0.1		
	Silicon (Si)-Total	8.05		0.10	mg/L	26-FEB-18			
	Silver (Ag)-Total	<0.000050		0.000050	mg/L	26-FEB-18	0.0001		
	Sodium (Na)-Total	6.08		0.50	mg/L	26-FEB-18			
	Strontium (Sr)-Total	0.115		0.0010	mg/L	26-FEB-18			
	Thallium (Tl)-Total	0.000060		0.000010	mg/L	26-FEB-18	0.0003		
	Tin (Sn)-Total	<0.00010		0.00010	mg/L	26-FEB-18			
	Vanadium (V)-Total	0.00671		0.00050	mg/L	26-FEB-18	*0.006		
	Zinc (Zn)-Total	0.0130		0.0030	mg/L	26-FEB-18	0.02		
Speciated Metals									
	Chromium, Hexavalent	<0.0010		0.0010	mg/L	28-FEB-18	0.001		
Aggregate Organics									
	COD	51		10	mg/L	04-MAR-18			
	Phenols (4AAP)	<0.0010		0.0010	mg/L	28-FEB-18	0.001		

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.

* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Surface Water PWQO

#1: Surface Water PWQO

Reference Information

Sample Parameter Qualifier key listed:

Qualifier	Description
PEHT	Parameter Exceeded Recommended Holding Time Prior to Analysis
VTHS	Volatile test was conducted on sample with headspace. Results may be biased low.
HTC	Hardness was calculated from Total Ca and/or Mg concentrations and may be biased high (dissolved Ca/Mg results unavailable).
DLM	Detection Limit Adjusted due to sample matrix effects (e.g. chemical interference, colour, turbidity).
DLHC	Detection Limit Raised: Dilution required due to high concentration of test analyte(s).

Methods Listed (if applicable):

ALS Test Code	Matrix	Test Description	Method Reference***
625-ACID-EXTRA-WT	Water	EPA 8270 Acid Extractables	SW846 8270
Aqueous samples are extracted and extracts are analyzed on GC/MSD.			
625-WT	Water	EPA 8270 Extractables	SW846 8270
Aqueous samples are extracted and extracts are analyzed on GC/MSD. Depending on the analytical GC/MS column used benzo(j)fluoranthene may chromatographically co-elute with benzo(b)fluoranthene or benzo(k)fluoranthene.			
N-nitrosodiphenylamine is reported as diphenylamine. N-nitrosodiphenylamine decomposes in the gas chromatographic inlet and cannot be separated from diphenylamine. (EPA 8270D)			
ALK-WT	Water	Alkalinity, Total (as CaCO ₃)	EPA 310.2
This analysis is carried out using procedures adapted from EPA Method 310.2 "Alkalinity". Total Alkalinity is determined using the methyl orange colourimetric method.			
BR-IC-N-WT	Water	Bromide in Water by IC	EPA 300.1 (mod)
Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.			
C-DIS-ORG-WT	Water	Dissolved Organic Carbon	APHA 5310B
Sample is filtered through a 0.45um filter, then injected into a heated reaction chamber which is packed with an oxidative catalyst. The water is vaporized and the organic carbon is oxidized to carbon dioxide. The carbon dioxide is transported in a carrier gas and is measured by a non-dispersive infrared detector.			
CL-IC-N-WT	Water	Chloride by IC	EPA 300.1 (mod)
Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.			
Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).			
CN-TOT-WT	Water	Cyanide, Total	ISO 14403-2
Total cyanide is determined by the combination of UV digestion and distillation. Cyanide is converted to cyanogen chloride by reacting with chloramine-T, the cyanogen chloride then reacts with a combination of barbituric acid and isonicotinic acid to form a highly colored complex.			
When using this method, high levels of thiocyanate in samples can cause false positives at ~1-2% of the thiocyanate concentration. For samples with detectable cyanide analyzed by this method, ALS recommends analysis for thiocyanate to check for this potential interference			
COD-T-WT	Water	Chemical Oxygen Demand	APHA 5220 D
This analysis is carried out using procedures adapted from APHA Method 5220 "Chemical Oxygen Demand (COD)". Chemical oxygen demand is determined using the closed reflux colourimetric method.			
CR-CR6-IC-WT	Water	Chromium +6	EPA 7199
This analysis is carried out using procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846, Method 7199, published by the United States Environmental Protection Agency (EPA). The procedure involves analysis for chromium (VI) by ion chromatography using diphenylcarbazide in a sulphuric acid solution. Chromium (III) is calculated as the difference between the total chromium and the chromium (VI) results.			
Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).			
EC-WT	Water	Conductivity	APHA 2510 B
Water samples can be measured directly by immersing the conductivity cell into the sample.			
ETL-NH3-UNION-CLI-WT	Water	Un-ionized ammonia	CALCULATION
F-IC-N-WT	Water	Fluoride in Water by IC	EPA 300.1 (mod)
Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.			
HARDNESS-CALC-WT	Water	Hardness	APHA 2340 B
Hardness (also known as Total Hardness) is calculated from the sum of Calcium and Magnesium concentrations, expressed in CaCO ₃ equivalents. Dissolved Calcium and Magnesium concentrations are preferentially used for the hardness calculation.			
HG-T-CVAA-WT	Water	Total Mercury in Water by CVAAS	EPA 1631E (mod)

Water samples undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS.

Reference Information

MET-T-CCMS-WT Water Total Metals in Water by CRC EPA 200.2/6020A (mod)
ICPMS

Water samples are digested with nitric and hydrochloric acids, and analyzed by CRC ICPMS.

Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

NH3-WT Water Ammonia, Total as N EPA 350.1

Sample is measured colorimetrically. When sample is turbid a distillation step is required, sample is distilled into a solution of boric acid and measured colorimetrically.

NO2-IC-WT Water Nitrite in Water by IC EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

NO3-IC-WT Water Nitrate in Water by IC EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

P-T-COL-WT Water Total P in Water by Colour APHA 4500-P PHOSPHORUS

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Total Phosphorus is determined colourimetrically after persulphate digestion of the sample.

PH,TEMP-CLIENT-WT Water pH & Temperature Results supplied by client

PH-WT Water pH APHA 4500 H-Electrode

Water samples are analyzed directly by a calibrated pH meter.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011). Holdtime for samples under this regulation is 28 days

PHENOLS-4AAP-WT Water Phenol (4AAP) EPA 9066

An automated method is used to distill the sample. The distillate is then buffered to pH 9.4 which reacts with 4AAP and potassium ferricyanide to form a red complex which is measured colorimetrically.

SO4-IC-N-WT Water Sulfate in Water by IC EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

SOLIDS-TDS-WT Water Total Dissolved Solids APHA 2540C

This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total Dissolved Solids (TDS) are determined by filtering a sample through a glass fibre filter, TDS is determined by evaporating the filtrate to dryness at 180 degrees celsius.

SOLIDS-TSS-WT Water Suspended solids APHA 2540 D-Gravimetric

A well-mixed sample is filtered through a weighed standard glass fibre filter and the residue retained is dried in an oven at 104–1°C for a minimum of four hours or until a constant weight is achieved.

THM-SUM-PPB-CALC-WT Water Total Trihalomethanes (THMs) CALCULATION

Total Trihalomethanes (THMs) represents the sum of bromodichloromethane, bromoform, chlorodibromomethane and chloroform. For the purpose of calculation, results less than the detection limit (DL) are treated as zero.

TKN-WT Water Total Kjeldahl Nitrogen APHA 4500-Norg D

This analysis is carried out using procedures adapted from APHA Method 4500-Norg "Nitrogen (Organic)". Total Kjeldahl Nitrogen is determined by sample digestion at 380 Celsius with analysis using an automated colorimetric method.

VOC-ROU-HS-WT Water Volatile Organic Compounds SW846 8260

Aqueous samples are analyzed by headspace-GC/MS.

XYLENES-SUM-CALC-WT Water Sum of Xylene Isomer Concentrations CALCULATION

Total xylenes represents the sum of o-xylene and m&p-xylene.

*** ALS test methods may incorporate modifications from specified reference methods to improve performance.

Chain of Custody numbers:

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location	Laboratory Definition Code	Laboratory Location
WT	ALS ENVIRONMENTAL - WATERLOO, ONTARIO, CANADA		

Reference Information

GLOSSARY OF REPORT TERMS

Surrogates are compounds that are similar in behaviour to target analyte(s), but that do not normally occur in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery. In reports that display the D.L. column, laboratory objectives for surrogates are listed there.

mg/kg - milligrams per kilogram based on dry weight of sample

mg/kg wwt - milligrams per kilogram based on wet weight of sample

mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight

mg/L - unit of concentration based on volume, parts per million.

< - Less than.

D.L. - The reporting limit.

N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.

UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

Application of guidelines is provided "as is" without warranty of any kind, either expressed or implied, including, but not limited to fitness for a particular purpose, or non-infringement. ALS assumes no responsibility for errors or omissions in the information.



Quality Control Report

Workorder: L2060595

Report Date: 08-MAR-18

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Client: GHD Limited (Waterloo)
 651 COLBY DRIVE
 WATERLOO ON N2V 1C2

Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
625-ACID-EXTRA-WT		Water						
Batch	R3978306							
WG2726820-2	LCS							
2,3,6-Trichlorophenol			77.9		%		50-130	07-MAR-18
WG2726820-3	LCSD	WG2726820-2						
2,3,6-Trichlorophenol		77.9	80.2		%	2.9	50	07-MAR-18
WG2726820-1	MB							
2,3,6-Trichlorophenol			<0.50		ug/L		0.5	07-MAR-18
Surrogate: 2,4,6-Tribromophenol			66.3		%		40-150	07-MAR-18
625-WT		Water						
Batch	R3978362							
WG2726820-2	LCS							
1-Methylnaphthalene			64.5		%		50-140	07-MAR-18
1,2-Dichlorobenzene			47.9		%		40-130	07-MAR-18
1,2,4-Trichlorobenzene			51.8		%		40-130	07-MAR-18
1,3-Dichlorobenzene			46.4	LCS-ND	%		50-140	07-MAR-18
1,4-Dichlorobenzene			46.6		%		40-130	07-MAR-18
2-Chlorophenol			84.1		%		50-140	07-MAR-18
2-Methylnaphthalene			61.9		%		50-140	07-MAR-18
2,3,4,5-Tetrachlorophenol			91.8		%		50-140	07-MAR-18
2,3,4,6-Tetrachlorophenol			93.6		%		50-140	07-MAR-18
2,4-Dichlorophenol			95.3		%		50-140	07-MAR-18
2,4-Dimethylphenol			79.0		%		50-140	07-MAR-18
2,4-Dinitrophenol			84.7		%		40-140	07-MAR-18
2,4-Dinitrotoluene			114.6		%		50-140	07-MAR-18
2,4,5-Trichlorophenol			95.1		%		50-140	07-MAR-18
2,4,6-Trichlorophenol			95.8		%		50-140	07-MAR-18
2,6-Dinitrotoluene			118.1		%		50-140	07-MAR-18
3,3'-Dichlorobenzidine			64.1		%		50-140	07-MAR-18
4-Chloroaniline			54.6		%		30-140	07-MAR-18
Acenaphthene			82.9		%		50-140	07-MAR-18
Acenaphthylene			88.1		%		50-140	07-MAR-18
Anthracene			115.2		%		50-140	07-MAR-18
Benzo(a)anthracene			121.5		%		50-140	07-MAR-18
Benzo(a)pyrene			121.8		%		60-130	07-MAR-18
Benzo(b)fluoranthene			115.3		%		50-140	07-MAR-18
Benzo(ghi)perylene			98.4		%		50-140	07-MAR-18



Quality Control Report

Workorder: L2060595

Report Date: 08-MAR-18

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Client: GHD Limited (Waterloo)
 651 COLBY DRIVE
 WATERLOO ON N2V 1C2
 Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
625-WT	Water							
Batch	R3978362							
WG2726820-2 LCS								
Benzo(k)fluoranthene			135.7		%		50-140	07-MAR-18
Bis(2-chloroethyl)ether			97.2		%		50-140	07-MAR-18
Bis(2-ethylhexyl)phthalate			60.4		%		50-140	07-MAR-18
Chrysene			115.5		%		50-140	07-MAR-18
Dibenzo(a,h)anthracene			94.7		%		50-140	07-MAR-18
Diethylphthalate			95.9		%		50-140	07-MAR-18
Dimethylphthalate			96.5		%		50-140	07-MAR-18
Fluoranthene			121.8		%		50-140	07-MAR-18
Fluorene			92.2		%		50-140	07-MAR-18
Hexachlorobenzene			91.4		%		40-130	07-MAR-18
Hexachlorobutadiene			53.8		%		40-130	07-MAR-18
Indeno(1,2,3-cd)pyrene			97.5		%		50-140	07-MAR-18
Naphthalene			68.4		%		50-140	07-MAR-18
Pentachlorophenol			101.2		%		50-140	07-MAR-18
Perylene			105.5		%		50-140	07-MAR-18
Phenanthrene			108.6		%		50-140	07-MAR-18
Pyrene			119.9		%		50-140	07-MAR-18
WG2726820-3 LCSD		WG2726820-2						
1-Methylnaphthalene		64.5	66.5		%	3.2	50	07-MAR-18
1,2-Dichlorobenzene		47.9	47.6		%	0.7	50	07-MAR-18
1,2,4-Trichlorobenzene		51.8	51.7		%	0.3	50	07-MAR-18
1,3-Dichlorobenzene		46.4	46.1		%	0.7	50	07-MAR-18
1,4-Dichlorobenzene		46.6	45.9		%	1.5	50	07-MAR-18
2-Chlorophenol		84.1	84.1		%	0.0	50	07-MAR-18
2-Methylnaphthalene		61.9	62.6		%	1.1	50	07-MAR-18
2,3,4,5-Tetrachlorophenol		91.8	93.3		%	1.6	50	07-MAR-18
2,3,4,6-Tetrachlorophenol		93.6	100.2		%	6.8	50	07-MAR-18
2,4-Dichlorophenol		95.3	95.1		%	0.2	50	07-MAR-18
2,4-Dimethylphenol		79.0	73.1		%	7.7	50	07-MAR-18
2,4-Dinitrophenol		84.7	76.5		%	10	50	07-MAR-18
2,4-Dinitrotoluene		114.6	114.9		%	0.3	50	07-MAR-18
2,4,5-Trichlorophenol		95.1	96.7		%	1.6	50	07-MAR-18
2,4,6-Trichlorophenol		95.8	97.2		%	1.5	50	07-MAR-18



Quality Control Report

Workorder: L2060595

Report Date: 08-MAR-18

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Client: GHD Limited (Waterloo)
 651 COLBY DRIVE
 WATERLOO ON N2V 1C2

Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
625-WT	Water							
Batch	R3978362							
WG2726820-3	LCSD	WG2726820-2						
2,6-Dinitrotoluene		118.1	119.5		%	1.2	50	07-MAR-18
3,3'-Dichlorobenzidine		64.1	47.0		%	31	50	07-MAR-18
4-Chloroaniline		54.6	53.1		%	2.7	50	07-MAR-18
Acenaphthene		82.9	84.9		%	2.3	50	07-MAR-18
Acenaphthylene		88.1	89.0		%	1.0	50	07-MAR-18
Anthracene		115.2	113.3		%	1.7	50	07-MAR-18
Benzo(a)anthracene		121.5	121.5		%	0.0	50	07-MAR-18
Benzo(a)pyrene		121.8	122.3		%	0.4	50	07-MAR-18
Benzo(b)fluoranthene		115.3	120.7		%	4.6	50	07-MAR-18
Benzo(ghi)perylene		98.4	86.8		%	13	50	07-MAR-18
Benzo(k)fluoranthene		135.7	145.3		%	6.8	50	07-MAR-18
Bis(2-chloroethyl)ether		97.2	96.2		%	1.0	50	07-MAR-18
Bis(2-ethylhexyl)phthalate		60.4	60.7		%	0.4	50	07-MAR-18
Chrysene		115.5	115.5		%	0.1	50	07-MAR-18
Dibenzo(a,h)anthracene		94.7	83.6		%	12	50	07-MAR-18
Diethylphthalate		95.9	95.5		%	0.4	50	07-MAR-18
Dimethylphthalate		96.5	94.6		%	2.0	50	07-MAR-18
Fluoranthene		121.8	144.8		%	17	50	07-MAR-18
Fluorene		92.2	94.7		%	2.7	50	07-MAR-18
Hexachlorobenzene		91.4	92.6		%	1.2	50	07-MAR-18
Hexachlorobutadiene		53.8	53.1		%	1.3	50	07-MAR-18
Indeno(1,2,3-cd)pyrene		97.5	88.9		%	9.3	50	07-MAR-18
Naphthalene		68.4	69.5		%	1.5	50	07-MAR-18
Pentachlorophenol		101.2	99.2		%	1.9	50	07-MAR-18
Perylene		105.5	104.7		%	0.8	50	07-MAR-18
Phenanthrene		108.6	110.2		%	1.4	50	07-MAR-18
Pyrene		119.9	138.1		%	14	50	07-MAR-18
WG2726820-1	MB							
1-Methylnaphthalene			<0.40		ug/L		0.4	07-MAR-18
1,2-Dichlorobenzene			<0.40		ug/L		0.4	07-MAR-18
1,2,4-Trichlorobenzene			<0.40		ug/L		0.4	07-MAR-18
1,3-Dichlorobenzene			<0.40		ug/L		0.4	07-MAR-18
1,4-Dichlorobenzene			<0.40		ug/L		0.4	07-MAR-18



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Client: GHD Limited (Waterloo)
 651 COLBY DRIVE
 WATERLOO ON N2V 1C2

Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
625-WT	Water							
Batch	R3978362							
WG2726820-1 MB								
2-Chlorophenol			<0.30		ug/L		0.3	07-MAR-18
2-Methylnaphthalene			<0.40		ug/L		0.4	07-MAR-18
2,3,4,5-Tetrachlorophenol			<0.50		ug/L		0.5	07-MAR-18
2,3,4,6-Tetrachlorophenol			<0.50		ug/L		0.5	07-MAR-18
2,4-Dichlorophenol			<0.30		ug/L		0.3	07-MAR-18
2,4-Dimethylphenol			<0.50		ug/L		0.5	07-MAR-18
2,4-Dinitrophenol			<1.0		ug/L		1	07-MAR-18
2,4-Dinitrotoluene			<0.40		ug/L		0.4	07-MAR-18
2,4,5-Trichlorophenol			<0.50		ug/L		0.5	07-MAR-18
2,4,6-Trichlorophenol			<0.50		ug/L		0.5	07-MAR-18
2,6-Dinitrotoluene			<0.40		ug/L		0.4	07-MAR-18
3,3'-Dichlorobenzidine			<0.40		ug/L		0.4	07-MAR-18
4-Chloroaniline			<0.40		ug/L		0.4	07-MAR-18
Acenaphthene			<0.20		ug/L		0.2	07-MAR-18
Acenaphthylene			<0.20		ug/L		0.2	07-MAR-18
Anthracene			<0.20		ug/L		0.2	07-MAR-18
Benzo(a)anthracene			<0.20		ug/L		0.2	07-MAR-18
Bis(2-chloroethyl)ether			<0.40		ug/L		0.4	07-MAR-18
Bis(2-ethylhexyl)phthalate			<1.0		ug/L		1	07-MAR-18
Chrysene			<0.20		ug/L		0.2	07-MAR-18
Diethylphthalate			<0.20		ug/L		0.2	07-MAR-18
Dimethylphthalate			<0.20		ug/L		0.2	07-MAR-18
Fluoranthene			<0.20		ug/L		0.2	07-MAR-18
Fluorene			<0.20		ug/L		0.2	07-MAR-18
Hexachlorobenzene			<0.040		ug/L		0.04	07-MAR-18
Hexachlorobutadiene			<0.20		ug/L		0.2	07-MAR-18
Naphthalene			<0.20		ug/L		0.2	07-MAR-18
Pentachlorophenol			<0.50		ug/L		0.5	07-MAR-18
Phenanthrene			<0.20		ug/L		0.2	07-MAR-18
Pyrene			<0.20		ug/L		0.2	07-MAR-18
Surrogate: 2-Fluorobiphenyl			85.6		%		40-130	07-MAR-18
Surrogate: Nitrobenzene d5			95.7		%		50-130	07-MAR-18
Surrogate: p-Terphenyl d14			139.3	RRQC	%		40-130	07-MAR-18

COMMENTS: RRQC:Recovery is outside ALS control limits. Associated sample results have not been affected.



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Client: GHD Limited (Waterloo)
 651 COLBY DRIVE
 WATERLOO ON N2V 1C2

Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
625-WT Water								
Batch R3978362								
WG2726820-1 MB								
			<0.050		ug/L		0.05	07-MAR-18
			<0.20		ug/L		0.2	07-MAR-18
			<0.20		ug/L		0.2	07-MAR-18
			<0.20		ug/L		0.2	07-MAR-18
			<0.20		ug/L		0.2	07-MAR-18
			<0.20		ug/L		0.2	07-MAR-18
			<0.20		ug/L		0.2	07-MAR-18
ALK-WT Water								
Batch R3972387								
WG2722988-7 CRM WT-ALK-CRM								
			108.1		%		80-120	27-FEB-18
WG2722988-8 DUP L2060595-3								
		166	159		mg/L	4.6	20	27-FEB-18
WG2722988-6 LCS								
			98.7		%		85-115	27-FEB-18
WG2722988-5 MB								
			<10		mg/L		10	27-FEB-18
BR-IC-N-WT Water								
Batch R3973037								
WG2723815-14 DUP WG2723815-13								
		<0.10	<0.10	RPD-NA	mg/L	N/A	20	28-FEB-18
WG2723815-12 LCS								
			101.2		%		85-115	28-FEB-18
WG2723815-11 MB								
			<0.10		mg/L		0.1	28-FEB-18
WG2723815-15 MS WG2723815-13								
			99.97		%		75-125	28-FEB-18
C-DIS-ORG-WT Water								
Batch R3971381								
WG2722782-3 DUP L2060595-1								
		4.4	4.5		mg/L	2.6	20	26-FEB-18
WG2722782-2 LCS								
			99.6		%		80-120	26-FEB-18
WG2722782-1 MB								
			<1.0		mg/L		1	26-FEB-18
WG2722782-4 MS L2060595-1								



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 651 COLBY DRIVE
 WATERLOO ON N2V 1C2

Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
C-DIS-ORG-WT								
	Water							
Batch	R3971381							
WG2722782-4	MS	L2060595-1						
	Dissolved Organic Carbon		100.2		%		70-130	26-FEB-18
Batch	R3973423							
WG2724451-3	DUP	L2061087-2						
	Dissolved Organic Carbon	<1.0	<1.0	RPD-NA	mg/L	N/A	20	28-FEB-18
WG2724451-2	LCS		97.2		%		80-120	28-FEB-18
	Dissolved Organic Carbon							
WG2724451-1	MB		<1.0		mg/L		1	28-FEB-18
	Dissolved Organic Carbon							
WG2724451-4	MS	L2061087-2	98.6		%		70-130	28-FEB-18
	Dissolved Organic Carbon							
CL-IC-N-WT								
	Water							
Batch	R3973037							
WG2723815-14	DUP	WG2723815-13						
	Chloride (Cl)	43.2	43.2		mg/L	0.0	20	28-FEB-18
WG2723815-12	LCS		100.4		%		90-110	28-FEB-18
	Chloride (Cl)							
WG2723815-11	MB		<0.50		mg/L		0.5	28-FEB-18
	Chloride (Cl)							
WG2723815-15	MS	WG2723815-13	100.7		%		75-125	28-FEB-18
	Chloride (Cl)							
CN-TOT-WT								
	Water							
Batch	R3972121							
WG2722914-3	DUP	L2059943-1						
	Cyanide, Total	<0.0020	<0.0020	RPD-NA	mg/L	N/A	20	27-FEB-18
WG2722914-2	LCS		86.0		%		80-120	27-FEB-18
	Cyanide, Total							
WG2722914-1	MB		<0.0020		mg/L		0.002	27-FEB-18
	Cyanide, Total							
WG2722914-4	MS	L2059943-1	85.4		%		70-130	27-FEB-18
	Cyanide, Total							
COD-T-WT								
	Water							
Batch	R3976102							
WG2726452-3	DUP	L2060386-1						
	COD	88	96		mg/L	8.7	20	04-MAR-18
WG2726452-2	LCS							



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651 COLBY DRIVE
WATERLOO ON N2V 1C2

Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
COD-T-WT								
	Water							
Batch	R3976102							
WG2726452-2	LCS							
COD			102.2		%		85-115	04-MAR-18
WG2726452-1	MB							
COD			<10		mg/L		10	04-MAR-18
WG2726452-4	MS	L2060386-1						
COD			99.3		%		75-125	04-MAR-18
CR-CR6-IC-WT								
	Water							
Batch	R3972764							
WG2724120-10	DUP	WG2724120-8						
Chromium, Hexavalent		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	28-FEB-18
WG2724120-7	LCS							
Chromium, Hexavalent			104.7		%		80-120	28-FEB-18
WG2724120-6	MB							
Chromium, Hexavalent			<0.0010		mg/L		0.001	28-FEB-18
WG2724120-9	MS	WG2724120-8						
Chromium, Hexavalent			102.7		%		70-130	28-FEB-18
EC-WT								
	Water							
Batch	R3972028							
WG2722906-4	DUP	WG2722906-3						
Conductivity		4110	4110		umhos/cm	0.0	10	27-FEB-18
WG2722906-2	LCS							
Conductivity			98.3		%		90-110	27-FEB-18
WG2722906-1	MB							
Conductivity			<3.0		umhos/cm		3	27-FEB-18
F-IC-N-WT								
	Water							
Batch	R3973037							
WG2723815-14	DUP	WG2723815-13						
Fluoride (F)		0.051	0.055		mg/L	7.4	20	28-FEB-18
WG2723815-12	LCS							
Fluoride (F)			101.5		%		90-110	28-FEB-18
WG2723815-11	MB							
Fluoride (F)			<0.020		mg/L		0.02	28-FEB-18
WG2723815-15	MS	WG2723815-13						
Fluoride (F)			100.8		%		75-125	28-FEB-18
HG-T-CVAA-WT								
	Water							



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 651 COLBY DRIVE
 WATERLOO ON N2V 1C2
 Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
HG-T-CVAA-WT								
	Water							
Batch	R3971642							
WG2722978-3	DUP	L2060595-1						
Mercury (Hg)-Total		<0.000010	<0.000010	RPD-NA	mg/L	N/A	20	27-FEB-18
WG2722978-2	LCS							
Mercury (Hg)-Total			97.6		%		80-120	27-FEB-18
WG2722978-1	MB							
Mercury (Hg)-Total			<0.000010		mg/L		0.00001	27-FEB-18
WG2722978-4	MS	L2060595-2						
Mercury (Hg)-Total			89.7		%		70-130	27-FEB-18
MET-T-CCMS-WT								
	Water							
Batch	R3971395							
WG2722622-4	DUP	WG2722622-3						
Aluminum (Al)-Total		<0.0050	<0.0050	RPD-NA	mg/L	N/A	20	26-FEB-18
Antimony (Sb)-Total		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	26-FEB-18
Arsenic (As)-Total		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	26-FEB-18
Barium (Ba)-Total		0.0167	0.0169		mg/L	1.0	20	26-FEB-18
Beryllium (Be)-Total		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	26-FEB-18
Bismuth (Bi)-Total		<0.000050	<0.000050	RPD-NA	mg/L	N/A	20	26-FEB-18
Boron (B)-Total		0.022	0.022		mg/L	0.2	20	26-FEB-18
Cadmium (Cd)-Total		0.0000058	0.0000075	J	mg/L	0.0000017	0.00001	26-FEB-18
Calcium (Ca)-Total		88.4	86.2		mg/L	2.5	20	26-FEB-18
Cobalt (Co)-Total		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	26-FEB-18
Copper (Cu)-Total		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	26-FEB-18
Iron (Fe)-Total		<0.050	<0.050	RPD-NA	mg/L	N/A	20	26-FEB-18
Lead (Pb)-Total		<0.000050	<0.000050	RPD-NA	mg/L	N/A	20	26-FEB-18
Magnesium (Mg)-Total		17.8	18.0		mg/L	1.0	20	26-FEB-18
Manganese (Mn)-Total		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	26-FEB-18
Molybdenum (Mo)-Total		0.000070	0.000071		mg/L	0.1	20	26-FEB-18
Nickel (Ni)-Total		0.00307	0.00312		mg/L	1.7	20	26-FEB-18
Potassium (K)-Total		3.31	3.35		mg/L	1.2	20	26-FEB-18
Selenium (Se)-Total		0.000202	0.000221		mg/L	9.0	20	26-FEB-18
Silicon (Si)-Total		2.93	2.91		mg/L	0.7	20	26-FEB-18
Silver (Ag)-Total		<0.000050	<0.000050	RPD-NA	mg/L	N/A	20	26-FEB-18
Sodium (Na)-Total		115	114		mg/L	1.4	20	26-FEB-18
Strontium (Sr)-Total		0.164	0.164		mg/L	0.5	20	26-FEB-18
Thallium (Tl)-Total		<0.000010	<0.000010	RPD-NA	mg/L	N/A	20	26-FEB-18



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 651 COLBY DRIVE
 WATERLOO ON N2V 1C2

Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-WT								
	Water							
Batch	R3971395							
WG2722622-4	DUP	WG2722622-3						
Tin (Sn)-Total		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	26-FEB-18
Vanadium (V)-Total		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	26-FEB-18
Zinc (Zn)-Total		<0.0030	<0.0030	RPD-NA	mg/L	N/A	20	26-FEB-18
WG2722622-2	LCS							
Aluminum (Al)-Total			101.9		%		80-120	26-FEB-18
Antimony (Sb)-Total			105.9		%		80-120	26-FEB-18
Arsenic (As)-Total			101.6		%		80-120	26-FEB-18
Barium (Ba)-Total			99.5		%		80-120	26-FEB-18
Beryllium (Be)-Total			92.1		%		80-120	26-FEB-18
Bismuth (Bi)-Total			101.2		%		80-120	26-FEB-18
Boron (B)-Total			86.1		%		80-120	26-FEB-18
Cadmium (Cd)-Total			97.8		%		80-120	26-FEB-18
Calcium (Ca)-Total			96.5		%		80-120	26-FEB-18
Cobalt (Co)-Total			97.1		%		80-120	26-FEB-18
Copper (Cu)-Total			96.2		%		80-120	26-FEB-18
Iron (Fe)-Total			92.7		%		80-120	26-FEB-18
Lead (Pb)-Total			99.5		%		80-120	26-FEB-18
Magnesium (Mg)-Total			96.6		%		80-120	26-FEB-18
Manganese (Mn)-Total			103.2		%		80-120	26-FEB-18
Molybdenum (Mo)-Total			102.6		%		80-120	26-FEB-18
Nickel (Ni)-Total			96.3		%		80-120	26-FEB-18
Potassium (K)-Total			99.7		%		80-120	26-FEB-18
Selenium (Se)-Total			97.1		%		80-120	26-FEB-18
Silicon (Si)-Total			97.7		%		60-140	26-FEB-18
Silver (Ag)-Total			99.4		%		80-120	26-FEB-18
Sodium (Na)-Total			102.4		%		80-120	26-FEB-18
Strontium (Sr)-Total			100.6		%		80-120	26-FEB-18
Thallium (Tl)-Total			99.5		%		80-120	26-FEB-18
Tin (Sn)-Total			101.4		%		80-120	26-FEB-18
Vanadium (V)-Total			100.4		%		80-120	26-FEB-18
Zinc (Zn)-Total			92.8		%		80-120	26-FEB-18
WG2722622-1	MB							
Aluminum (Al)-Total			<0.0050		mg/L		0.005	26-FEB-18
Antimony (Sb)-Total			<0.00010		mg/L		0.0001	26-FEB-18



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Client: GHD Limited (Waterloo)
 651 COLBY DRIVE
 WATERLOO ON N2V 1C2
 Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-WT								
	Water							
Batch	R3971395							
WG2722622-1	MB							
Arsenic (As)-Total			<0.00010		mg/L		0.0001	26-FEB-18
Barium (Ba)-Total			<0.00020		mg/L		0.0002	26-FEB-18
Beryllium (Be)-Total			<0.00010		mg/L		0.0001	26-FEB-18
Bismuth (Bi)-Total			<0.000050		mg/L		0.00005	26-FEB-18
Boron (B)-Total			<0.010		mg/L		0.01	26-FEB-18
Cadmium (Cd)-Total			<0.0000050		mg/L		0.000005	26-FEB-18
Calcium (Ca)-Total			<0.50		mg/L		0.5	26-FEB-18
Cobalt (Co)-Total			<0.00010		mg/L		0.0001	26-FEB-18
Copper (Cu)-Total			<0.0010		mg/L		0.001	26-FEB-18
Iron (Fe)-Total			<0.050		mg/L		0.05	26-FEB-18
Lead (Pb)-Total			<0.000050		mg/L		0.00005	26-FEB-18
Magnesium (Mg)-Total			<0.050		mg/L		0.05	26-FEB-18
Manganese (Mn)-Total			<0.00050		mg/L		0.0005	26-FEB-18
Molybdenum (Mo)-Total			<0.000050		mg/L		0.00005	27-FEB-18
Nickel (Ni)-Total			<0.00050		mg/L		0.0005	26-FEB-18
Potassium (K)-Total			<0.050		mg/L		0.05	26-FEB-18
Selenium (Se)-Total			<0.000050		mg/L		0.00005	26-FEB-18
Silicon (Si)-Total			<0.10		mg/L		0.1	26-FEB-18
Silver (Ag)-Total			<0.000050		mg/L		0.00005	26-FEB-18
Sodium (Na)-Total			<0.50		mg/L		0.5	26-FEB-18
Strontium (Sr)-Total			<0.0010		mg/L		0.001	26-FEB-18
Thallium (Tl)-Total			<0.000010		mg/L		0.00001	26-FEB-18
Tin (Sn)-Total			<0.00010		mg/L		0.0001	26-FEB-18
Vanadium (V)-Total			<0.00050		mg/L		0.0005	26-FEB-18
Zinc (Zn)-Total			<0.0030		mg/L		0.003	26-FEB-18
WG2722622-5	MS	WG2722622-6						
Aluminum (Al)-Total			95.6		%		70-130	26-FEB-18
Antimony (Sb)-Total			99.97		%		70-130	26-FEB-18
Arsenic (As)-Total			97.0		%		70-130	26-FEB-18
Barium (Ba)-Total			N/A	MS-B	%		-	26-FEB-18
Beryllium (Be)-Total			87.3		%		70-130	26-FEB-18
Bismuth (Bi)-Total			93.5		%		70-130	26-FEB-18
Boron (B)-Total			81.1		%		70-130	26-FEB-18
Cadmium (Cd)-Total			94.2		%		70-130	26-FEB-18



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 651 COLBY DRIVE
 WATERLOO ON N2V 1C2

Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-WT								
	Water							
Batch	R3971395							
WG2722622-5 MS		WG2722622-6						
Calcium (Ca)-Total			N/A	MS-B	%		-	26-FEB-18
Cobalt (Co)-Total			90.1		%		70-130	26-FEB-18
Copper (Cu)-Total			86.4		%		70-130	26-FEB-18
Iron (Fe)-Total			80.5		%		70-130	26-FEB-18
Lead (Pb)-Total			89.8		%		70-130	26-FEB-18
Magnesium (Mg)-Total			N/A	MS-B	%		-	26-FEB-18
Manganese (Mn)-Total			96.2		%		70-130	26-FEB-18
Molybdenum (Mo)-Total			98.4		%		70-130	26-FEB-18
Nickel (Ni)-Total			87.0		%		70-130	26-FEB-18
Potassium (K)-Total			N/A	MS-B	%		-	26-FEB-18
Selenium (Se)-Total			94.0		%		70-130	26-FEB-18
Silicon (Si)-Total			N/A	MS-B	%		-	26-FEB-18
Silver (Ag)-Total			90.7		%		70-130	26-FEB-18
Sodium (Na)-Total			N/A	MS-B	%		-	26-FEB-18
Strontium (Sr)-Total			N/A	MS-B	%		-	26-FEB-18
Thallium (Tl)-Total			91.8		%		70-130	26-FEB-18
Tin (Sn)-Total			96.9		%		70-130	26-FEB-18
Vanadium (V)-Total			96.6		%		70-130	26-FEB-18
Zinc (Zn)-Total			82.0		%		70-130	26-FEB-18
NH3-WT								
	Water							
Batch	R3975507							
WG2725937-7 DUP		L2060388-1						
Ammonia, Total (as N)		0.270	0.262		mg/L	3.0	20	02-MAR-18
WG2725937-6 LCS								
Ammonia, Total (as N)			111.7		%		85-115	02-MAR-18
WG2725937-5 MB								
Ammonia, Total (as N)			<0.020		mg/L		0.02	02-MAR-18
WG2725937-8 MS		L2060388-1						
Ammonia, Total (as N)			97.7		%		75-125	02-MAR-18
NO2-IC-WT								
	Water							
Batch	R3973037							
WG2723815-14 DUP		WG2723815-13						
Nitrite (as N)		<0.010	<0.010	RPD-NA	mg/L	N/A	25	28-FEB-18
WG2723815-12 LCS								
Nitrite (as N)			101.7				70-130	



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Client: GHD Limited (Waterloo)
 651 COLBY DRIVE
 WATERLOO ON N2V 1C2

Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
NO2-IC-WT	Water							
Batch	R3973037							
WG2723815-12	LCS							
Nitrite (as N)			101.7		%		70-130	28-FEB-18
WG2723815-11	MB							
Nitrite (as N)			<0.010		mg/L		0.01	28-FEB-18
WG2723815-15	MS	WG2723815-13						
Nitrite (as N)			98.2		%		70-130	28-FEB-18
NO3-IC-WT	Water							
Batch	R3973037							
WG2723815-14	DUP	WG2723815-13						
Nitrate (as N)			<0.020	RPD-NA	mg/L	N/A	25	28-FEB-18
WG2723815-12	LCS							
Nitrate (as N)			101.0		%		70-130	28-FEB-18
WG2723815-11	MB							
Nitrate (as N)			<0.020		mg/L		0.02	28-FEB-18
WG2723815-15	MS	WG2723815-13						
Nitrate (as N)			100.9		%		70-130	28-FEB-18
P-T-COL-WT	Water							
Batch	R3972732							
WG2724334-3	DUP	L2060595-2						
Phosphorus, Total			0.0239		mg/L	5.1	20	01-MAR-18
WG2724334-2	LCS							
Phosphorus, Total			94.5		%		80-120	01-MAR-18
WG2724334-1	MB							
Phosphorus, Total			<0.0030		mg/L		0.003	01-MAR-18
WG2724334-4	MS	L2060595-2						
Phosphorus, Total			93.8		%		70-130	01-MAR-18
PH-WT	Water							
Batch	R3971027							
WG2722698-2	DUP	L2060595-1						
pH			7.62	J	pH units	0.01	0.2	26-FEB-18
WG2722698-1	LCS							
pH			7.01		pH units		6.9-7.1	26-FEB-18
PHENOLS-4AAP-WT	Water							
Batch	R3972554							
WG2724034-7	DUP	L2060159-6						
Phenols (4AAP)			0.0014		mg/L	17	20	28-FEB-18
WG2724034-6	LCS							



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Client: GHD Limited (Waterloo)
 651 COLBY DRIVE
 WATERLOO ON N2V 1C2

Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PHENOLS-4AAP-WT								
Water								
Batch R3972554								
WG2724034-6	LCS		95.7		%		85-115	28-FEB-18
Phenols (4AAP)								
WG2724034-5	MB		<0.0010		mg/L		0.001	28-FEB-18
Phenols (4AAP)								
WG2724034-8	MS	L2060159-6	97.4		%		75-125	28-FEB-18
Phenols (4AAP)								
SO4-IC-N-WT								
Water								
Batch R3973037								
WG2723815-14	DUP	WG2723815-13	11.3		mg/L	0.5	20	28-FEB-18
Sulfate (SO4)								
WG2723815-12	LCS		101.2		%		90-110	28-FEB-18
Sulfate (SO4)								
WG2723815-11	MB		<0.30		mg/L		0.3	28-FEB-18
Sulfate (SO4)								
WG2723815-15	MS	WG2723815-13	101.7		%		75-125	28-FEB-18
Sulfate (SO4)								
SOLIDS-TDS-WT								
Water								
Batch R3974495								
WG2723418-3	DUP	WG2723418-4	60		mg/L	7.8	20	27-FEB-18
Total Dissolved Solids								
WG2723418-2	LCS		94.8		%		85-115	27-FEB-18
Total Dissolved Solids								
WG2723418-1	MB		<10		mg/L		10	08-MAR-18
Total Dissolved Solids								
SOLIDS-TSS-WT								
Water								
Batch R3973659								
WG2724535-3	DUP	L2061749-1	226		mg/L	3.0	20	02-MAR-18
Total Suspended Solids								
WG2724535-2	LCS		98.2		%		85-115	02-MAR-18
Total Suspended Solids								
WG2724535-1	MB		<2.0		mg/L		2	02-MAR-18
Total Suspended Solids								
TKN-WT								
Water								
Batch R3975944								
WG2725342-3	DUP	L2060242-1	2.00		mg/L	11	20	03-MAR-18
Total Kjeldahl Nitrogen								
WG2725342-2	LCS							



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Client: GHD Limited (Waterloo)
651 COLBY DRIVE
WATERLOO ON N2V 1C2

Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
TKN-WT								
Water								
Batch	R3975944							
WG2725342-2	LCS							
Total Kjeldahl Nitrogen			107.3		%		75-125	03-MAR-18
WG2725342-1	MB							
Total Kjeldahl Nitrogen			<0.15		mg/L		0.15	03-MAR-18
WG2725342-4	MS	L2060242-1						
Total Kjeldahl Nitrogen			112.6		%		70-130	03-MAR-18
Batch	R3977928							
WG2726495-3	DUP	L2061249-1						
Total Kjeldahl Nitrogen		0.44	0.42		mg/L	5.9	20	06-MAR-18
WG2726495-2	LCS							
Total Kjeldahl Nitrogen			119.6		%		75-125	06-MAR-18
WG2726495-1	MB							
Total Kjeldahl Nitrogen			<0.15		mg/L		0.15	06-MAR-18
WG2726495-4	MS	L2061249-1						
Total Kjeldahl Nitrogen			99.1		%		70-130	06-MAR-18
VOC-ROU-HS-WT								
Water								
Batch	R3972064							
WG2708700-4	DUP	WG2708700-3						
1,1,1,2-Tetrachloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	28-FEB-18
1,1,2,2-Tetrachloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	28-FEB-18
1,1,1-Trichloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	28-FEB-18
1,1,2-Trichloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	28-FEB-18
1,2-Dibromoethane		<0.20	<0.20	RPD-NA	ug/L	N/A	30	28-FEB-18
1,1-Dichloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	28-FEB-18
1,1-Dichloroethylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	28-FEB-18
1,2-Dichlorobenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	28-FEB-18
1,2-Dichloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	28-FEB-18
1,2-Dichloropropane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	28-FEB-18
1,3-Dichlorobenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	28-FEB-18
1,4-Dichlorobenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	28-FEB-18
Acetone		<20	<20	RPD-NA	ug/L	N/A	30	28-FEB-18
Benzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	28-FEB-18
Bromodichloromethane		<1.0	<1.0	RPD-NA	ug/L	N/A	30	28-FEB-18
Bromoform		<1.0	<1.0	RPD-NA	ug/L	N/A	30	28-FEB-18
Bromomethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	28-FEB-18



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Client: GHD Limited (Waterloo)
 651 COLBY DRIVE
 WATERLOO ON N2V 1C2
 Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-ROU-HS-WT		Water						
Batch	R3972064							
WG2708700-4	DUP	WG2708700-3						
Carbon tetrachloride		<0.50	<0.50	RPD-NA	ug/L	N/A	30	28-FEB-18
Chlorobenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	28-FEB-18
Chloroethane		<1.0	<1.0	RPD-NA	ug/L	N/A	30	28-FEB-18
Chloroform		<1.0	<1.0	RPD-NA	ug/L	N/A	30	28-FEB-18
cis-1,2-Dichloroethylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	28-FEB-18
cis-1,3-Dichloropropene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	28-FEB-18
Dibromochloromethane		<1.0	<1.0	RPD-NA	ug/L	N/A	30	28-FEB-18
Dichlorodifluoromethane		<1.0	<1.0	RPD-NA	ug/L	N/A	30	28-FEB-18
Dichloromethane		<2.0	<2.0	RPD-NA	ug/L	N/A	30	28-FEB-18
Ethylbenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	28-FEB-18
m+p-Xylenes		<1.0	<1.0	RPD-NA	ug/L	N/A	30	28-FEB-18
Methyl Ethyl Ketone		<20	<20	RPD-NA	ug/L	N/A	30	28-FEB-18
Methyl Isobutyl Ketone		<20	<20	RPD-NA	ug/L	N/A	30	28-FEB-18
n-Hexane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	28-FEB-18
MTBE		<0.50	<0.50	RPD-NA	ug/L	N/A	30	28-FEB-18
o-Xylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	28-FEB-18
Styrene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	28-FEB-18
Tetrachloroethylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	28-FEB-18
Toluene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	28-FEB-18
trans-1,2-Dichloroethylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	28-FEB-18
trans-1,3-Dichloropropene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	28-FEB-18
Trichloroethylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	28-FEB-18
Trichlorofluoromethane		<1.0	<1.0	RPD-NA	ug/L	N/A	30	28-FEB-18
Vinyl chloride		<0.50	<0.50	RPD-NA	ug/L	N/A	30	28-FEB-18
WG2708700-1	LCS							
1,1,1,2-Tetrachloroethane			101.2		%		70-130	28-FEB-18
1,1,1,2,2-Tetrachloroethane			92.5		%		70-130	28-FEB-18
1,1,1-Trichloroethane			102.8		%		70-130	28-FEB-18
1,1,2-Trichloroethane			110.1		%		70-130	28-FEB-18
1,2-Dibromoethane			112.2		%		70-130	28-FEB-18
1,1-Dichloroethane			100.3		%		70-130	28-FEB-18
1,1-Dichloroethylene			87.8		%		70-130	28-FEB-18
1,2-Dichlorobenzene			105.0		%		70-130	28-FEB-18



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Client: GHD Limited (Waterloo)
 651 COLBY DRIVE
 WATERLOO ON N2V 1C2

Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-ROU-HS-WT								
	Water							
Batch	R3972064							
WG2708700-1	LCS							
1,2-Dichloroethane			100.8		%		70-130	28-FEB-18
1,2-Dichloropropane			108.4		%		70-130	28-FEB-18
1,3-Dichlorobenzene			105.0		%		70-130	28-FEB-18
1,4-Dichlorobenzene			106.6		%		70-130	28-FEB-18
Acetone			106.4		%		60-140	28-FEB-18
Benzene			101.5		%		70-130	28-FEB-18
Bromodichloromethane			105.9		%		70-130	28-FEB-18
Bromoform			107.3		%		70-130	28-FEB-18
Bromomethane			92.8		%		60-140	28-FEB-18
Carbon tetrachloride			99.4		%		70-130	28-FEB-18
Chlorobenzene			104.6		%		70-130	28-FEB-18
Chloroethane			92.3		%		70-130	28-FEB-18
Chloroform			102.1		%		70-130	28-FEB-18
cis-1,2-Dichloroethylene			98.0		%		70-130	28-FEB-18
cis-1,3-Dichloropropene			110.4		%		70-130	28-FEB-18
Dibromochloromethane			110.7		%		70-130	28-FEB-18
Dichlorodifluoromethane			64.3		%		50-140	28-FEB-18
Dichloromethane			98.9		%		70-130	28-FEB-18
Ethylbenzene			100.4		%		70-130	28-FEB-18
m+p-Xylenes			101.4		%		70-130	28-FEB-18
Methyl Ethyl Ketone			109.2		%		60-140	28-FEB-18
Methyl Isobutyl Ketone			110.3		%		50-150	28-FEB-18
n-Hexane			96.9		%		70-130	28-FEB-18
MTBE			102.0		%		70-130	28-FEB-18
o-Xylene			100.2		%		70-130	28-FEB-18
Styrene			100.1		%		70-130	28-FEB-18
Tetrachloroethylene			102.3		%		70-130	28-FEB-18
Toluene			100.9		%		70-130	28-FEB-18
trans-1,2-Dichloroethylene			96.1		%		70-130	28-FEB-18
trans-1,3-Dichloropropene			110.3		%		70-130	28-FEB-18
Trichloroethylene			105.1		%		70-130	28-FEB-18
Trichlorofluoromethane			97.8		%		60-140	28-FEB-18
Vinyl chloride			74.7		%		60-140	28-FEB-18
WG2708700-2	MB							



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Client: GHD Limited (Waterloo)
 651 COLBY DRIVE
 WATERLOO ON N2V 1C2
 Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-ROU-HS-WT								
	Water							
Batch	R3972064							
WG2708700-2 MB								
1,1,1,2-Tetrachloroethane			<0.50		ug/L		0.5	28-FEB-18
1,1,2,2-Tetrachloroethane			<0.50		ug/L		0.5	28-FEB-18
1,1,1-Trichloroethane			<0.50		ug/L		0.5	28-FEB-18
1,1,2-Trichloroethane			<0.50		ug/L		0.5	28-FEB-18
1,2-Dibromoethane			<0.20		ug/L		0.2	28-FEB-18
1,1-Dichloroethane			<0.50		ug/L		0.5	28-FEB-18
1,1-Dichloroethylene			<0.50		ug/L		0.5	28-FEB-18
1,2-Dichlorobenzene			<0.50		ug/L		0.5	28-FEB-18
1,2-Dichloroethane			<0.50		ug/L		0.5	28-FEB-18
1,2-Dichloropropane			<0.50		ug/L		0.5	28-FEB-18
1,3-Dichlorobenzene			<0.50		ug/L		0.5	28-FEB-18
1,4-Dichlorobenzene			<0.50		ug/L		0.5	28-FEB-18
Acetone			<20		ug/L		20	28-FEB-18
Benzene			<0.50		ug/L		0.5	28-FEB-18
Bromodichloromethane			<1.0		ug/L		1	28-FEB-18
Bromoform			<1.0		ug/L		1	28-FEB-18
Bromomethane			<0.50		ug/L		0.5	28-FEB-18
Carbon tetrachloride			<0.50		ug/L		0.5	28-FEB-18
Chlorobenzene			<0.50		ug/L		0.5	28-FEB-18
Chloroethane			<1.0		ug/L		1	28-FEB-18
Chloroform			<1.0		ug/L		1	28-FEB-18
cis-1,2-Dichloroethylene			<0.50		ug/L		0.5	28-FEB-18
cis-1,3-Dichloropropene			<0.50		ug/L		0.5	28-FEB-18
Dibromochloromethane			<1.0		ug/L		1	28-FEB-18
Dichlorodifluoromethane			<1.0		ug/L		1	28-FEB-18
Dichloromethane			<2.0		ug/L		2	28-FEB-18
Ethylbenzene			<0.50		ug/L		0.5	28-FEB-18
m+p-Xylenes			<1.0		ug/L		1	28-FEB-18
Methyl Ethyl Ketone			<20		ug/L		20	28-FEB-18
Methyl Isobutyl Ketone			<20		ug/L		20	28-FEB-18
n-Hexane			<0.50		ug/L		0.5	28-FEB-18
MTBE			<0.50		ug/L		0.5	28-FEB-18
o-Xylene			<0.50		ug/L		0.5	28-FEB-18



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Client: GHD Limited (Waterloo)
651 COLBY DRIVE
WATERLOO ON N2V 1C2

Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-ROU-HS-WT								
	Water							
Batch	R3972064							
WG2708700-2	MB							
Styrene			<0.50		ug/L		0.5	28-FEB-18
Tetrachloroethylene			<0.50		ug/L		0.5	28-FEB-18
Toluene			<0.50		ug/L		0.5	28-FEB-18
trans-1,2-Dichloroethylene			<0.50		ug/L		0.5	28-FEB-18
trans-1,3-Dichloropropene			<0.50		ug/L		0.5	28-FEB-18
Trichloroethylene			<0.50		ug/L		0.5	28-FEB-18
Trichlorofluoromethane			<1.0		ug/L		1	28-FEB-18
Vinyl chloride			<0.50		ug/L		0.5	28-FEB-18
Surrogate: 1,4-Difluorobenzene			95.1		%		70-130	28-FEB-18
Surrogate: 4-Bromofluorobenzene			103.0		%		70-130	28-FEB-18

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Client: GHD Limited (Waterloo)
651 COLBY DRIVE
WATERLOO ON N2V 1C2
Contact: JENNIFER BALKWILL

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Legend:

Limit ALS Control Limit (Data Quality Objectives)
DUP Duplicate
RPD Relative Percent Difference
N/A Not Available
LCS Laboratory Control Sample
SRM Standard Reference Material
MS Matrix Spike
MSD Matrix Spike Duplicate
ADE Average Desorption Efficiency
MB Method Blank
IRM Internal Reference Material
CRM Certified Reference Material
CCV Continuing Calibration Verification
CVS Calibration Verification Standard
LCSD Laboratory Control Sample Duplicate

Sample Parameter Qualifier Definitions:

Qualifier	Description
J	Duplicate results and limits are expressed in terms of absolute difference.
LCS-ND	Lab Control Sample recovery was slightly outside ALS DQO. Reported non-detect results for associated samples were unaffected.
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.
RPD-NA	Relative Percent Difference Not Available due to result(s) being less than detection limit.
RRQC	Refer to report remarks for information regarding this QC result.

Hold Time Exceedances:

All test results reported with this submission were conducted within ALS recommended hold times.

ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where available). For more information, please contact ALS.

The ALS Quality Control Report is provided to ALS clients upon request. ALS includes comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against pre-determined data quality objectives to provide confidence in the accuracy of associated test results.

Please note that this report may contain QC results from anonymous Sample Duplicates and Matrix Spikes that do not originate from this Work Order.


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Report To Acct#13791		Report Format / Distribution			Select Service Level Below (Rush Turnaround Time (TAT) is not available for all tests)														
Company: GHD LIMITED		Select Report Format: <input checked="" type="checkbox"/> PDF <input checked="" type="checkbox"/> EXCEL <input checked="" type="checkbox"/> EDD (DIGITAL)			R <input checked="" type="checkbox"/> Regular (Standard TAT if received by 3pm - business days)														
Contact: Jennifer Balkwill		Quality Control (QC) Report with Report <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No			P <input type="checkbox"/> Priority (2-4 bus. days if received by 3pm) 50% surcharge - contact ALS to confirm TAT														
Address: 651 Colby Drive, Waterloo, Ontario N2V 1C2		<input type="checkbox"/> Criteria on Report - provide details below if box checked			E <input type="checkbox"/> Emergency (1-2 bus. days if received by 3pm) 100% surcharge - contact ALS to confirm TAT														
Phone: 519-884-0510		Select Distribution: <input checked="" type="checkbox"/> EMAIL <input type="checkbox"/> MAIL <input type="checkbox"/> FAX			E2 <input type="checkbox"/> Same day or weekend emergency - contact ALS to confirm TAT and surcharge														
		Email 1 or Fax Jennifer.Balkwill@ghd.com			Specify Date Required for E2,E or P:														
		Email 2 See PO			Analysis Request														
Invoice To Same as Report To <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Invoice Distribution			Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below														
Copy of Invoice with Report <input type="checkbox"/> Yes <input type="checkbox"/> No		Select Invoice Distribution: <input checked="" type="checkbox"/> EMAIL <input type="checkbox"/> MAIL <input type="checkbox"/> FAX																	
Company: GHD LIMITED		Email 1 or Fax Jennifer.Balkwill@ghd.com																	
Contact: Jennifer Balkwill		Email 2																	
Project Information		Oil and Gas Required Fields (client use)																	
ALS Quote #: 44985		Approver ID:	Cost Center:																
Job #: 44985		GL Account:	Routing Code:																
PO / AFE: 73506479		Activity Code:																	
LSD:		Location:																	
ALS Lab Work Order # (lab use only) L2060595 811		ALS Contact: Rick H	Sampler:																
ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)		Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	ALK, Conductivity, pH, TDS, TSS, Phenols	Br, NO2, NO3, SO4, Cl, F (ANIONS-IC-6-WT)	DOC (C-DIS-ORG-WT), COD, TKN, TP	Total CN (CN-TOT-WT)	Un-ionized NH3 (E TL-NH3-UNION-CLI-WT)	Total Metals (MET-T-M5-WT, WT-44985-Metals)	Total Mercury (HG-T-CVAA-WT)	Total Cr 6+ (CR-CR6-IC-WT), Hardness calc	VOCs (VOC-ROU-HS-WT, WT-44985-VOC)	SVOCs (SVOC-44985-P-WT)	CLIENT SUPPLIED TEMPERATURE °C	CLIENT SUPPLIED pH **	Number of Containers	
	EQ Pond Discharge		22-2-18	11 30	Gwab	R	R	R	R	R	R	R	R	R	R	5	6.8	12	
	West Storm Water Pond		22-2-18	11 30	Gwab	R	R	R	R	R	R	R	R	R	R	4	6.9	12	
	East Storm Water Pond		22-2-18	11 30	Gwab	R	R	R	R	R	R	R	R	R	R	5	7.2	12	
	STN 6A		22-2-18	11 00	Gwab	R	R	R	R	R	R	R	R	R	R	4	7.2	7	
Drinking Water (DW) Samples¹ (client use)		Special Instructions / Specify Criteria to add on report (client Use)			SAMPLE CONDITION AS RECEIVED (lab use only)														
Are samples taken from a Regulated DW System? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		**Please fill in Client Supplied temperature and pH for Unionized NH3 calculation**			Frozen <input type="checkbox"/> SIF Observations Yes <input type="checkbox"/> No <input type="checkbox"/>														
Are samples for human drinking water use? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No					Ice packs Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Custody seal intact Yes <input type="checkbox"/> No <input type="checkbox"/>														
					Cooling Initiated <input type="checkbox"/> <u>NA ICE-COOLER</u>														
					INITIAL COOLER TEMPERATURES °C							FINAL COOLER TEMPERATURES °C							
					19.0							20.1							
SHIPMENT RELEASE (client use)		INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)														
Released by: <i>[Signature]</i>	Date: Feb 23/18	Time:	Received by:	Date:	Time:	Received by: <i>[Signature]</i>	Date: 26-Feb-18	Time: 11:00											

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

164-164320a-108 Form 04 January 2014

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.



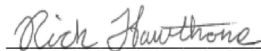
GHD Limited (Waterloo)
ATTN: JENNIFER BALKWILL
651 COLBY DRIVE
WATERLOO ON N2V 1C2

Date Received: 28-FEB-18
Report Date: 02-MAR-18 14:12 (MT)
Version: FINAL

Client Phone: 519-884-0510

Certificate of Analysis

Lab Work Order #: L2061637
Project P.O. #: 73506479
Job Reference: 44985
C of C Numbers:
Legal Site Desc:



Rick Hawthorne
Account Manager

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ADDRESS: 60 Northland Road, Unit 1, Waterloo, ON N2V 2B8 Canada | Phone: +1 519 886 6910 | Fax: +1 519 886 9047
ALS CANADA LTD Part of the ALS Group An ALS Limited Company

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2061637-1 EQ POND DISCHARGE Sampled By: CLIENT on 26-FEB-18 @ 09:25 Matrix: WATER							
Microtox Physical Tests							
Turbidity	Low				02-MAR-18	02-MAR-18	R3974691
Colour	Colourless				02-MAR-18	02-MAR-18	R3974691
Clarification	Centrifuged				02-MAR-18	02-MAR-18	R3974691
Initial pH	7.6		0.10	pH	02-MAR-18	02-MAR-18	R3974691
Final pH	7.6		0.10	pH	02-MAR-18	02-MAR-18	R3974691
Lab Treatment	None				02-MAR-18	02-MAR-18	R3974691
Microtox Original							
EC50 (15min) Original	>100		1.0	%	02-MAR-18	02-MAR-18	R3974691
EC20 (15min) Original	>100		1.0	%	02-MAR-18	02-MAR-18	R3974691
EC50 (5min) Original	>100		1.0	%	02-MAR-18	02-MAR-18	R3974691
EC20 (5min) Original	>100		1.0	%	02-MAR-18	02-MAR-18	R3974691
Interpretation Original	NON TOXIC				02-MAR-18	02-MAR-18	R3974691

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
MICROTOX-ORG-GP	Water	Microtox Original	ERCB Directive 050
Light output of luminescent bacteria is measured after they have been challenged by a sample of unknown toxicity, and compared to the light output of a control reagent blank. The difference in light output is attributed to the effect of the sample on the organisms, and the degree of light loss indicates metabolic inhibition and the degree of toxicity of the sample to the bacteria. EC50(5) and EC50(15) values are reported, and refer to the effective concentration of the sample that caused a 50% decrease in the light output in 5 and 15 minutes.			
MICROTOX-PHYSICAL-GP	Water	Microtox Physical Tests	ERCB Directive 050

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
GP	ALS ENVIRONMENTAL - GRANDE PRAIRIE, ALBERTA, CANADA

Chain of Custody Numbers:

GLOSSARY OF REPORT TERMS

Surrogates are compounds that are similar in behaviour to target analyte(s), but that do not normally occur in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery. In reports that display the D.L. column, laboratory objectives for surrogates are listed there.

mg/kg - milligrams per kilogram based on dry weight of sample

mg/kg wwt - milligrams per kilogram based on wet weight of sample

mg/kg lwt - milligrams per kilogram based on lipid weight of sample

mg/L - unit of concentration based on volume, parts per million.

< - Less than.

D.L. - The reporting limit.

N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.

UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.



Quality Control Report

Workorder: L2061637

Report Date: 02-MAR-18

Page 1 of 3

Client: GHD Limited (Waterloo)
651 COLBY DRIVE
WATERLOO ON N2V 1C2

Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MICROTOX-ORG-GP								
	Water							
Batch	R3974691							
WG2725699-2 CRM		PHENOL_GP						
EC50 (5min) Original			16.0		mg/L		13-26	02-MAR-18
WG2725699-4 DUP		L2061637-1						
EC50 (15min) Original		>100	>100	RPD-NA	%	N/A		02-MAR-18
EC20 (15min) Original		>100	>100	RPD-NA	%	N/A		02-MAR-18
EC50 (5min) Original		>100	>100	RPD-NA	%	N/A		02-MAR-18
EC20 (5min) Original		>100	>100	RPD-NA	%	N/A		02-MAR-18
WG2725699-1 MB								
EC50 (15min) Original			PASS					02-MAR-18
EC20 (15min) Original			PASS					02-MAR-18
EC50 (5min) Original			PASS					02-MAR-18
EC20 (5min) Original			PASS					02-MAR-18

Quality Control Report

Workorder: L2061637

Report Date: 02-MAR-18

Client: GHD Limited (Waterloo)
651 COLBY DRIVE
WATERLOO ON N2V 1C2
Contact: JENNIFER BALKWILL

Page 2 of 3

Legend:

Limit	ALS Control Limit (Data Quality Objectives)
DUP	Duplicate
RPD	Relative Percent Difference
N/A	Not Available
LCS	Laboratory Control Sample
SRM	Standard Reference Material
MS	Matrix Spike
MSD	Matrix Spike Duplicate
ADE	Average Desorption Efficiency
MB	Method Blank
IRM	Internal Reference Material
CRM	Certified Reference Material
CCV	Continuing Calibration Verification
CVS	Calibration Verification Standard
LCSD	Laboratory Control Sample Duplicate

Sample Parameter Qualifier Definitions:

Qualifier	Description
RPD-NA	Relative Percent Difference Not Available due to result(s) being less than detection limit.

Quality Control Report

Workorder: L2061637

Report Date: 02-MAR-18

Client: GHD Limited (Waterloo)
651 COLBY DRIVE
WATERLOO ON N2V 1C2
Contact: JENNIFER BALKWILL

Page 3 of 3

Hold Time Exceedances:

ALS Product Description	Sample ID	Sampling Date	Date Processed	Rec. HT	Actual HT	Units	Qualifier
Microtox							
Microtox Original	1	26-FEB-18 09:25	02-MAR-18 00:00	3	4	days	EHTL

Legend & Qualifier Definitions:

EHTR-FM: Exceeded ALS recommended hold time prior to sample receipt. Field Measurement recommended.
EHTR: Exceeded ALS recommended hold time prior to sample receipt.
EHTL: Exceeded ALS recommended hold time prior to analysis. Sample was received less than 24 hours prior to expiry.
EHT: Exceeded ALS recommended hold time prior to analysis.
Rec. HT: ALS recommended hold time (see units).

Notes*:
Where actual sampling date is not provided to ALS, the date (& time) of receipt is used for calculation purposes.
Where actual sampling time is not provided to ALS, the earlier of 12 noon on the sampling date or the time (& date) of receipt is used for calculation purposes. Samples for L2061637 were received on 28-FEB-18 09:03.

ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where available). For more information, please contact ALS.

The ALS Quality Control Report is provided to ALS clients upon request. ALS includes comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against pre-determined data quality objectives to provide confidence in the accuracy of associated test results.

Please note that this report may contain QC results from anonymous Sample Duplicates and Matrix Spikes that do not originate from this Work Order.




GHD Limited (Waterloo)
ATTN: JENNIFER BALKWILL
651 COLBY DRIVE
WATERLOO ON N2V 1C2

Date Received: 24-APR-18
Report Date: 01-MAY-18 13:05 (MT)
Version: FINAL

Client Phone: 519-884-0510

Certificate of Analysis

Lab Work Order #: L2083897
Project P.O. #: 73506479
Job Reference: 44985
C of C Numbers:
Legal Site Desc:



Rick Hawthorne
Account Manager

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ADDRESS: 60 Northland Road, Unit 1, Waterloo, ON N2V 2B8 Canada | Phone: +1 519 886 6910 | Fax: +1 519 886 9047
ALS CANADA LTD Part of the ALS Group An ALS Limited Company

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2083897-1 EQ POND DISCHARGE							
Sampled By: CLIENT on 23-APR-18 @ 14:00							
Matrix: WATER							
Field Tests							
pH, Client Supplied	7.70		0.10	pH		26-APR-18	R4023439
Temperature, Client	10.0		-50	Deg. C		26-APR-18	R4023439
Physical Tests							
Conductivity	780		3.0	umhos/cm		24-APR-18	R4022427
Hardness (as CaCO3)	277	HTC	10	mg/L		25-APR-18	
pH	8.06		0.10	pH units		24-APR-18	R4022427
Total Suspended Solids	5.6		2.0	mg/L	26-APR-18	27-APR-18	R4024010
Total Dissolved Solids	482	DLDS	20	mg/L		25-APR-18	R4023380
Anions and Nutrients							
Alkalinity, Total (as CaCO3)	142		10	mg/L		26-APR-18	R4023572
Unionized ammonia	0.00928		0.00022	mg/L		01-MAY-18	
Ammonia, Total (as N)	0.827		0.020	mg/L		25-APR-18	R4022872
Bromide (Br)	1.00		0.10	mg/L		26-APR-18	R4023632
Chloride (Cl)	67.6		0.50	mg/L		26-APR-18	R4023632
Fluoride (F)	0.483		0.020	mg/L		26-APR-18	R4023632
Nitrate (as N)	0.776		0.020	mg/L		26-APR-18	R4023632
Nitrite (as N)	0.017		0.010	mg/L		26-APR-18	R4023632
Total Kjeldahl Nitrogen	0.80		0.15	mg/L	24-APR-18	25-APR-18	R4022897
Phosphorus, Total	0.0255		0.0030	mg/L	26-APR-18	27-APR-18	R4023962
Sulfate (SO4)	156		0.30	mg/L		26-APR-18	R4023632
Cyanides							
Cyanide, Total	<0.0020		0.0020	mg/L		30-APR-18	R4028971
Organic / Inorganic Carbon							
Dissolved Organic Carbon	4.4		1.0	mg/L		25-APR-18	R4023975
Total Metals							
Aluminum (Al)-Total	0.434		0.010	mg/L	25-APR-18	25-APR-18	R4022578
Antimony (Sb)-Total	0.00038		0.00010	mg/L	25-APR-18	25-APR-18	R4022578
Arsenic (As)-Total	0.00087		0.00010	mg/L	25-APR-18	25-APR-18	R4022578
Barium (Ba)-Total	0.0477		0.00020	mg/L	25-APR-18	25-APR-18	R4022578
Beryllium (Be)-Total	<0.00010		0.00010	mg/L	25-APR-18	25-APR-18	R4022578
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	25-APR-18	25-APR-18	R4022578
Boron (B)-Total	0.121		0.010	mg/L	25-APR-18	25-APR-18	R4022578
Cadmium (Cd)-Total	<0.000055	DLM	0.000055	mg/L	25-APR-18	25-APR-18	R4022578
Calcium (Ca)-Total	75.9		0.50	mg/L	25-APR-18	25-APR-18	R4022578
Cobalt (Co)-Total	0.00043		0.00010	mg/L	25-APR-18	25-APR-18	R4022578
Copper (Cu)-Total	0.0017		0.0010	mg/L	25-APR-18	25-APR-18	R4022578
Iron (Fe)-Total	0.444		0.050	mg/L	25-APR-18	25-APR-18	R4022578
Lead (Pb)-Total	0.00033		0.00010	mg/L	25-APR-18	25-APR-18	R4022578
Magnesium (Mg)-Total	21.3		0.050	mg/L	25-APR-18	25-APR-18	R4022578
Manganese (Mn)-Total	0.0306		0.00050	mg/L	25-APR-18	25-APR-18	R4022578
Mercury (Hg)-Total	<0.0000050		0.0000050	mg/L		29-APR-18	R4025031
Molybdenum (Mo)-Total	0.0378		0.000050	mg/L	25-APR-18	25-APR-18	R4022578

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2083897-1 EQ POND DISCHARGE							
Sampled By: CLIENT on 23-APR-18 @ 14:00							
Matrix: WATER							
Total Metals							
Nickel (Ni)-Total	0.00437		0.00050	mg/L	25-APR-18	25-APR-18	R4022578
Potassium (K)-Total	7.16		0.050	mg/L	25-APR-18	25-APR-18	R4022578
Selenium (Se)-Total	0.00187		0.000050	mg/L	25-APR-18	25-APR-18	R4022578
Silicon (Si)-Total	2.29		0.10	mg/L	25-APR-18	25-APR-18	R4022578
Silver (Ag)-Total	<0.000050		0.000050	mg/L	25-APR-18	25-APR-18	R4022578
Sodium (Na)-Total	37.3		0.50	mg/L	25-APR-18	25-APR-18	R4022578
Strontium (Sr)-Total	0.606		0.0010	mg/L	25-APR-18	25-APR-18	R4022578
Thallium (Tl)-Total	0.000023		0.000010	mg/L	25-APR-18	25-APR-18	R4022578
Tin (Sn)-Total	<0.00010		0.00010	mg/L	25-APR-18	25-APR-18	R4022578
Vanadium (V)-Total	0.00132		0.00050	mg/L	25-APR-18	25-APR-18	R4022578
Zinc (Zn)-Total	<0.0030		0.0030	mg/L	25-APR-18	25-APR-18	R4022578
Speciated Metals							
Chromium, Hexavalent	<0.0010		0.0010	mg/L		25-APR-18	R4022684
Aggregate Organics							
COD	17		10	mg/L		25-APR-18	R4023966
Phenols (4AAP)	<0.0010		0.0010	mg/L		25-APR-18	R4023642
Volatile Organic Compounds							
Acetone	<20	VT	20	ug/L		25-APR-18	R4022477
Benzene	<0.50	VT	0.50	ug/L		25-APR-18	R4022477
Bromodichloromethane	<1.0	VT	1.0	ug/L		25-APR-18	R4022477
Bromoform	<1.0	VT	1.0	ug/L		25-APR-18	R4022477
Bromomethane	<0.50	VT	0.50	ug/L		25-APR-18	R4022477
Carbon tetrachloride	<0.50	VT	0.50	ug/L		25-APR-18	R4022477
Chlorobenzene	<0.50	VT	0.50	ug/L		25-APR-18	R4022477
Dibromochloromethane	<1.0	VT	1.0	ug/L		25-APR-18	R4022477
Chloroethane	<1.0	VT	1.0	ug/L		25-APR-18	R4022477
Chloroform	<1.0	VT	1.0	ug/L		25-APR-18	R4022477
1,2-Dibromoethane	<0.20	VT	0.20	ug/L		25-APR-18	R4022477
1,2-Dichlorobenzene	<0.50	VT	0.50	ug/L		25-APR-18	R4022477
1,3-Dichlorobenzene	<0.50	VT	0.50	ug/L		25-APR-18	R4022477
1,4-Dichlorobenzene	<0.50	VT	0.50	ug/L		25-APR-18	R4022477
Dichlorodifluoromethane	<1.0	VT	1.0	ug/L		25-APR-18	R4022477
1,1-Dichloroethane	<0.50	VT	0.50	ug/L		25-APR-18	R4022477
1,2-Dichloroethane	<0.50	VT	0.50	ug/L		25-APR-18	R4022477
1,1-Dichloroethylene	<0.50	VT	0.50	ug/L		25-APR-18	R4022477
cis-1,2-Dichloroethylene	<0.50	VT	0.50	ug/L		25-APR-18	R4022477
trans-1,2-Dichloroethylene	<0.50	VT	0.50	ug/L		25-APR-18	R4022477
Dichloromethane	<2.0	VT	2.0	ug/L		25-APR-18	R4022477
1,2-Dichloropropane	<0.50	VT	0.50	ug/L		25-APR-18	R4022477
cis-1,3-Dichloropropene	<0.50	VT	0.50	ug/L		25-APR-18	R4022477
trans-1,3-Dichloropropene	<0.50	VT	0.50	ug/L		25-APR-18	R4022477
Ethylbenzene	<0.50	VT	0.50	ug/L		25-APR-18	R4022477

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2083897-1 EQ POND DISCHARGE							
Sampled By: CLIENT on 23-APR-18 @ 14:00							
Matrix: WATER							
Volatile Organic Compounds							
n-Hexane	<0.50	VTHS	0.50	ug/L		25-APR-18	R4022477
Methyl Ethyl Ketone	<20	VTHS	20	ug/L		25-APR-18	R4022477
Methyl Isobutyl Ketone	<20	VTHS	20	ug/L		25-APR-18	R4022477
MTBE	<0.50	VTHS	0.50	ug/L		25-APR-18	R4022477
Styrene	<0.50	VTHS	0.50	ug/L		25-APR-18	R4022477
1,1,1,2-Tetrachloroethane	<0.50	VTHS	0.50	ug/L		25-APR-18	R4022477
1,1,2,2-Tetrachloroethane	<0.50	VTHS	0.50	ug/L		25-APR-18	R4022477
Tetrachloroethylene	<0.50	VTHS	0.50	ug/L		25-APR-18	R4022477
Toluene	<0.50	VTHS	0.50	ug/L		25-APR-18	R4022477
1,1,1-Trichloroethane	<0.50	VTHS	0.50	ug/L		25-APR-18	R4022477
1,1,2-Trichloroethane	<0.50	VTHS	0.50	ug/L		25-APR-18	R4022477
Trichloroethylene	<0.50	VTHS	0.50	ug/L		25-APR-18	R4022477
Trichlorofluoromethane	<1.0	VTHS	1.0	ug/L		25-APR-18	R4022477
Vinyl chloride	<0.50	VTHS	0.50	ug/L		25-APR-18	R4022477
o-Xylene	<0.50	VTHS	0.50	ug/L		25-APR-18	R4022477
m+p-Xylenes	<1.0	VTHS	1.0	ug/L		25-APR-18	R4022477
Xylenes (Total)	<1.1		1.1	ug/L		25-APR-18	
Surrogate: 4-Bromofluorobenzene	87.7		70-130	%		25-APR-18	R4022477
Surrogate: 1,4-Difluorobenzene	98.7		70-130	%		25-APR-18	R4022477
Trihalomethanes							
Total THMs	<2.0		2.0	ug/L		25-APR-18	
Acid Extractables							
2,3,6-Trichlorophenol	<0.50		0.50	ug/L	26-APR-18	01-MAY-18	R4028348
Surrogate: 2,4,6-Tribromophenol	131.3		40-150	%	26-APR-18	01-MAY-18	R4028348
Semi-Volatile Organics							
Acenaphthene	<0.20		0.20	ug/L	26-APR-18	28-APR-18	R4024051
Acenaphthylene	<0.20		0.20	ug/L	26-APR-18	28-APR-18	R4024051
Anthracene	<0.20		0.20	ug/L	26-APR-18	28-APR-18	R4024051
Benzo(a)anthracene	<0.20		0.20	ug/L	26-APR-18	28-APR-18	R4024051
Benzo(a)pyrene	<0.050		0.050	ug/L	26-APR-18	28-APR-18	R4024051
Benzo(b)fluoranthene	<0.20		0.20	ug/L	26-APR-18	28-APR-18	R4024051
Benzo(ghi)perylene	<0.20		0.20	ug/L	26-APR-18	28-APR-18	R4024051
Benzo(k)fluoranthene	<0.20		0.20	ug/L	26-APR-18	28-APR-18	R4024051
4-Chloroaniline	<0.40		0.40	ug/L	26-APR-18	28-APR-18	R4024051
Bis(2-chloroethyl)ether	<0.40		0.40	ug/L	26-APR-18	28-APR-18	R4024051
2-Chlorophenol	<0.30		0.30	ug/L	26-APR-18	28-APR-18	R4024051
Chrysene	<0.20		0.20	ug/L	26-APR-18	28-APR-18	R4024051
Dibenzo(a,h)anthracene	<0.20		0.20	ug/L	26-APR-18	28-APR-18	R4024051
1,2-Dichlorobenzene	<0.40		0.40	ug/L	26-APR-18	28-APR-18	R4024051
1,3-Dichlorobenzene	<0.40		0.40	ug/L	26-APR-18	28-APR-18	R4024051
1,4-Dichlorobenzene	<0.40		0.40	ug/L	26-APR-18	28-APR-18	R4024051
3,3'-Dichlorobenzidine	<0.40		0.40	ug/L	26-APR-18	28-APR-18	R4024051

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2083897-1 EQ POND DISCHARGE Sampled By: CLIENT on 23-APR-18 @ 14:00 Matrix: WATER							
Semi-Volatile Organics							
2,4-Dichlorophenol	<0.30		0.30	ug/L	26-APR-18	28-APR-18	R4024051
Diethylphthalate	<0.20		0.20	ug/L	26-APR-18	28-APR-18	R4024051
Dimethylphthalate	<0.20		0.20	ug/L	26-APR-18	28-APR-18	R4024051
2,4-Dimethylphenol	<0.50		0.50	ug/L	26-APR-18	28-APR-18	R4024051
2,4-Dinitrophenol	<1.0		1.0	ug/L	26-APR-18	28-APR-18	R4024051
2,4-Dinitrotoluene	<0.40		0.40	ug/L	26-APR-18	28-APR-18	R4024051
2,6-Dinitrotoluene	<0.40		0.40	ug/L	26-APR-18	28-APR-18	R4024051
Bis(2-ethylhexyl)phthalate	<2.0		2.0	ug/L	26-APR-18	28-APR-18	R4024051
Fluoranthene	<0.20		0.20	ug/L	26-APR-18	28-APR-18	R4024051
Fluorene	<0.20		0.20	ug/L	26-APR-18	28-APR-18	R4024051
Hexachlorobenzene	<0.040		0.040	ug/L	26-APR-18	28-APR-18	R4024051
Hexachlorobutadiene	<0.20		0.20	ug/L	26-APR-18	28-APR-18	R4024051
Indeno(1,2,3-cd)pyrene	<0.20		0.20	ug/L	26-APR-18	28-APR-18	R4024051
1-Methylnaphthalene	<0.40		0.40	ug/L	26-APR-18	28-APR-18	R4024051
2-Methylnaphthalene	<0.40		0.40	ug/L	26-APR-18	28-APR-18	R4024051
Naphthalene	<0.20		0.20	ug/L	26-APR-18	28-APR-18	R4024051
Pentachlorophenol	<0.50		0.50	ug/L	26-APR-18	28-APR-18	R4024051
Perylene	<0.20		0.20	ug/L	26-APR-18	28-APR-18	R4024051
Phenanthrene	<0.20		0.20	ug/L	26-APR-18	28-APR-18	R4024051
Pyrene	<0.20		0.20	ug/L	26-APR-18	28-APR-18	R4024051
2,3,4,5-Tetrachlorophenol	<0.50		0.50	ug/L	26-APR-18	28-APR-18	R4024051
2,3,4,6-Tetrachlorophenol	<0.50		0.50	ug/L	26-APR-18	28-APR-18	R4024051
1,2,4-Trichlorobenzene	<0.40		0.40	ug/L	26-APR-18	28-APR-18	R4024051
2,4,5-Trichlorophenol	<0.50		0.50	ug/L	26-APR-18	28-APR-18	R4024051
2,4,6-Trichlorophenol	<0.50		0.50	ug/L	26-APR-18	28-APR-18	R4024051
Surrogate: 2-Fluorobiphenyl	90.0		40-130	%	26-APR-18	28-APR-18	R4024051
Surrogate: Nitrobenzene d5	96.2		50-130	%	26-APR-18	28-APR-18	R4024051
Surrogate: p-Terphenyl d14	102.3		40-130	%	26-APR-18	28-APR-18	R4024051
Report Remarks : DLM-CD LOR INCREASED DUE TO POTENTIAL INTERFERENCE FROM MO							
L2083897-2 WEST STORM WATER POND Sampled By: CLIENT on 23-APR-18 @ 14:00 Matrix: WATER							
Field Tests							
pH, Client Supplied	7.20		0.10	pH		26-APR-18	R4023439
Temperature, Client	11.0		-50	Deg. C		26-APR-18	R4023439
Physical Tests							
Conductivity	760		3.0	umhos/cm		24-APR-18	R4022427
Hardness (as CaCO3)	271	HTC	10	mg/L		25-APR-18	
pH	8.16		0.10	pH units		24-APR-18	R4022427
Total Suspended Solids	5.8		2.0	mg/L	26-APR-18	27-APR-18	R4024010
Total Dissolved Solids	480	DLDS	20	mg/L		25-APR-18	R4023380
Anions and Nutrients							

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2083897-2 WEST STORM WATER POND Sampled By: CLIENT on 23-APR-18 @ 14:00 Matrix: WATER							
Anions and Nutrients							
Alkalinity, Total (as CaCO ₃)	142		10	mg/L		26-APR-18	R4023572
Unionized ammonia	0.00281		0.000077	mg/L		01-MAY-18	
Ammonia, Total (as N)	0.729		0.020	mg/L		25-APR-18	R4022872
Bromide (Br)	0.88		0.10	mg/L		26-APR-18	R4023632
Chloride (Cl)	63.4		0.50	mg/L		26-APR-18	R4023632
Fluoride (F)	0.494		0.020	mg/L		26-APR-18	R4023632
Nitrate (as N)	0.530		0.020	mg/L		26-APR-18	R4023632
Nitrite (as N)	0.011		0.010	mg/L		26-APR-18	R4023632
Total Kjeldahl Nitrogen	1.02		0.15	mg/L	26-APR-18	27-APR-18	R4024301
Phosphorus, Total	0.0260		0.0030	mg/L	26-APR-18	27-APR-18	R4023962
Sulfate (SO ₄)	156		0.30	mg/L		26-APR-18	R4023632
Cyanides							
Cyanide, Total	<0.0020		0.0020	mg/L		25-APR-18	R4024233
Organic / Inorganic Carbon							
Dissolved Organic Carbon	4.8		1.0	mg/L		25-APR-18	R4023975
Total Metals							
Aluminum (Al)-Total	0.550		0.010	mg/L	25-APR-18	25-APR-18	R4022578
Antimony (Sb)-Total	0.00037		0.00010	mg/L	25-APR-18	25-APR-18	R4022578
Arsenic (As)-Total	0.00088		0.00010	mg/L	25-APR-18	25-APR-18	R4022578
Barium (Ba)-Total	0.0440		0.00020	mg/L	25-APR-18	25-APR-18	R4022578
Beryllium (Be)-Total	<0.00010		0.00010	mg/L	25-APR-18	25-APR-18	R4022578
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	25-APR-18	25-APR-18	R4022578
Boron (B)-Total	0.114		0.010	mg/L	25-APR-18	25-APR-18	R4022578
Cadmium (Cd)-Total	<0.000060	DLM	0.000010	mg/L	25-APR-18	25-APR-18	R4022578
Calcium (Ca)-Total	74.2		0.50	mg/L	25-APR-18	25-APR-18	R4022578
Cobalt (Co)-Total	0.00051		0.00010	mg/L	25-APR-18	25-APR-18	R4022578
Copper (Cu)-Total	0.0020		0.0010	mg/L	25-APR-18	25-APR-18	R4022578
Iron (Fe)-Total	0.522		0.050	mg/L	25-APR-18	25-APR-18	R4022578
Lead (Pb)-Total	0.00044		0.00010	mg/L	25-APR-18	25-APR-18	R4022578
Magnesium (Mg)-Total	20.9		0.050	mg/L	25-APR-18	25-APR-18	R4022578
Manganese (Mn)-Total	0.0347		0.00050	mg/L	25-APR-18	25-APR-18	R4022578
Mercury (Hg)-Total	<0.0000050		0.0000050	mg/L		29-APR-18	R4025031
Molybdenum (Mo)-Total	0.0396		0.000050	mg/L	25-APR-18	25-APR-18	R4022578
Nickel (Ni)-Total	0.00497		0.00050	mg/L	25-APR-18	25-APR-18	R4022578
Potassium (K)-Total	7.15		0.050	mg/L	25-APR-18	25-APR-18	R4022578
Selenium (Se)-Total	0.00212		0.000050	mg/L	25-APR-18	25-APR-18	R4022578
Silicon (Si)-Total	2.51		0.10	mg/L	25-APR-18	25-APR-18	R4022578
Silver (Ag)-Total	<0.000050		0.000050	mg/L	25-APR-18	25-APR-18	R4022578
Sodium (Na)-Total	35.8		0.50	mg/L	25-APR-18	25-APR-18	R4022578
Strontium (Sr)-Total	0.593		0.0010	mg/L	25-APR-18	25-APR-18	R4022578
Thallium (Tl)-Total	0.000026		0.000010	mg/L	25-APR-18	25-APR-18	R4022578
Tin (Sn)-Total	<0.00010		0.00010	mg/L	25-APR-18	25-APR-18	R4022578

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ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2083897-2 WEST STORM WATER POND Sampled By: CLIENT on 23-APR-18 @ 14:00 Matrix: WATER							
Total Metals							
Vanadium (V)-Total	0.00157		0.00050	mg/L	25-APR-18	25-APR-18	R4022578
Zinc (Zn)-Total	0.0058		0.0030	mg/L	25-APR-18	25-APR-18	R4022578
Speciated Metals							
Chromium, Hexavalent	<0.0010		0.0010	mg/L		25-APR-18	R4022684
Aggregate Organics							
COD	30		10	mg/L		30-APR-18	R4028068
Phenols (4AAP)	<0.0010		0.0010	mg/L		25-APR-18	R4023642
Volatile Organic Compounds							
Acetone	<20	VTHS	20	ug/L		25-APR-18	R4022477
Benzene	<0.50	VTHS	0.50	ug/L		25-APR-18	R4022477
Bromodichloromethane	<1.0	VTHS	1.0	ug/L		25-APR-18	R4022477
Bromoform	<1.0	VTHS	1.0	ug/L		25-APR-18	R4022477
Bromomethane	<0.50	VTHS	0.50	ug/L		25-APR-18	R4022477
Carbon tetrachloride	<0.50	VTHS	0.50	ug/L		25-APR-18	R4022477
Chlorobenzene	<0.50	VTHS	0.50	ug/L		25-APR-18	R4022477
Dibromochloromethane	<1.0	VTHS	1.0	ug/L		25-APR-18	R4022477
Chloroethane	<1.0	VTHS	1.0	ug/L		25-APR-18	R4022477
Chloroform	<1.0	VTHS	1.0	ug/L		25-APR-18	R4022477
1,2-Dibromoethane	<0.20	VTHS	0.20	ug/L		25-APR-18	R4022477
1,2-Dichlorobenzene	<0.50	VTHS	0.50	ug/L		25-APR-18	R4022477
1,3-Dichlorobenzene	<0.50	VTHS	0.50	ug/L		25-APR-18	R4022477
1,4-Dichlorobenzene	<0.50	VTHS	0.50	ug/L		25-APR-18	R4022477
Dichlorodifluoromethane	<1.0	VTHS	1.0	ug/L		25-APR-18	R4022477
1,1-Dichloroethane	<0.50	VTHS	0.50	ug/L		25-APR-18	R4022477
1,2-Dichloroethane	<0.50	VTHS	0.50	ug/L		25-APR-18	R4022477
1,1-Dichloroethylene	<0.50	VTHS	0.50	ug/L		25-APR-18	R4022477
cis-1,2-Dichloroethylene	<0.50	VTHS	0.50	ug/L		25-APR-18	R4022477
trans-1,2-Dichloroethylene	<0.50	VTHS	0.50	ug/L		25-APR-18	R4022477
Dichloromethane	<2.0	VTHS	2.0	ug/L		25-APR-18	R4022477
1,2-Dichloropropane	<0.50	VTHS	0.50	ug/L		25-APR-18	R4022477
cis-1,3-Dichloropropene	<0.50	VTHS	0.50	ug/L		25-APR-18	R4022477
trans-1,3-Dichloropropene	<0.50	VTHS	0.50	ug/L		25-APR-18	R4022477
Ethylbenzene	<0.50	VTHS	0.50	ug/L		25-APR-18	R4022477
n-Hexane	<0.50	VTHS	0.50	ug/L		25-APR-18	R4022477
Methyl Ethyl Ketone	<20	VTHS	20	ug/L		25-APR-18	R4022477
Methyl Isobutyl Ketone	<20	VTHS	20	ug/L		25-APR-18	R4022477
MTBE	<0.50	VTHS	0.50	ug/L		25-APR-18	R4022477
Styrene	<0.50	VTHS	0.50	ug/L		25-APR-18	R4022477
1,1,1,2-Tetrachloroethane	<0.50	VTHS	0.50	ug/L		25-APR-18	R4022477
1,1,1,2,2-Tetrachloroethane	<0.50	VTHS	0.50	ug/L		25-APR-18	R4022477
Tetrachloroethylene	<0.50	VTHS	0.50	ug/L		25-APR-18	R4022477
Toluene	<0.50	VTHS	0.50	ug/L		25-APR-18	R4022477

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ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2083897-2 WEST STORM WATER POND Sampled By: CLIENT on 23-APR-18 @ 14:00 Matrix: WATER							
Volatile Organic Compounds							
1,1,1-Trichloroethane	<0.50	VTHS	0.50	ug/L		25-APR-18	R4022477
1,1,2-Trichloroethane	<0.50	VTHS	0.50	ug/L		25-APR-18	R4022477
Trichloroethylene	<0.50	VTHS	0.50	ug/L		25-APR-18	R4022477
Trichlorofluoromethane	<1.0	VTHS	1.0	ug/L		25-APR-18	R4022477
Vinyl chloride	<0.50	VTHS	0.50	ug/L		25-APR-18	R4022477
o-Xylene	<0.50	VTHS	0.50	ug/L		25-APR-18	R4022477
m+p-Xylenes	<1.0	VTHS	1.0	ug/L		25-APR-18	R4022477
Xylenes (Total)	<1.1		1.1	ug/L		25-APR-18	
Surrogate: 4-Bromofluorobenzene	88.9		70-130	%		25-APR-18	R4022477
Surrogate: 1,4-Difluorobenzene	98.2		70-130	%		25-APR-18	R4022477
Trihalomethanes							
Total THMs	<2.0		2.0	ug/L		25-APR-18	
Acid Extractables							
2,3,6-Trichlorophenol	<0.50		0.50	ug/L	26-APR-18	01-MAY-18	R4028348
Surrogate: 2,4,6-Tribromophenol	140.7		40-150	%	26-APR-18	01-MAY-18	R4028348
Semi-Volatile Organics							
Acenaphthene	<0.20		0.20	ug/L	26-APR-18	28-APR-18	R4024051
Acenaphthylene	<0.20		0.20	ug/L	26-APR-18	28-APR-18	R4024051
Anthracene	<0.20		0.20	ug/L	26-APR-18	28-APR-18	R4024051
Benzo(a)anthracene	<0.20		0.20	ug/L	26-APR-18	28-APR-18	R4024051
Benzo(a)pyrene	<0.050		0.050	ug/L	26-APR-18	28-APR-18	R4024051
Benzo(b)fluoranthene	<0.20		0.20	ug/L	26-APR-18	28-APR-18	R4024051
Benzo(ghi)perylene	<0.20		0.20	ug/L	26-APR-18	28-APR-18	R4024051
Benzo(k)fluoranthene	<0.20		0.20	ug/L	26-APR-18	28-APR-18	R4024051
4-Chloroaniline	<0.40		0.40	ug/L	26-APR-18	28-APR-18	R4024051
Bis(2-chloroethyl)ether	<0.40		0.40	ug/L	26-APR-18	28-APR-18	R4024051
2-Chlorophenol	<0.30		0.30	ug/L	26-APR-18	28-APR-18	R4024051
Chrysene	<0.20		0.20	ug/L	26-APR-18	28-APR-18	R4024051
Dibenzo(a,h)anthracene	<0.20		0.20	ug/L	26-APR-18	28-APR-18	R4024051
1,2-Dichlorobenzene	<0.40		0.40	ug/L	26-APR-18	28-APR-18	R4024051
1,3-Dichlorobenzene	<0.40		0.40	ug/L	26-APR-18	28-APR-18	R4024051
1,4-Dichlorobenzene	<0.40		0.40	ug/L	26-APR-18	28-APR-18	R4024051
3,3'-Dichlorobenzidine	<0.40		0.40	ug/L	26-APR-18	28-APR-18	R4024051
2,4-Dichlorophenol	<0.30		0.30	ug/L	26-APR-18	28-APR-18	R4024051
Diethylphthalate	<0.20		0.20	ug/L	26-APR-18	28-APR-18	R4024051
Dimethylphthalate	<0.20		0.20	ug/L	26-APR-18	28-APR-18	R4024051
2,4-Dimethylphenol	<0.50		0.50	ug/L	26-APR-18	28-APR-18	R4024051
2,4-Dinitrophenol	<1.0		1.0	ug/L	26-APR-18	28-APR-18	R4024051
2,4-Dinitrotoluene	<0.40		0.40	ug/L	26-APR-18	28-APR-18	R4024051
2,6-Dinitrotoluene	<0.40		0.40	ug/L	26-APR-18	28-APR-18	R4024051
Bis(2-ethylhexyl)phthalate	<2.0		2.0	ug/L	26-APR-18	28-APR-18	R4024051
Fluoranthene	<0.20		0.20	ug/L	26-APR-18	28-APR-18	R4024051

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ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2083897-2 WEST STORM WATER POND Sampled By: CLIENT on 23-APR-18 @ 14:00 Matrix: WATER							
Semi-Volatile Organics							
Fluorene	<0.20		0.20	ug/L	26-APR-18	28-APR-18	R4024051
Hexachlorobenzene	<0.040		0.040	ug/L	26-APR-18	28-APR-18	R4024051
Hexachlorobutadiene	<0.20		0.20	ug/L	26-APR-18	28-APR-18	R4024051
Indeno(1,2,3-cd)pyrene	<0.20		0.20	ug/L	26-APR-18	28-APR-18	R4024051
1-Methylnaphthalene	<0.40		0.40	ug/L	26-APR-18	28-APR-18	R4024051
2-Methylnaphthalene	<0.40		0.40	ug/L	26-APR-18	28-APR-18	R4024051
Naphthalene	<0.20		0.20	ug/L	26-APR-18	28-APR-18	R4024051
Pentachlorophenol	<0.50		0.50	ug/L	26-APR-18	28-APR-18	R4024051
Perylene	<0.20		0.20	ug/L	26-APR-18	28-APR-18	R4024051
Phenanthrene	<0.20		0.20	ug/L	26-APR-18	28-APR-18	R4024051
Pyrene	<0.20		0.20	ug/L	26-APR-18	28-APR-18	R4024051
2,3,4,5-Tetrachlorophenol	<0.50		0.50	ug/L	26-APR-18	28-APR-18	R4024051
2,3,4,6-Tetrachlorophenol	<0.50		0.50	ug/L	26-APR-18	28-APR-18	R4024051
1,2,4-Trichlorobenzene	<0.40		0.40	ug/L	26-APR-18	28-APR-18	R4024051
2,4,5-Trichlorophenol	<0.50		0.50	ug/L	26-APR-18	28-APR-18	R4024051
2,4,6-Trichlorophenol	<0.50		0.50	ug/L	26-APR-18	28-APR-18	R4024051
Surrogate: 2-Fluorobiphenyl	93.0		40-130	%	26-APR-18	28-APR-18	R4024051
Surrogate: Nitrobenzene d5	99.6		50-130	%	26-APR-18	28-APR-18	R4024051
Surrogate: p-Terphenyl d14	100.0		40-130	%	26-APR-18	28-APR-18	R4024051
Report Remarks : DLM-CD LOR INCREASED DUE TO POTENTIAL INTERFERENCE FROM MO							
L2083897-3 EAST STORM WATER POND Sampled By: CLIENT on 23-APR-18 @ 14:00 Matrix: WATER							
Field Tests							
pH, Client Supplied	6.70		0.10	pH		26-APR-18	R4023439
Temperature, Client	11.0		-50	Deg. C		26-APR-18	R4023439
Physical Tests							
Conductivity	657		3.0	umhos/cm		24-APR-18	R4022427
Hardness (as CaCO3)	244	HTC	10	mg/L		25-APR-18	
pH	8.08		0.10	pH units		24-APR-18	R4022427
Total Suspended Solids	5.2		2.0	mg/L	26-APR-18	27-APR-18	R4024010
Total Dissolved Solids	429	DLDS	20	mg/L		25-APR-18	R4023380
Anions and Nutrients							
Alkalinity, Total (as CaCO3)	114		10	mg/L		26-APR-18	R4023572
Unionized ammonia	0.00117		0.000024	mg/L		01-MAY-18	
Ammonia, Total (as N)	0.959		0.020	mg/L		25-APR-18	R4022872
Bromide (Br)	0.38		0.10	mg/L		26-APR-18	R4023632
Chloride (Cl)	42.5		0.50	mg/L		26-APR-18	R4023632
Fluoride (F)	0.549		0.020	mg/L		26-APR-18	R4023632
Nitrate (as N)	0.320		0.020	mg/L		26-APR-18	R4023632
Nitrite (as N)	<0.010		0.010	mg/L		26-APR-18	R4023632
Total Kjeldahl Nitrogen	1.02		0.15	mg/L	26-APR-18	27-APR-18	R4024301

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2083897-3 EAST STORM WATER POND Sampled By: CLIENT on 23-APR-18 @ 14:00 Matrix: WATER							
Anions and Nutrients							
Phosphorus, Total	0.0315		0.0030	mg/L	26-APR-18	27-APR-18	R4023962
Sulfate (SO4)	155		0.30	mg/L		26-APR-18	R4023632
Cyanides							
Cyanide, Total	<0.0020		0.0020	mg/L		25-APR-18	R4024233
Organic / Inorganic Carbon							
Dissolved Organic Carbon	4.6		1.0	mg/L		25-APR-18	R4023975
Total Metals							
Aluminum (Al)-Total	0.436		0.010	mg/L	25-APR-18	25-APR-18	R4022578
Antimony (Sb)-Total	0.00041		0.00010	mg/L	25-APR-18	25-APR-18	R4022578
Arsenic (As)-Total	0.00081		0.00010	mg/L	25-APR-18	25-APR-18	R4022578
Barium (Ba)-Total	0.0435		0.00020	mg/L	25-APR-18	25-APR-18	R4022578
Beryllium (Be)-Total	<0.00010		0.00010	mg/L	25-APR-18	25-APR-18	R4022578
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	25-APR-18	25-APR-18	R4022578
Boron (B)-Total	0.067		0.010	mg/L	25-APR-18	25-APR-18	R4022578
Cadmium (Cd)-Total	<0.000090	DLM	0.000010	mg/L	25-APR-18	25-APR-18	R4022578
Calcium (Ca)-Total	66.8		0.50	mg/L	25-APR-18	25-APR-18	R4022578
Cobalt (Co)-Total	0.00052		0.00010	mg/L	25-APR-18	25-APR-18	R4022578
Copper (Cu)-Total	0.0020		0.0010	mg/L	25-APR-18	25-APR-18	R4022578
Iron (Fe)-Total	0.410		0.050	mg/L	25-APR-18	25-APR-18	R4022578
Lead (Pb)-Total	0.00220		0.00010	mg/L	25-APR-18	25-APR-18	R4022578
Magnesium (Mg)-Total	18.8		0.050	mg/L	25-APR-18	25-APR-18	R4022578
Manganese (Mn)-Total	0.0235		0.00050	mg/L	25-APR-18	25-APR-18	R4022578
Mercury (Hg)-Total	0.0000050		0.0000050	mg/L		29-APR-18	R4025031
Molybdenum (Mo)-Total	0.0453		0.000050	mg/L	25-APR-18	25-APR-18	R4022578
Nickel (Ni)-Total	0.00675		0.00050	mg/L	25-APR-18	25-APR-18	R4022578
Potassium (K)-Total	7.24		0.050	mg/L	25-APR-18	25-APR-18	R4022578
Selenium (Se)-Total	0.00280		0.000050	mg/L	25-APR-18	25-APR-18	R4022578
Silicon (Si)-Total	2.29		0.10	mg/L	25-APR-18	25-APR-18	R4022578
Silver (Ag)-Total	<0.000050		0.000050	mg/L	25-APR-18	25-APR-18	R4022578
Sodium (Na)-Total	25.9		0.50	mg/L	25-APR-18	25-APR-18	R4022578
Strontium (Sr)-Total	0.611		0.0010	mg/L	25-APR-18	25-APR-18	R4022578
Thallium (Tl)-Total	0.000036		0.000010	mg/L	25-APR-18	25-APR-18	R4022578
Tin (Sn)-Total	<0.00010		0.00010	mg/L	25-APR-18	25-APR-18	R4022578
Vanadium (V)-Total	0.00137		0.00050	mg/L	25-APR-18	25-APR-18	R4022578
Zinc (Zn)-Total	0.0072		0.0030	mg/L	25-APR-18	25-APR-18	R4022578
Speciated Metals							
Chromium, Hexavalent	<0.0010		0.0010	mg/L		25-APR-18	R4022684
Aggregate Organics							
COD	24		10	mg/L		30-APR-18	R4028068
Phenols (4AAP)	<0.0010		0.0010	mg/L		25-APR-18	R4023642
Volatile Organic Compounds							
Acetone	<20	VTHS	20	ug/L		26-APR-18	R4022624

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2083897-3 EAST STORM WATER POND Sampled By: CLIENT on 23-APR-18 @ 14:00 Matrix: WATER							
Volatile Organic Compounds							
Benzene	<0.50	VTHS	0.50	ug/L		26-APR-18	R4022624
Bromodichloromethane	<1.0	VTHS	1.0	ug/L		26-APR-18	R4022624
Bromoform	<1.0	VTHS	1.0	ug/L		26-APR-18	R4022624
Bromomethane	<0.50	VTHS	0.50	ug/L		26-APR-18	R4022624
Carbon tetrachloride	<0.50	VTHS	0.50	ug/L		26-APR-18	R4022624
Chlorobenzene	<0.50	VTHS	0.50	ug/L		26-APR-18	R4022624
Dibromochloromethane	<1.0	VTHS	1.0	ug/L		26-APR-18	R4022624
Chloroethane	<1.0	VTHS	1.0	ug/L		26-APR-18	R4022624
Chloroform	<1.0	VTHS	1.0	ug/L		26-APR-18	R4022624
1,2-Dibromoethane	<0.20	VTHS	0.20	ug/L		26-APR-18	R4022624
1,2-Dichlorobenzene	<0.50	VTHS	0.50	ug/L		26-APR-18	R4022624
1,3-Dichlorobenzene	<0.50	VTHS	0.50	ug/L		26-APR-18	R4022624
1,4-Dichlorobenzene	<0.50	VTHS	0.50	ug/L		26-APR-18	R4022624
Dichlorodifluoromethane	<1.0	VTHS	1.0	ug/L		26-APR-18	R4022624
1,1-Dichloroethane	<0.50	VTHS	0.50	ug/L		26-APR-18	R4022624
1,2-Dichloroethane	<0.50	VTHS	0.50	ug/L		26-APR-18	R4022624
1,1-Dichloroethylene	<0.50	VTHS	0.50	ug/L		26-APR-18	R4022624
cis-1,2-Dichloroethylene	<0.50	VTHS	0.50	ug/L		26-APR-18	R4022624
trans-1,2-Dichloroethylene	<0.50	VTHS	0.50	ug/L		26-APR-18	R4022624
Dichloromethane	<2.0	VTHS	2.0	ug/L		26-APR-18	R4022624
1,2-Dichloropropane	<0.50	VTHS	0.50	ug/L		26-APR-18	R4022624
cis-1,3-Dichloropropene	<0.50	VTHS	0.50	ug/L		26-APR-18	R4022624
trans-1,3-Dichloropropene	<0.50	VTHS	0.50	ug/L		26-APR-18	R4022624
Ethylbenzene	<0.50	VTHS	0.50	ug/L		26-APR-18	R4022624
n-Hexane	<0.50	VTHS	0.50	ug/L		26-APR-18	R4022624
Methyl Ethyl Ketone	<20	VTHS	20	ug/L		26-APR-18	R4022624
Methyl Isobutyl Ketone	<20	VTHS	20	ug/L		26-APR-18	R4022624
MTBE	<0.50	VTHS	0.50	ug/L		26-APR-18	R4022624
Styrene	<0.50	VTHS	0.50	ug/L		26-APR-18	R4022624
1,1,1,2-Tetrachloroethane	<0.50	VTHS	0.50	ug/L		26-APR-18	R4022624
1,1,1,2,2-Tetrachloroethane	<0.50	VTHS	0.50	ug/L		26-APR-18	R4022624
Tetrachloroethylene	<0.50	VTHS	0.50	ug/L		26-APR-18	R4022624
Toluene	<0.50	VTHS	0.50	ug/L		26-APR-18	R4022624
1,1,1-Trichloroethane	<0.50	VTHS	0.50	ug/L		26-APR-18	R4022624
1,1,2-Trichloroethane	<0.50	VTHS	0.50	ug/L		26-APR-18	R4022624
Trichloroethylene	<0.50	VTHS	0.50	ug/L		26-APR-18	R4022624
Trichlorofluoromethane	<1.0	VTHS	1.0	ug/L		26-APR-18	R4022624
Vinyl chloride	<0.50	VTHS	0.50	ug/L		26-APR-18	R4022624
o-Xylene	<0.50	VTHS	0.50	ug/L		26-APR-18	R4022624
m+p-Xylenes	<1.0	VTHS	1.0	ug/L		26-APR-18	R4022624
Xylenes (Total)	<1.1		1.1	ug/L		26-APR-18	

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2083897-3 EAST STORM WATER POND Sampled By: CLIENT on 23-APR-18 @ 14:00 Matrix: WATER							
Volatile Organic Compounds							
Surrogate: 4-Bromofluorobenzene	89.9		70-130	%		26-APR-18	R4022624
Surrogate: 1,4-Difluorobenzene	99.5		70-130	%		26-APR-18	R4022624
Trihalomethanes							
Total THMs	<2.0		2.0	ug/L		26-APR-18	
Acid Extractables							
2,3,6-Trichlorophenol	<0.50		0.50	ug/L	26-APR-18	01-MAY-18	R4028348
Surrogate: 2,4,6-Tribromophenol	138.6		40-150	%	26-APR-18	01-MAY-18	R4028348
Semi-Volatile Organics							
Acenaphthene	<0.20		0.20	ug/L	26-APR-18	28-APR-18	R4024051
Acenaphthylene	<0.20		0.20	ug/L	26-APR-18	28-APR-18	R4024051
Anthracene	<0.20		0.20	ug/L	26-APR-18	28-APR-18	R4024051
Benzo(a)anthracene	<0.20		0.20	ug/L	26-APR-18	28-APR-18	R4024051
Benzo(a)pyrene	<0.050		0.050	ug/L	26-APR-18	28-APR-18	R4024051
Benzo(b)fluoranthene	<0.20		0.20	ug/L	26-APR-18	28-APR-18	R4024051
Benzo(ghi)perylene	<0.20		0.20	ug/L	26-APR-18	28-APR-18	R4024051
Benzo(k)fluoranthene	<0.20		0.20	ug/L	26-APR-18	28-APR-18	R4024051
4-Chloroaniline	<0.40		0.40	ug/L	26-APR-18	28-APR-18	R4024051
Bis(2-chloroethyl)ether	<0.40		0.40	ug/L	26-APR-18	28-APR-18	R4024051
2-Chlorophenol	<0.30		0.30	ug/L	26-APR-18	28-APR-18	R4024051
Chrysene	<0.20		0.20	ug/L	26-APR-18	28-APR-18	R4024051
Dibenzo(a,h)anthracene	<0.20		0.20	ug/L	26-APR-18	28-APR-18	R4024051
1,2-Dichlorobenzene	<0.40		0.40	ug/L	26-APR-18	28-APR-18	R4024051
1,3-Dichlorobenzene	<0.40		0.40	ug/L	26-APR-18	28-APR-18	R4024051
1,4-Dichlorobenzene	<0.40		0.40	ug/L	26-APR-18	28-APR-18	R4024051
3,3'-Dichlorobenzidine	<0.40		0.40	ug/L	26-APR-18	28-APR-18	R4024051
2,4-Dichlorophenol	<0.30		0.30	ug/L	26-APR-18	28-APR-18	R4024051
Diethylphthalate	<0.20		0.20	ug/L	26-APR-18	28-APR-18	R4024051
Dimethylphthalate	<0.20		0.20	ug/L	26-APR-18	28-APR-18	R4024051
2,4-Dimethylphenol	<0.50		0.50	ug/L	26-APR-18	28-APR-18	R4024051
2,4-Dinitrophenol	<1.0		1.0	ug/L	26-APR-18	28-APR-18	R4024051
2,4-Dinitrotoluene	<0.40		0.40	ug/L	26-APR-18	28-APR-18	R4024051
2,6-Dinitrotoluene	<0.40		0.40	ug/L	26-APR-18	28-APR-18	R4024051
Bis(2-ethylhexyl)phthalate	<2.0		2.0	ug/L	26-APR-18	28-APR-18	R4024051
Fluoranthene	<0.20		0.20	ug/L	26-APR-18	28-APR-18	R4024051
Fluorene	<0.20		0.20	ug/L	26-APR-18	28-APR-18	R4024051
Hexachlorobenzene	<0.040		0.040	ug/L	26-APR-18	28-APR-18	R4024051
Hexachlorobutadiene	<0.20		0.20	ug/L	26-APR-18	28-APR-18	R4024051
Indeno(1,2,3-cd)pyrene	<0.20		0.20	ug/L	26-APR-18	28-APR-18	R4024051
1-Methylnaphthalene	<0.40		0.40	ug/L	26-APR-18	28-APR-18	R4024051
2-Methylnaphthalene	<0.40		0.40	ug/L	26-APR-18	28-APR-18	R4024051
Naphthalene	<0.20		0.20	ug/L	26-APR-18	28-APR-18	R4024051
Pentachlorophenol	<0.50		0.50	ug/L	26-APR-18	28-APR-18	R4024051

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2083897-3 EAST STORM WATER POND Sampled By: CLIENT on 23-APR-18 @ 14:00 Matrix: WATER							
Semi-Volatile Organics							
Perylene	<0.20		0.20	ug/L	26-APR-18	28-APR-18	R4024051
Phenanthrene	<0.20		0.20	ug/L	26-APR-18	28-APR-18	R4024051
Pyrene	<0.20		0.20	ug/L	26-APR-18	28-APR-18	R4024051
2,3,4,5-Tetrachlorophenol	<0.50		0.50	ug/L	26-APR-18	28-APR-18	R4024051
2,3,4,6-Tetrachlorophenol	<0.50		0.50	ug/L	26-APR-18	28-APR-18	R4024051
1,2,4-Trichlorobenzene	<0.40		0.40	ug/L	26-APR-18	28-APR-18	R4024051
2,4,5-Trichlorophenol	<0.50		0.50	ug/L	26-APR-18	28-APR-18	R4024051
2,4,6-Trichlorophenol	<0.50		0.50	ug/L	26-APR-18	28-APR-18	R4024051
Surrogate: 2-Fluorobiphenyl	87.8		40-130	%	26-APR-18	28-APR-18	R4024051
Surrogate: Nitrobenzene d5	94.2		50-130	%	26-APR-18	28-APR-18	R4024051
Surrogate: p-Terphenyl d14	93.4		40-130	%	26-APR-18	28-APR-18	R4024051
Report Remarks : DLM-CD LOR INCREASED DUE TO POTENTIAL INTERFERENCE FROM MO							

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

Reference Information

QC Samples with Qualifiers & Comments:

QC Type Description	Parameter	Qualifier	Applies to Sample Number(s)
Matrix Spike	Bromide (Br)	MS-B	L2083897-1, -2, -3
Matrix Spike	Aluminum (Al)-Total	MS-B	L2083897-1, -2, -3
Matrix Spike	Barium (Ba)-Total	MS-B	L2083897-1, -2, -3
Matrix Spike	Boron (B)-Total	MS-B	L2083897-1, -2, -3
Matrix Spike	Calcium (Ca)-Total	MS-B	L2083897-1, -2, -3
Matrix Spike	Iron (Fe)-Total	MS-B	L2083897-1, -2, -3
Matrix Spike	Magnesium (Mg)-Total	MS-B	L2083897-1, -2, -3
Matrix Spike	Manganese (Mn)-Total	MS-B	L2083897-1, -2, -3
Matrix Spike	Molybdenum (Mo)-Total	MS-B	L2083897-1, -2, -3
Matrix Spike	Potassium (K)-Total	MS-B	L2083897-1, -2, -3
Matrix Spike	Silicon (Si)-Total	MS-B	L2083897-1, -2, -3
Matrix Spike	Sodium (Na)-Total	MS-B	L2083897-1, -2, -3
Matrix Spike	Strontium (Sr)-Total	MS-B	L2083897-1, -2, -3
Matrix Spike	Sulfate (SO4)	MS-B	L2083897-1, -2, -3

Sample Parameter Qualifier key listed:

Qualifier	Description
DLDS	Detection Limit Raised: Dilution required due to high Dissolved Solids / Electrical Conductivity.
DLM	Detection Limit Adjusted due to sample matrix effects (e.g. chemical interference, colour, turbidity).
HTC	Hardness was calculated from Total Ca and/or Mg concentrations and may be biased high (dissolved Ca/Mg results unavailable).
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.
VTHS	Volatile test was conducted on sample with headspace. Results may be biased low.

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
625-ACID-EXTRA-WT	Water	EPA 8270 Acid Extractables Aqueous samples are extracted and extracts are analyzed on GC/MSD.	SW846 8270
625-WT	Water	EPA 8270 Extractables Aqueous samples are extracted and extracts are analyzed on GC/MSD. Depending on the analytical GC/MS column used benzo(j)fluoranthene may chromatographically co-elute with benzo(b)fluoranthene or benzo(k)fluoranthene.	SW846 8270
N-nitrosodiphenylamine is reported as diphenylamine. N-nitrosodiphenylamine decomposes in the gas chromatographic inlet and cannot be separated from diphenylamine. (EPA 8270D)			
ALK-WT	Water	Alkalinity, Total (as CaCO3) This analysis is carried out using procedures adapted from EPA Method 310.2 "Alkalinity". Total Alkalinity is determined using the methyl orange colourimetric method.	EPA 310.2
BR-IC-N-WT	Water	Bromide in Water by IC Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.	EPA 300.1 (mod)
C-DIS-ORG-WT	Water	Dissolved Organic Carbon Sample is filtered through a 0.45um filter, then injected into a heated reaction chamber which is packed with an oxidative catalyst. The water is vaporized and the organic carbon is oxidized to carbon dioxide. The carbon dioxide is transported in a carrier gas and is measured by a non-dispersive infrared detector.	APHA 5310B
CL-IC-N-WT	Water	Chloride by IC Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.	EPA 300.1 (mod)
Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).			
CN-TOT-WT	Water	Cyanide, Total Total cyanide is determined by the combination of UV digestion and distillation. Cyanide is converted to cyanogen chloride by reacting with chloramine-T, the cyanogen chloride then reacts with a combination of barbituric acid and isonicotinic acid to form a highly colored complex. When using this method, high levels of thiocyanate in samples can cause false positives at ~1-2% of the thiocyanate concentration. For samples with detectable cyanide analyzed by this method, ALS recommends analysis for thiocyanate to check for this potential interference	ISO 14403-2
COD-T-WT	Water	Chemical Oxygen Demand This analysis is carried out using procedures adapted from APHA Method 5220 "Chemical Oxygen Demand (COD)". Chemical oxygen demand is determined using the closed reflux colourimetric method.	APHA 5220 D
CR-CR6-IC-WT	Water	Chromium +6 This analysis is carried out using procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846, Method 7199, published by the United	EPA 7199

Reference Information

States Environmental Protection Agency (EPA). The procedure involves analysis for chromium (VI) by ion chromatography using diphenylcarbazide in a sulphuric acid solution. Chromium (III) is calculated as the difference between the total chromium and the chromium (VI) results.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

EC-WT Water Conductivity APHA 2510 B

Water samples can be measured directly by immersing the conductivity cell into the sample.

ETL-NH3-UNION-CLI-WT Water Un-ionized ammonia CALCULATION

F-IC-N-WT Water Fluoride in Water by IC EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

HARDNESS-CALC-WT Water Hardness APHA 2340 B

Hardness (also known as Total Hardness) is calculated from the sum of Calcium and Magnesium concentrations, expressed in CaCO₃ equivalents. Dissolved Calcium and Magnesium concentrations are preferentially used for the hardness calculation.

HG-T-CVAF-TB Water Total Mercury in Water by CVAFS EPA 1631E (mod)

Water samples undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAFS.

MET-T-CCMS-WT Water Total Metals in Water by CRC EPA 200.2/6020A (mod)

Water samples are digested with nitric and perchloric acids, and analyzed by CRC ICPMS.

Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

NH3-WT Water Ammonia, Total as N EPA 350.1

Sample is measured colorimetrically. When sample is turbid a distillation step is required, sample is distilled into a solution of boric acid and measured colorimetrically.

NO2-IC-WT Water Nitrite in Water by IC EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

NO3-IC-WT Water Nitrate in Water by IC EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

P-T-COL-WT Water Total P in Water by Colour APHA 4500-P PHOSPHORUS

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Total Phosphorus is determined colourimetrically after persulphate digestion of the sample.

PH,TEMP-CLIENT-WT Water pH & Temperature Results supplied by client

PH-WT Water pH APHA 4500 H-Electrode

Water samples are analyzed directly by a calibrated pH meter.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011). Holdtime for samples under this regulation is 28 days

PHENOLS-4AAP-WT Water Phenol (4AAP) EPA 9066

An automated method is used to distill the sample. The distillate is then buffered to pH 9.4 which reacts with 4AAP and potassium ferricyanide to form a red complex which is measured colorimetrically.

SO4-IC-N-WT Water Sulfate in Water by IC EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

SOLIDS-TDS-WT Water Total Dissolved Solids APHA 2540C

This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total Dissolved Solids (TDS) are determined by filtering a sample through a glass fibre filter, TDS is determined by evaporating the filtrate to dryness at 180 degrees Celsius.

SOLIDS-TSS-WT Water Suspended solids APHA 2540 D-Gravimetric

A well-mixed sample is filtered through a weighed standard glass fibre filter and the residue retained is dried in an oven at 104–1°C for a minimum of four hours or until a constant weight is achieved.

THM-SUM-PPB-CALC-WT Water Total Trihalomethanes (THMs) CALCULATION

Total Trihalomethanes (THMs) represents the sum of bromodichloromethane, bromoform, chlorodibromomethane and chloroform. For the purpose of calculation, results less than the detection limit (DL) are treated as zero.

TKN-WT Water Total Kjeldahl Nitrogen APHA 4500-Norg D

This analysis is carried out using procedures adapted from APHA Method 4500-Norg "Nitrogen (Organic)". Total Kjeldahl Nitrogen is determined by sample digestion at 380 Celsius with analysis using an automated colorimetric method.

Reference Information

VOC-ROU-HS-WT Water Volatile Organic Compounds SW846 8260
 Aqueous samples are analyzed by headspace-GC/MS.

XYLENES-SUM-CALC- Water Sum of Xylene Isomer CALCULATION
 WT Concentrations

Total xylenes represents the sum of o-xylene and m&p-xylene.

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
WT	ALS ENVIRONMENTAL - WATERLOO, ONTARIO, CANADA
TB	ALS ENVIRONMENTAL - THUNDER BAY, ONTARIO, CANADA

Chain of Custody Numbers:

GLOSSARY OF REPORT TERMS

Surrogates are compounds that are similar in behaviour to target analyte(s), but that do not normally occur in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery. In reports that display the D.L. column, laboratory objectives for surrogates are listed there.

mg/kg - milligrams per kilogram based on dry weight of sample

mg/kg wwt - milligrams per kilogram based on wet weight of sample

mg/kg lwt - milligrams per kilogram based on lipid weight of sample

mg/L - unit of concentration based on volume, parts per million.

< - Less than.

D.L. - The reporting limit.

N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.

UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.



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Client: GHD Limited (Waterloo)
651 COLBY DRIVE
WATERLOO ON N2V 1C2

Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
625-ACID-EXTRA-WT								
	Water							
Batch	R4028348							
WG2757916-2	LCS							
2,3,6-Trichlorophenol			88.7		%		50-130	01-MAY-18
WG2757916-3	LCSD	WG2757916-2						
2,3,6-Trichlorophenol		88.7	95.7		%	7.6	50	01-MAY-18
WG2757916-1	MB							
2,3,6-Trichlorophenol			<0.50		ug/L		0.5	01-MAY-18
Surrogate: 2,4,6-Tribromophenol			108.7		%		40-150	01-MAY-18
625-WT								
	Water							
Batch	R4024051							
WG2757916-2	LCS							
1-Methylnaphthalene			90.6		%		50-140	26-APR-18
1,2-Dichlorobenzene			83.3		%		40-130	26-APR-18
1,2,4-Trichlorobenzene			82.3		%		40-130	26-APR-18
1,3-Dichlorobenzene			80.1		%		50-140	26-APR-18
1,4-Dichlorobenzene			79.5		%		40-130	26-APR-18
2-Chlorophenol			91.8		%		50-140	26-APR-18
2-Methylnaphthalene			90.8		%		50-140	26-APR-18
2,3,4,5-Tetrachlorophenol			119.7		%		50-140	26-APR-18
2,3,4,6-Tetrachlorophenol			118.9		%		50-140	26-APR-18
2,4-Dichlorophenol			104.2		%		50-140	26-APR-18
2,4-Dimethylphenol			104.7		%		50-140	26-APR-18
2,4-Dinitrophenol			137.2		%		40-140	26-APR-18
2,4-Dinitrotoluene			99.9		%		50-140	26-APR-18
2,4,5-Trichlorophenol			113.2		%		50-140	26-APR-18
2,4,6-Trichlorophenol			111.7		%		50-140	26-APR-18
2,6-Dinitrotoluene			99.0		%		50-140	26-APR-18
3,3'-Dichlorobenzidine			85.4		%		50-140	26-APR-18
4-Chloroaniline			49.8		%		30-140	26-APR-18
Acenaphthene			92.4		%		50-140	26-APR-18
Acenaphthylene			91.7		%		50-140	26-APR-18
Anthracene			94.5		%		50-140	26-APR-18
Benzo(a)anthracene			95.6		%		50-140	26-APR-18
Benzo(a)pyrene			99.7		%		60-130	26-APR-18
Benzo(b)fluoranthene			97.5		%		50-140	26-APR-18
Benzo(ghi)perylene			104.1		%		50-140	26-APR-18



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Client: GHD Limited (Waterloo)
 651 COLBY DRIVE
 WATERLOO ON N2V 1C2
 Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
625-WT	Water							
Batch	R4024051							
WG2757916-2 LCS								
Benzo(k)fluoranthene			101.7		%		50-140	26-APR-18
Bis(2-chloroethyl)ether			90.5		%		50-140	26-APR-18
Bis(2-ethylhexyl)phthalate			121.7		%		50-140	26-APR-18
Chrysene			102.2		%		50-140	26-APR-18
Dibenzo(a,h)anthracene			102.4		%		50-140	26-APR-18
Diethylphthalate			101.8		%		50-140	26-APR-18
Dimethylphthalate			101.7		%		50-140	26-APR-18
Fluoranthene			99.2		%		50-140	26-APR-18
Fluorene			91.3		%		50-140	26-APR-18
Hexachlorobenzene			86.9		%		40-130	26-APR-18
Hexachlorobutadiene			79.9		%		40-130	26-APR-18
Indeno(1,2,3-cd)pyrene			100.6		%		50-140	26-APR-18
Naphthalene			86.7		%		50-140	26-APR-18
Pentachlorophenol			128.8		%		50-140	26-APR-18
Perylene			97.0		%		50-140	26-APR-18
Phenanthrene			93.8		%		50-140	26-APR-18
Pyrene			99.7		%		50-140	26-APR-18
WG2757916-3 LCSD		WG2757916-2						
1-Methylnaphthalene		90.6	91.6		%	1.2	50	26-APR-18
1,2-Dichlorobenzene		83.3	81.7		%	1.9	50	26-APR-18
1,2,4-Trichlorobenzene		82.3	85.2		%	3.5	50	26-APR-18
1,3-Dichlorobenzene		80.1	82.2		%	2.5	50	26-APR-18
1,4-Dichlorobenzene		79.5	80.5		%	1.3	50	26-APR-18
2-Chlorophenol		91.8	89.6		%	2.4	50	26-APR-18
2-Methylnaphthalene		90.8	89.3		%	1.6	50	26-APR-18
2,3,4,5-Tetrachlorophenol		119.7	113.1		%	5.7	50	26-APR-18
2,3,4,6-Tetrachlorophenol		118.9	118.9		%	0.0	50	26-APR-18
2,4-Dichlorophenol		104.2	103.2		%	1.0	50	26-APR-18
2,4-Dimethylphenol		104.7	106.1		%	1.3	50	26-APR-18
2,4-Dinitrophenol		137.2	129.3		%	6.0	50	26-APR-18
2,4-Dinitrotoluene		99.9	102.0		%	2.2	50	26-APR-18
2,4,5-Trichlorophenol		113.2	113.2		%	0.0	50	26-APR-18
2,4,6-Trichlorophenol		111.7	110.8		%	0.8	50	26-APR-18



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Client: GHD Limited (Waterloo)
 651 COLBY DRIVE
 WATERLOO ON N2V 1C2

Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
625-WT	Water							
Batch	R4024051							
WG2757916-3	LCSD	WG2757916-2						
2,6-Dinitrotoluene		99.0	99.9		%	1.0	50	26-APR-18
3,3'-Dichlorobenzidine		85.4	81.1		%	5.2	50	26-APR-18
4-Chloroaniline		49.8	48.1		%	3.5	50	26-APR-18
Acenaphthene		92.4	91.6		%	0.9	50	26-APR-18
Acenaphthylene		91.7	92.5		%	0.9	50	26-APR-18
Anthracene		94.5	92.1		%	2.6	50	26-APR-18
Benzo(a)anthracene		95.6	96.4		%	0.8	50	26-APR-18
Benzo(a)pyrene		99.7	96.1		%	3.7	50	26-APR-18
Benzo(b)fluoranthene		97.5	96.7		%	0.9	50	26-APR-18
Benzo(ghi)perylene		104.1	101.3		%	2.8	50	26-APR-18
Benzo(k)fluoranthene		101.7	97.5		%	4.2	50	26-APR-18
Bis(2-chloroethyl)ether		90.5	86.2		%	4.8	50	26-APR-18
Bis(2-ethylhexyl)phthalate		121.7	142.3		%	16	50	26-APR-18
Chrysene		102.2	101.1		%	1.1	50	26-APR-18
Dibenzo(a,h)anthracene		102.4	97.9		%	4.5	50	26-APR-18
Diethylphthalate		101.8	101.7		%	0.1	50	26-APR-18
Dimethylphthalate		101.7	100.7		%	1.0	50	26-APR-18
Fluoranthene		99.2	104.4		%	5.2	50	26-APR-18
Fluorene		91.3	91.4		%	0.1	50	26-APR-18
Hexachlorobenzene		86.9	90.1		%	3.6	50	26-APR-18
Hexachlorobutadiene		79.9	84.0		%	5.1	50	26-APR-18
Indeno(1,2,3-cd)pyrene		100.6	101.7		%	1.1	50	26-APR-18
Naphthalene		86.7	87.2		%	0.5	50	26-APR-18
Pentachlorophenol		128.8	124.7		%	3.3	50	26-APR-18
Perylene		97.0	97.2		%	0.2	50	26-APR-18
Phenanthrene		93.8	93.4		%	0.4	50	26-APR-18
Pyrene		99.7	102.1		%	2.3	50	26-APR-18
WG2757916-1	MB							
1-Methylnaphthalene			<0.40		ug/L		0.4	26-APR-18
1,2-Dichlorobenzene			<0.40		ug/L		0.4	26-APR-18
1,2,4-Trichlorobenzene			<0.40		ug/L		0.4	26-APR-18
1,3-Dichlorobenzene			<0.40		ug/L		0.4	26-APR-18
1,4-Dichlorobenzene			<0.40		ug/L		0.4	26-APR-18



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 651 COLBY DRIVE
 WATERLOO ON N2V 1C2

Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
625-WT	Water							
Batch	R4024051							
WG2757916-1 MB								
2-Chlorophenol			<0.30		ug/L		0.3	26-APR-18
2-Methylnaphthalene			<0.40		ug/L		0.4	26-APR-18
2,3,4,5-Tetrachlorophenol			<0.50		ug/L		0.5	26-APR-18
2,3,4,6-Tetrachlorophenol			<0.50		ug/L		0.5	26-APR-18
2,4-Dichlorophenol			<0.30		ug/L		0.3	26-APR-18
2,4-Dimethylphenol			<0.50		ug/L		0.5	26-APR-18
2,4-Dinitrophenol			<1.0		ug/L		1	26-APR-18
2,4-Dinitrotoluene			<0.40		ug/L		0.4	26-APR-18
2,4,5-Trichlorophenol			<0.50		ug/L		0.5	26-APR-18
2,4,6-Trichlorophenol			<0.50		ug/L		0.5	26-APR-18
2,6-Dinitrotoluene			<0.40		ug/L		0.4	26-APR-18
3,3'-Dichlorobenzidine			<0.40		ug/L		0.4	26-APR-18
4-Chloroaniline			<0.40		ug/L		0.4	26-APR-18
Acenaphthene			<0.20		ug/L		0.2	26-APR-18
Acenaphthylene			<0.20		ug/L		0.2	26-APR-18
Anthracene			<0.20		ug/L		0.2	26-APR-18
Benzo(a)anthracene			<0.20		ug/L		0.2	26-APR-18
Benzo(a)pyrene			<0.050		ug/L		0.05	26-APR-18
Benzo(b)fluoranthene			<0.20		ug/L		0.2	26-APR-18
Benzo(ghi)perylene			<0.20		ug/L		0.2	26-APR-18
Benzo(k)fluoranthene			<0.20		ug/L		0.2	26-APR-18
Bis(2-chloroethyl)ether			<0.40		ug/L		0.4	26-APR-18
Bis(2-ethylhexyl)phthalate			<1.0		ug/L		1	26-APR-18
Chrysene			<0.20		ug/L		0.2	26-APR-18
Dibenzo(a,h)anthracene			<0.20		ug/L		0.2	26-APR-18
Diethylphthalate			<0.20		ug/L		0.2	26-APR-18
Dimethylphthalate			<0.20		ug/L		0.2	26-APR-18
Fluoranthene			<0.20		ug/L		0.2	26-APR-18
Fluorene			<0.20		ug/L		0.2	26-APR-18
Hexachlorobenzene			<0.040		ug/L		0.04	26-APR-18
Hexachlorobutadiene			<0.20		ug/L		0.2	26-APR-18
Indeno(1,2,3-cd)pyrene			<0.20		ug/L		0.2	26-APR-18
Naphthalene			<0.20		ug/L		0.2	26-APR-18



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Client: GHD Limited (Waterloo)
 651 COLBY DRIVE
 WATERLOO ON N2V 1C2

Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
625-WT Water								
Batch R4024051								
WG2757916-1 MB								
Pentachlorophenol			<0.50		ug/L		0.5	26-APR-18
Perylene			<0.20		ug/L		0.2	26-APR-18
Phenanthrene			<0.20		ug/L		0.2	26-APR-18
Pyrene			<0.20		ug/L		0.2	26-APR-18
Surrogate: 2-Fluorobiphenyl			85.7		%		40-130	26-APR-18
Surrogate: Nitrobenzene d5			91.2		%		50-130	26-APR-18
Surrogate: p-Terphenyl d14			111.6		%		40-130	26-APR-18
ALK-WT Water								
Batch R4023572								
WG2759252-3 CRM WT-ALK-CRM								
Alkalinity, Total (as CaCO3)			94.7		%		80-120	26-APR-18
WG2759252-4 DUP L2083897-1								
Alkalinity, Total (as CaCO3)		142	145		mg/L	1.7	20	26-APR-18
WG2759252-2 LCS								
Alkalinity, Total (as CaCO3)			99.97		%		85-115	26-APR-18
WG2759252-1 MB								
Alkalinity, Total (as CaCO3)			<10		mg/L		10	26-APR-18
BR-IC-N-WT Water								
Batch R4023632								
WG2759000-4 DUP L2083897-2								
Bromide (Br)		0.88	0.88		mg/L	0.5	20	26-APR-18
WG2759000-2 LCS								
Bromide (Br)			101.5		%		85-115	26-APR-18
WG2759000-1 MB								
Bromide (Br)			<0.10		mg/L		0.1	26-APR-18
WG2759000-5 MS L2083897-2								
Bromide (Br)			N/A	MS-B	%		-	26-APR-18
C-DIS-ORG-WT Water								
Batch R4023975								
WG2758832-3 DUP L2083709-1								
Dissolved Organic Carbon		17.0	15.9		mg/L	6.9	20	25-APR-18
WG2758832-2 LCS								
Dissolved Organic Carbon			101.9		%		80-120	25-APR-18
WG2758832-1 MB								
Dissolved Organic Carbon			<1.0		mg/L		1	25-APR-18
WG2758832-4 MS L2083709-1								



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Client: GHD Limited (Waterloo)
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 WATERLOO ON N2V 1C2
 Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
C-DIS-ORG-WT								
	Water							
Batch	R4023975							
WG2758832-4	MS	L2083709-1						
Dissolved Organic Carbon			88.9		%		70-130	25-APR-18
CL-IC-N-WT								
	Water							
Batch	R4023632							
WG2759000-4	DUP	L2083897-2						
Chloride (Cl)		63.4	63.6		mg/L	0.3	20	26-APR-18
WG2759000-2	LCS		100.5		%		90-110	26-APR-18
Chloride (Cl)								
WG2759000-1	MB		<0.50		mg/L		0.5	26-APR-18
Chloride (Cl)								
WG2759000-5	MS	L2083897-2	97.4		%		75-125	26-APR-18
Chloride (Cl)								
CN-TOT-WT								
	Water							
Batch	R4024233							
WG2758387-3	DUP	L2083199-1						
Cyanide, Total		<0.020	<0.020	RPD-NA	mg/L	N/A	20	25-APR-18
WG2758387-2	LCS		90.5		%		80-120	25-APR-18
Cyanide, Total								
WG2758387-1	MB		<0.0020		mg/L		0.002	25-APR-18
Cyanide, Total								
WG2758387-4	MS	L2083199-1	90.1		%		75-125	25-APR-18
Cyanide, Total								
Batch	R4028971							
WG2761554-3	DUP	L2083897-1						
Cyanide, Total		<0.0020	<0.0020	RPD-NA	mg/L	N/A	20	30-APR-18
WG2761554-2	LCS		95.9		%		80-120	30-APR-18
Cyanide, Total								
WG2761554-1	MB		<0.0020		mg/L		0.002	30-APR-18
Cyanide, Total								
COD-T-WT								
	Water							
Batch	R4023966							
WG2758787-3	DUP	L2083897-1						
COD		17	21	J	mg/L	4	20	25-APR-18
WG2758787-2	LCS		102.1		%		85-115	25-APR-18
COD								
WG2758787-1	MB							



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Client: GHD Limited (Waterloo)
 651 COLBY DRIVE
 WATERLOO ON N2V 1C2

Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
COD-T-WT								
	Water							
Batch	R4023966							
WG2758787-1	MB							
COD			<10		mg/L		10	25-APR-18
WG2758787-4	MS	L2083897-1						
COD			106.6		%		75-125	25-APR-18
Batch	R4028068							
WG2761767-3	DUP	L2085475-3						
COD		10	12		mg/L	14	20	30-APR-18
WG2761767-2	LCS							
COD			101.0		%		85-115	30-APR-18
WG2761767-1	MB							
COD			<10		mg/L		10	30-APR-18
WG2761767-4	MS	L2085475-3						
COD			101.0		%		75-125	30-APR-18
CR-CR6-IC-WT								
	Water							
Batch	R4022684							
WG2757968-4	DUP	WG2757968-3						
Chromium, Hexavalent		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	25-APR-18
WG2757968-2	LCS							
Chromium, Hexavalent			101.8		%		80-120	25-APR-18
WG2757968-1	MB							
Chromium, Hexavalent			<0.0010		mg/L		0.001	25-APR-18
EC-WT								
	Water							
Batch	R4022427							
WG2757093-12	DUP	WG2757093-11						
Conductivity		1820	1820		umhos/cm	0.0	10	24-APR-18
WG2757093-10	LCS							
Conductivity			99.6		%		90-110	24-APR-18
WG2757093-9	MB							
Conductivity			<3.0		umhos/cm		3	24-APR-18
F-IC-N-WT								
	Water							
Batch	R4023632							
WG2759000-4	DUP	L2083897-2						
Fluoride (F)		0.494	0.493		mg/L	0.2	20	26-APR-18
WG2759000-2	LCS							
Fluoride (F)			101.9		%		90-110	26-APR-18
WG2759000-1	MB							
Fluoride (F)			<0.020		mg/L		0.02	26-APR-18



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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
F-IC-N-WT		Water						
Batch	R4023632							
WG2759000-5	MS	L2083897-2						
Fluoride (F)			98.5		%		75-125	26-APR-18
HG-T-CVAF-TB		Water						
Batch	R4025031							
WG2760947-3	DUP	L2083436-1						
Mercury (Hg)-Total		<0.0000050	<0.0000050	RPD-NA	mg/L	N/A	20	29-APR-18
WG2760947-2	LCS							
Mercury (Hg)-Total			96.8		%		80-120	29-APR-18
WG2760947-1	MB							
Mercury (Hg)-Total			<0.0000050		mg/L		0.000005	29-APR-18
WG2760947-4	MS	L2083558-1						
Mercury (Hg)-Total			85.5		%		70-130	29-APR-18
MET-T-CCMS-WT		Water						
Batch	R4022578							
WG2757875-4	DUP	WG2757875-3						
Aluminum (Al)-Total		0.434	0.427		mg/L	1.5	20	25-APR-18
Antimony (Sb)-Total		0.00038	0.00036		mg/L	5.4	20	25-APR-18
Arsenic (As)-Total		0.00087	0.00085		mg/L	2.7	20	25-APR-18
Barium (Ba)-Total		0.0477	0.0466		mg/L	2.4	20	25-APR-18
Beryllium (Be)-Total		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	25-APR-18
Bismuth (Bi)-Total		<0.000050	<0.000050	RPD-NA	mg/L	N/A	20	25-APR-18
Boron (B)-Total		0.121	0.130		mg/L	6.8	20	25-APR-18
Cadmium (Cd)-Total		<0.000050	<0.000050		mg/L	2.4	20	25-APR-18
Calcium (Ca)-Total		75.9	78.3		mg/L	3.0	20	25-APR-18
Cobalt (Co)-Total		0.00043	0.00043		mg/L	1.2	20	25-APR-18
Copper (Cu)-Total		0.0017	0.0017		mg/L	2.5	20	25-APR-18
Iron (Fe)-Total		0.444	0.420		mg/L	5.5	20	25-APR-18
Lead (Pb)-Total		0.000331	0.000321		mg/L	3.2	20	25-APR-18
Magnesium (Mg)-Total		21.3	20.9		mg/L	1.9	20	25-APR-18
Manganese (Mn)-Total		0.0306	0.0300		mg/L	2.1	20	25-APR-18
Molybdenum (Mo)-Total		0.0378	0.0381		mg/L	0.6	20	25-APR-18
Nickel (Ni)-Total		0.00437	0.00435		mg/L	0.5	20	25-APR-18
Potassium (K)-Total		7.16	7.05		mg/L	1.5	20	25-APR-18
Selenium (Se)-Total		0.00187	0.00187		mg/L	0.3	20	25-APR-18



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Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-WT		Water						
Batch	R4022578							
WG2757875-4	DUP	WG2757875-3						
Silicon (Si)-Total		2.29	2.34		mg/L	2.3	20	25-APR-18
Silver (Ag)-Total		<0.000050	<0.000050	RPD-NA	mg/L	N/A	20	25-APR-18
Sodium (Na)-Total		37.3	37.3		mg/L	0.0	20	25-APR-18
Strontium (Sr)-Total		0.606	0.612		mg/L	1.0	20	25-APR-18
Thallium (Tl)-Total		0.000023	0.000024		mg/L	5.5	20	25-APR-18
Tin (Sn)-Total		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	25-APR-18
Vanadium (V)-Total		0.00132	0.00130		mg/L	1.4	20	25-APR-18
Zinc (Zn)-Total		<0.0030	<0.0030	RPD-NA	mg/L	N/A	20	25-APR-18
WG2757875-2	LCS							
Aluminum (Al)-Total			96.4		%		80-120	25-APR-18
Antimony (Sb)-Total			102.5		%		80-120	25-APR-18
Arsenic (As)-Total			97.1		%		80-120	25-APR-18
Barium (Ba)-Total			99.4		%		80-120	25-APR-18
Beryllium (Be)-Total			87.4		%		80-120	25-APR-18
Bismuth (Bi)-Total			94.3		%		80-120	25-APR-18
Boron (B)-Total			92.9		%		80-120	25-APR-18
Cadmium (Cd)-Total			97.3		%		80-120	25-APR-18
Calcium (Ca)-Total			92.5		%		80-120	25-APR-18
Cobalt (Co)-Total			95.2		%		80-120	25-APR-18
Copper (Cu)-Total			93.6		%		80-120	25-APR-18
Iron (Fe)-Total			92.1		%		80-120	25-APR-18
Lead (Pb)-Total			93.7		%		80-120	25-APR-18
Magnesium (Mg)-Total			91.7		%		80-120	25-APR-18
Manganese (Mn)-Total			97.0		%		80-120	25-APR-18
Molybdenum (Mo)-Total			96.4		%		80-120	25-APR-18
Nickel (Ni)-Total			94.1		%		80-120	25-APR-18
Potassium (K)-Total			90.9		%		80-120	25-APR-18
Selenium (Se)-Total			93.7		%		80-120	25-APR-18
Silicon (Si)-Total			98.4		%		60-140	25-APR-18
Silver (Ag)-Total			99.5		%		80-120	25-APR-18
Sodium (Na)-Total			90.8		%		80-120	25-APR-18
Strontium (Sr)-Total			98.3		%		80-120	25-APR-18
Thallium (Tl)-Total			97.1		%		80-120	25-APR-18



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Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-WT								
	Water							
Batch	R4022578							
WG2757875-2	LCS							
Tin (Sn)-Total			99.6		%		80-120	25-APR-18
Vanadium (V)-Total			96.0		%		80-120	25-APR-18
Zinc (Zn)-Total			91.6		%		80-120	25-APR-18
WG2757875-1	MB							
Aluminum (Al)-Total			<0.0050		mg/L		0.005	25-APR-18
Antimony (Sb)-Total			<0.00010		mg/L		0.0001	25-APR-18
Arsenic (As)-Total			<0.00010		mg/L		0.0001	25-APR-18
Barium (Ba)-Total			<0.00010		mg/L		0.0001	25-APR-18
Beryllium (Be)-Total			<0.00010		mg/L		0.0001	25-APR-18
Bismuth (Bi)-Total			<0.000050		mg/L		0.00005	25-APR-18
Boron (B)-Total			<0.010		mg/L		0.01	25-APR-18
Cadmium (Cd)-Total			<0.0000050		mg/L		0.000005	25-APR-18
Calcium (Ca)-Total			<0.050		mg/L		0.05	25-APR-18
Cobalt (Co)-Total			<0.00010		mg/L		0.0001	25-APR-18
Copper (Cu)-Total			<0.0010		mg/L		0.001	25-APR-18
Iron (Fe)-Total			<0.010		mg/L		0.01	25-APR-18
Lead (Pb)-Total			<0.000050		mg/L		0.00005	25-APR-18
Magnesium (Mg)-Total			<0.0050		mg/L		0.005	25-APR-18
Manganese (Mn)-Total			<0.00050		mg/L		0.0005	25-APR-18
Molybdenum (Mo)-Total			<0.000050		mg/L		0.00005	25-APR-18
Nickel (Ni)-Total			<0.00050		mg/L		0.0005	25-APR-18
Potassium (K)-Total			<0.050		mg/L		0.05	25-APR-18
Selenium (Se)-Total			<0.000050		mg/L		0.00005	25-APR-18
Silicon (Si)-Total			<0.10		mg/L		0.1	25-APR-18
Silver (Ag)-Total			<0.000050		mg/L		0.00005	25-APR-18
Sodium (Na)-Total			<0.050		mg/L		0.05	25-APR-18
Strontium (Sr)-Total			<0.0010		mg/L		0.001	25-APR-18
Thallium (Tl)-Total			<0.000010		mg/L		0.00001	25-APR-18
Tin (Sn)-Total			<0.00010		mg/L		0.0001	25-APR-18
Vanadium (V)-Total			<0.00050		mg/L		0.0005	25-APR-18
Zinc (Zn)-Total			<0.0030		mg/L		0.003	25-APR-18
WG2757875-5	MS	WG2757875-6						
Aluminum (Al)-Total			N/A	MS-B	%		-	25-APR-18
Antimony (Sb)-Total			103.9		%		70-130	25-APR-18



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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-WT								
	Water							
Batch	R4022578							
WG2757875-5 MS		WG2757875-6						
Arsenic (As)-Total			99.5		%		70-130	25-APR-18
Barium (Ba)-Total			N/A	MS-B	%		-	25-APR-18
Beryllium (Be)-Total			88.6		%		70-130	25-APR-18
Bismuth (Bi)-Total			91.3		%		70-130	25-APR-18
Boron (B)-Total			N/A	MS-B	%		-	25-APR-18
Cadmium (Cd)-Total			95.0		%		70-130	25-APR-18
Calcium (Ca)-Total			N/A	MS-B	%		-	25-APR-18
Cobalt (Co)-Total			94.6		%		70-130	25-APR-18
Copper (Cu)-Total			90.4		%		70-130	25-APR-18
Iron (Fe)-Total			N/A	MS-B	%		-	25-APR-18
Lead (Pb)-Total			94.9		%		70-130	25-APR-18
Magnesium (Mg)-Total			N/A	MS-B	%		-	25-APR-18
Manganese (Mn)-Total			N/A	MS-B	%		-	25-APR-18
Molybdenum (Mo)-Total			N/A	MS-B	%		-	25-APR-18
Nickel (Ni)-Total			91.5		%		70-130	25-APR-18
Potassium (K)-Total			N/A	MS-B	%		-	25-APR-18
Selenium (Se)-Total			97.0		%		70-130	25-APR-18
Silicon (Si)-Total			N/A	MS-B	%		-	25-APR-18
Silver (Ag)-Total			94.9		%		70-130	25-APR-18
Sodium (Na)-Total			N/A	MS-B	%		-	25-APR-18
Strontium (Sr)-Total			N/A	MS-B	%		-	25-APR-18
Thallium (Tl)-Total			94.6		%		70-130	25-APR-18
Tin (Sn)-Total			101.5		%		70-130	25-APR-18
Vanadium (V)-Total			100.9		%		70-130	25-APR-18
Zinc (Zn)-Total			88.0		%		70-130	25-APR-18
NH3-WT								
	Water							
Batch	R4022872							
WG2758107-11 DUP		L2083859-4						
Ammonia, Total (as N)		0.133	0.118		mg/L	12	20	25-APR-18
WG2758107-10 LCS								
Ammonia, Total (as N)			107.9		%		85-115	25-APR-18
WG2758107-9 MB								
Ammonia, Total (as N)			<0.020		mg/L		0.02	25-APR-18
WG2758107-12 MS		L2083859-4						



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Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
NH3-WT								
Water								
Batch	R4022872							
WG2758107-12 MS		L2083859-4						
Ammonia, Total (as N)			91.9		%		75-125	25-APR-18
NO2-IC-WT								
Water								
Batch	R4023632							
WG2759000-4 DUP		L2083897-2						
Nitrite (as N)		0.011	0.011		mg/L	4.8	25	26-APR-18
WG2759000-2 LCS								
Nitrite (as N)			101.7		%		70-130	26-APR-18
WG2759000-1 MB								
Nitrite (as N)			<0.010		mg/L		0.01	26-APR-18
WG2759000-5 MS		L2083897-2						
Nitrite (as N)			96.9		%		70-130	26-APR-18
NO3-IC-WT								
Water								
Batch	R4023632							
WG2759000-4 DUP		L2083897-2						
Nitrate (as N)		0.530	0.529		mg/L	0.1	25	26-APR-18
WG2759000-2 LCS								
Nitrate (as N)			100.7		%		70-130	26-APR-18
WG2759000-1 MB								
Nitrate (as N)			<0.020		mg/L		0.02	26-APR-18
WG2759000-5 MS		L2083897-2						
Nitrate (as N)			99.2		%		70-130	26-APR-18
P-T-COL-WT								
Water								
Batch	R4023962							
WG2759420-3 DUP		L2083897-2						
Phosphorus, Total		0.0260	0.0241		mg/L	7.2	20	27-APR-18
WG2759420-2 LCS								
Phosphorus, Total			93.3		%		80-120	27-APR-18
WG2759420-1 MB								
Phosphorus, Total			<0.0030		mg/L		0.003	27-APR-18
WG2759420-4 MS		L2083897-2						
Phosphorus, Total			88.6		%		70-130	27-APR-18
PH-WT								
Water								



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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PH-WT								
	Water							
Batch	R4022427							
WG2757093-12	DUP	WG2757093-11						
pH		7.90	7.93	J	pH units	0.03	0.2	24-APR-18
WG2757093-10	LCS		6.98		pH units		6.9-7.1	24-APR-18
PHENOLS-4AAP-WT								
	Water							
Batch	R4023642							
WG2758400-3	DUP	L2083897-1						
Phenols (4AAP)		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	25-APR-18
WG2758400-2	LCS		108.1		%		85-115	25-APR-18
Phenols (4AAP)								
WG2758400-1	MB		<0.0010		mg/L		0.001	25-APR-18
Phenols (4AAP)								
WG2758400-4	MS	L2083897-1	104.3		%		75-125	25-APR-18
Phenols (4AAP)								
SO4-IC-N-WT								
	Water							
Batch	R4023632							
WG2759000-4	DUP	L2083897-2						
Sulfate (SO4)		156	156		mg/L	0.1	20	26-APR-18
WG2759000-2	LCS		101.2		%		90-110	26-APR-18
Sulfate (SO4)								
WG2759000-1	MB		<0.30		mg/L		0.3	26-APR-18
Sulfate (SO4)								
WG2759000-5	MS	L2083897-2	N/A	MS-B	%		-	26-APR-18
Sulfate (SO4)								
SOLIDS-TDS-WT								
	Water							
Batch	R4023380							
WG2758291-3	DUP	L2083479-1						
Total Dissolved Solids		3680	3640		mg/L	1.0	20	25-APR-18
WG2758291-2	LCS		102.2		%		85-115	25-APR-18
Total Dissolved Solids								
WG2758291-1	MB		<10		mg/L		10	25-APR-18
Total Dissolved Solids								
SOLIDS-TSS-WT								
	Water							
Batch	R4024010							
WG2758854-3	DUP	L2084029-2						
Total Suspended Solids		2520	2790		mg/L	10	20	27-APR-18
WG2758854-2	LCS							



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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
SOLIDS-TSS-WT		Water						
Batch	R4024010							
WG2758854-2	LCS							
Total Suspended Solids			99.9		%		85-115	27-APR-18
WG2758854-1	MB							
Total Suspended Solids			<2.0		mg/L		2	27-APR-18
TKN-WT		Water						
Batch	R4022897							
WG2757735-3	DUP	L2083709-2						
Total Kjeldahl Nitrogen		0.62	0.67		mg/L	8.1	20	25-APR-18
WG2757735-2	LCS							
Total Kjeldahl Nitrogen			84.9		%		75-125	25-APR-18
WG2757735-1	MB							
Total Kjeldahl Nitrogen			<0.15		mg/L		0.15	25-APR-18
WG2757735-4	MS	L2083709-2						
Total Kjeldahl Nitrogen			102.4		%		70-130	25-APR-18
Batch	R4024301							
WG2758902-3	DUP	L2084956-1						
Total Kjeldahl Nitrogen		0.52	0.50		mg/L	4.4	20	27-APR-18
WG2758902-2	LCS							
Total Kjeldahl Nitrogen			96.0		%		75-125	27-APR-18
WG2758902-1	MB							
Total Kjeldahl Nitrogen			<0.15		mg/L		0.15	27-APR-18
WG2758902-4	MS	L2084956-1						
Total Kjeldahl Nitrogen			97.9		%		70-130	27-APR-18
VOC-ROU-HS-WT		Water						
Batch	R4022477							
WG2755012-9	DUP	WG2755012-8						
1,1,1,2-Tetrachloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	25-APR-18
1,1,2,2-Tetrachloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	25-APR-18
1,1,1-Trichloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	25-APR-18
1,1,2-Trichloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	25-APR-18
1,2-Dibromoethane		<0.20	<0.20	RPD-NA	ug/L	N/A	30	25-APR-18
1,1-Dichloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	25-APR-18
1,1-Dichloroethylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	25-APR-18
1,2-Dichlorobenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	25-APR-18
1,2-Dichloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	25-APR-18
1,2-Dichloropropane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	25-APR-18



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Client: GHD Limited (Waterloo)
 651 COLBY DRIVE
 WATERLOO ON N2V 1C2

Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-ROU-HS-WT		Water						
Batch	R4022477							
WG2755012-9	DUP	WG2755012-8						
1,3-Dichlorobenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	25-APR-18
1,4-Dichlorobenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	25-APR-18
Acetone		<20	<20	RPD-NA	ug/L	N/A	30	25-APR-18
Benzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	25-APR-18
Bromodichloromethane		<1.0	<1.0	RPD-NA	ug/L	N/A	30	25-APR-18
Bromoform		<1.0	<1.0	RPD-NA	ug/L	N/A	30	25-APR-18
Bromomethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	25-APR-18
Carbon tetrachloride		<0.50	<0.50	RPD-NA	ug/L	N/A	30	25-APR-18
Chlorobenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	25-APR-18
Chloroethane		<1.0	<1.0	RPD-NA	ug/L	N/A	30	25-APR-18
Chloroform		<1.0	<1.0	RPD-NA	ug/L	N/A	30	25-APR-18
cis-1,2-Dichloroethylene		1.17	1.12		ug/L	4.4	30	25-APR-18
cis-1,3-Dichloropropene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	25-APR-18
Dibromochloromethane		<1.0	<1.0	RPD-NA	ug/L	N/A	30	25-APR-18
Dichlorodifluoromethane		<1.0	<1.0	RPD-NA	ug/L	N/A	30	25-APR-18
Dichloromethane		<2.0	<2.0	RPD-NA	ug/L	N/A	30	25-APR-18
Ethylbenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	25-APR-18
m+p-Xylenes		<1.0	<1.0	RPD-NA	ug/L	N/A	30	25-APR-18
Methyl Ethyl Ketone		<20	<20	RPD-NA	ug/L	N/A	30	25-APR-18
Methyl Isobutyl Ketone		<20	<20	RPD-NA	ug/L	N/A	30	25-APR-18
n-Hexane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	25-APR-18
MTBE		<0.50	<0.50	RPD-NA	ug/L	N/A	30	25-APR-18
o-Xylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	25-APR-18
Styrene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	25-APR-18
Tetrachloroethylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	25-APR-18
Toluene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	25-APR-18
trans-1,2-Dichloroethylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	25-APR-18
trans-1,3-Dichloropropene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	25-APR-18
Trichloroethylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	25-APR-18
Trichlorofluoromethane		<1.0	<1.0	RPD-NA	ug/L	N/A	30	25-APR-18
Vinyl chloride		0.82	0.83		ug/L	1.2	30	25-APR-18
WG2755012-6	LCS							
1,1,1,2-Tetrachloroethane			100.9		%		70-130	25-APR-18



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 651 COLBY DRIVE
 WATERLOO ON N2V 1C2
 Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-ROU-HS-WT								
	Water							
Batch	R4022477							
WG2755012-6	LCS							
1,1,2,2-Tetrachloroethane			93.0		%		70-130	25-APR-18
1,1,1-Trichloroethane			105.5		%		70-130	25-APR-18
1,1,2-Trichloroethane			90.4		%		70-130	25-APR-18
1,2-Dibromoethane			94.6		%		70-130	25-APR-18
1,1-Dichloroethane			102.8		%		70-130	25-APR-18
1,1-Dichloroethylene			97.0		%		70-130	25-APR-18
1,2-Dichlorobenzene			95.7		%		70-130	25-APR-18
1,2-Dichloroethane			90.0		%		70-130	25-APR-18
1,2-Dichloropropane			102.2		%		70-130	25-APR-18
1,3-Dichlorobenzene			96.7		%		70-130	25-APR-18
1,4-Dichlorobenzene			98.2		%		70-130	25-APR-18
Acetone			84.7		%		60-140	25-APR-18
Benzene			98.8		%		70-130	25-APR-18
Bromodichloromethane			96.3		%		70-130	25-APR-18
Bromoform			93.7		%		70-130	25-APR-18
Bromomethane			95.7		%		60-140	25-APR-18
Carbon tetrachloride			96.2		%		70-130	25-APR-18
Chlorobenzene			101.7		%		70-130	25-APR-18
Chloroethane			104.3		%		70-130	25-APR-18
Chloroform			95.8		%		70-130	25-APR-18
cis-1,2-Dichloroethylene			101.8		%		70-130	25-APR-18
cis-1,3-Dichloropropene			90.9		%		70-130	25-APR-18
Dibromochloromethane			100.4		%		70-130	25-APR-18
Dichlorodifluoromethane			95.1		%		50-140	25-APR-18
Dichloromethane			98.3		%		70-130	25-APR-18
Ethylbenzene			98.6		%		70-130	25-APR-18
m+p-Xylenes			105.1		%		70-130	25-APR-18
Methyl Ethyl Ketone			85.7		%		60-140	25-APR-18
Methyl Isobutyl Ketone			91.8		%		50-150	25-APR-18
n-Hexane			115.7		%		70-130	25-APR-18
MTBE			101.6		%		70-130	25-APR-18
o-Xylene			98.3		%		70-130	25-APR-18
Styrene			97.1		%		70-130	25-APR-18



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 651 COLBY DRIVE
 WATERLOO ON N2V 1C2

Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-ROU-HS-WT		Water						
Batch	R4022477							
WG2755012-6	LCS							
Tetrachloroethylene			98.0		%		70-130	25-APR-18
Toluene			97.4		%		70-130	25-APR-18
trans-1,2-Dichloroethylene			99.97		%		70-130	25-APR-18
trans-1,3-Dichloropropene			82.1		%		70-130	25-APR-18
Trichloroethylene			99.4		%		70-130	25-APR-18
Trichlorofluoromethane			108.2		%		60-140	25-APR-18
Vinyl chloride			101.9		%		60-140	25-APR-18
WG2755012-7	MB							
1,1,1,2-Tetrachloroethane			<0.50		ug/L		0.5	25-APR-18
1,1,2,2-Tetrachloroethane			<0.50		ug/L		0.5	25-APR-18
1,1,1-Trichloroethane			<0.50		ug/L		0.5	25-APR-18
1,1,2-Trichloroethane			<0.50		ug/L		0.5	25-APR-18
1,2-Dibromoethane			<0.20		ug/L		0.2	25-APR-18
1,1-Dichloroethane			<0.50		ug/L		0.5	25-APR-18
1,1-Dichloroethylene			<0.50		ug/L		0.5	25-APR-18
1,2-Dichlorobenzene			<0.50		ug/L		0.5	25-APR-18
1,2-Dichloroethane			<0.50		ug/L		0.5	25-APR-18
1,2-Dichloropropane			<0.50		ug/L		0.5	25-APR-18
1,3-Dichlorobenzene			<0.50		ug/L		0.5	25-APR-18
1,4-Dichlorobenzene			<0.50		ug/L		0.5	25-APR-18
Acetone			<20		ug/L		20	25-APR-18
Benzene			<0.50		ug/L		0.5	25-APR-18
Bromodichloromethane			<1.0		ug/L		1	25-APR-18
Bromoform			<1.0		ug/L		1	25-APR-18
Bromomethane			<0.50		ug/L		0.5	25-APR-18
Carbon tetrachloride			<0.50		ug/L		0.5	25-APR-18
Chlorobenzene			<0.50		ug/L		0.5	25-APR-18
Chloroethane			<1.0		ug/L		1	25-APR-18
Chloroform			<1.0		ug/L		1	25-APR-18
cis-1,2-Dichloroethylene			<0.50		ug/L		0.5	25-APR-18
cis-1,3-Dichloropropene			<0.50		ug/L		0.5	25-APR-18
Dibromochloromethane			<1.0		ug/L		1	25-APR-18
Dichlorodifluoromethane			<1.0		ug/L		1	25-APR-18
Dichloromethane			<2.0		ug/L		2	25-APR-18



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 651 COLBY DRIVE
 WATERLOO ON N2V 1C2

Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-ROU-HS-WT								
	Water							
Batch	R4022477							
WG2755012-7 MB								
Ethylbenzene			<0.50		ug/L		0.5	25-APR-18
m+p-Xylenes			<1.0		ug/L		1	25-APR-18
Methyl Ethyl Ketone			<20		ug/L		20	25-APR-18
Methyl Isobutyl Ketone			<20		ug/L		20	25-APR-18
n-Hexane			<0.50		ug/L		0.5	25-APR-18
MTBE			<0.50		ug/L		0.5	25-APR-18
o-Xylene			<0.50		ug/L		0.5	25-APR-18
Styrene			<0.50		ug/L		0.5	25-APR-18
Tetrachloroethylene			<0.50		ug/L		0.5	25-APR-18
Toluene			<0.50		ug/L		0.5	25-APR-18
trans-1,2-Dichloroethylene			<0.50		ug/L		0.5	25-APR-18
trans-1,3-Dichloropropene			<0.50		ug/L		0.5	25-APR-18
Trichloroethylene			<0.50		ug/L		0.5	25-APR-18
Trichlorofluoromethane			<1.0		ug/L		1	25-APR-18
Vinyl chloride			<0.50		ug/L		0.5	25-APR-18
Surrogate: 1,4-Difluorobenzene			98.5		%		70-130	25-APR-18
Surrogate: 4-Bromofluorobenzene			88.5		%		70-130	25-APR-18
WG2755012-10 MS		WG2755012-8						
1,1,1,2-Tetrachloroethane			100.8		%		50-150	25-APR-18
1,1,2,2-Tetrachloroethane			96.9		%		50-150	25-APR-18
1,1,1-Trichloroethane			107.4		%		50-150	25-APR-18
1,1,2-Trichloroethane			90.9		%		50-150	25-APR-18
1,2-Dibromoethane			94.1		%		50-150	25-APR-18
1,1-Dichloroethane			105.1		%		50-150	25-APR-18
1,1-Dichloroethylene			97.9		%		50-150	25-APR-18
1,2-Dichlorobenzene			94.8		%		50-150	25-APR-18
1,2-Dichloroethane			90.4		%		50-150	25-APR-18
1,2-Dichloropropane			103.7		%		50-150	25-APR-18
1,3-Dichlorobenzene			94.8		%		50-150	25-APR-18
1,4-Dichlorobenzene			96.3		%		50-150	25-APR-18
Acetone			82.5		%		50-150	25-APR-18
Benzene			100.4		%		50-150	25-APR-18
Bromodichloromethane			97.4		%		50-150	25-APR-18
Bromoform			94.0		%		50-150	25-APR-18



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 651 COLBY DRIVE
 WATERLOO ON N2V 1C2

Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-ROU-HS-WT								
	Water							
Batch	R4022477							
WG2755012-10 MS		WG2755012-8						
Bromomethane			96.1		%		50-150	25-APR-18
Carbon tetrachloride			97.6		%		50-150	25-APR-18
Chlorobenzene			102.1		%		50-150	25-APR-18
Chloroethane			106.6		%		50-150	25-APR-18
Chloroform			96.8		%		50-150	25-APR-18
cis-1,2-Dichloroethylene			100.8		%		50-150	25-APR-18
cis-1,3-Dichloropropene			91.4		%		50-150	25-APR-18
Dibromochloromethane			100.3		%		50-150	25-APR-18
Dichlorodifluoromethane			95.3		%		50-150	25-APR-18
Dichloromethane			100.8		%		50-150	25-APR-18
Ethylbenzene			97.2		%		50-150	25-APR-18
m+p-Xylenes			104.0		%		50-150	25-APR-18
Methyl Ethyl Ketone			86.1		%		50-150	25-APR-18
Methyl Isobutyl Ketone			89.6		%		50-150	25-APR-18
n-Hexane			117.0		%		50-150	25-APR-18
MTBE			102.4		%		50-150	25-APR-18
o-Xylene			96.6		%		50-150	25-APR-18
Styrene			94.0		%		50-150	25-APR-18
Tetrachloroethylene			96.3		%		50-150	25-APR-18
Toluene			96.8		%		50-150	25-APR-18
trans-1,2-Dichloroethylene			100.4		%		50-150	25-APR-18
trans-1,3-Dichloropropene			82.1		%		50-150	25-APR-18
Trichloroethylene			99.0		%		50-150	25-APR-18
Trichlorofluoromethane			109.6		%		50-150	25-APR-18
Vinyl chloride			102.1		%		50-150	25-APR-18
Batch	R4022624							
WG2755013-4 DUP		WG2755013-3						
1,1,1,2-Tetrachloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	26-APR-18
1,1,2,2-Tetrachloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	26-APR-18
1,1,1-Trichloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	26-APR-18
1,1,2-Trichloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	26-APR-18
1,2-Dibromoethane		<0.20	<0.20	RPD-NA	ug/L	N/A	30	26-APR-18
1,1-Dichloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	26-APR-18



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 651 COLBY DRIVE
 WATERLOO ON N2V 1C2
 Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-ROU-HS-WT		Water						
Batch	R4022624							
WG2755013-4	DUP	WG2755013-3						
1,1-Dichloroethylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	26-APR-18
1,2-Dichlorobenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	26-APR-18
1,2-Dichloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	26-APR-18
1,2-Dichloropropane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	26-APR-18
1,3-Dichlorobenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	26-APR-18
1,4-Dichlorobenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	26-APR-18
Acetone		54	55		ug/L	1.3	30	26-APR-18
Benzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	26-APR-18
Bromodichloromethane		<1.0	<1.0	RPD-NA	ug/L	N/A	30	26-APR-18
Bromoform		<1.0	<1.0	RPD-NA	ug/L	N/A	30	26-APR-18
Bromomethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	26-APR-18
Carbon tetrachloride		<0.50	<0.50	RPD-NA	ug/L	N/A	30	26-APR-18
Chlorobenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	26-APR-18
Chloroethane		<1.0	<1.0	RPD-NA	ug/L	N/A	30	26-APR-18
Chloroform		<1.0	<1.0	RPD-NA	ug/L	N/A	30	26-APR-18
cis-1,2-Dichloroethylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	26-APR-18
cis-1,3-Dichloropropene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	26-APR-18
Dibromochloromethane		<1.0	<1.0	RPD-NA	ug/L	N/A	30	26-APR-18
Dichlorodifluoromethane		<1.0	<1.0	RPD-NA	ug/L	N/A	30	26-APR-18
Dichloromethane		<2.0	<2.0	RPD-NA	ug/L	N/A	30	26-APR-18
Ethylbenzene		1.09	1.10		ug/L	0.9	30	26-APR-18
m+p-Xylenes		3.7	3.6		ug/L	1.7	30	26-APR-18
Methyl Ethyl Ketone		<20	<20	RPD-NA	ug/L	N/A	30	26-APR-18
Methyl Isobutyl Ketone		<20	<20	RPD-NA	ug/L	N/A	30	26-APR-18
n-Hexane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	26-APR-18
MTBE		<0.50	<0.50	RPD-NA	ug/L	N/A	30	26-APR-18
o-Xylene		3.98	3.87		ug/L	2.8	30	26-APR-18
Styrene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	26-APR-18
Tetrachloroethylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	26-APR-18
Toluene		0.91	0.93		ug/L	2.2	30	26-APR-18
trans-1,2-Dichloroethylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	26-APR-18
trans-1,3-Dichloropropene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	26-APR-18
Trichloroethylene		<0.50	<0.50		ug/L			26-APR-18



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 651 COLBY DRIVE
 WATERLOO ON N2V 1C2

Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-ROU-HS-WT								
	Water							
Batch	R4022624							
WG2755013-4	DUP	WG2755013-3						
Trichloroethylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	26-APR-18
Trichlorofluoromethane		<1.0	<1.0	RPD-NA	ug/L	N/A	30	26-APR-18
Vinyl chloride		<0.50	<0.50	RPD-NA	ug/L	N/A	30	26-APR-18
WG2755013-1	LCS							
1,1,1,2-Tetrachloroethane			101.0		%		70-130	25-APR-18
1,1,2,2-Tetrachloroethane			99.97		%		70-130	25-APR-18
1,1,1-Trichloroethane			100.9		%		70-130	25-APR-18
1,1,2-Trichloroethane			96.2		%		70-130	25-APR-18
1,2-Dibromoethane			101.1		%		70-130	25-APR-18
1,1-Dichloroethane			104.2		%		70-130	25-APR-18
1,1-Dichloroethylene			94.1		%		70-130	25-APR-18
1,2-Dichlorobenzene			95.6		%		70-130	25-APR-18
1,2-Dichloroethane			98.1		%		70-130	25-APR-18
1,2-Dichloropropane			105.7		%		70-130	25-APR-18
1,3-Dichlorobenzene			95.1		%		70-130	25-APR-18
1,4-Dichlorobenzene			97.7		%		70-130	25-APR-18
Acetone			99.6		%		60-140	25-APR-18
Benzene			100.1		%		70-130	25-APR-18
Bromodichloromethane			101.9		%		70-130	25-APR-18
Bromoform			101.4		%		70-130	25-APR-18
Bromomethane			98.6		%		60-140	25-APR-18
Carbon tetrachloride			93.3		%		70-130	25-APR-18
Chlorobenzene			102.0		%		70-130	25-APR-18
Chloroethane			103.3		%		70-130	25-APR-18
Chloroform			98.7		%		70-130	25-APR-18
cis-1,2-Dichloroethylene			96.1		%		70-130	25-APR-18
cis-1,3-Dichloropropene			100.7		%		70-130	25-APR-18
Dibromochloromethane			105.2		%		70-130	25-APR-18
Dichlorodifluoromethane			88.3		%		50-140	25-APR-18
Dichloromethane			105.6		%		70-130	25-APR-18
Ethylbenzene			94.6		%		70-130	25-APR-18
m+p-Xylenes			101.8		%		70-130	25-APR-18
Methyl Ethyl Ketone			102.3		%		60-140	25-APR-18
Methyl Isobutyl Ketone			102.1				50-150	



Quality Control Report

Workorder: L2083897

Report Date: 01-MAY-18

Page 22 of 25

Client: GHD Limited (Waterloo)
 651 COLBY DRIVE
 WATERLOO ON N2V 1C2

Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-ROU-HS-WT		Water						
Batch	R4022624							
WG2755013-1	LCS							
Methyl Isobutyl Ketone			102.1		%		50-150	25-APR-18
n-Hexane			110.4		%		70-130	25-APR-18
MTBE			101.3		%		70-130	25-APR-18
o-Xylene			95.1		%		70-130	25-APR-18
Styrene			95.5		%		70-130	25-APR-18
Tetrachloroethylene			93.8		%		70-130	25-APR-18
Toluene			94.6		%		70-130	25-APR-18
trans-1,2-Dichloroethylene			100.6		%		70-130	25-APR-18
trans-1,3-Dichloropropene			91.1		%		70-130	25-APR-18
Trichloroethylene			98.9		%		70-130	25-APR-18
Trichlorofluoromethane			103.1		%		60-140	25-APR-18
Vinyl chloride			97.8		%		60-140	25-APR-18
WG2755013-2	MB							
1,1,1,2-Tetrachloroethane			<0.50		ug/L		0.5	25-APR-18
1,1,2,2-Tetrachloroethane			<0.50		ug/L		0.5	25-APR-18
1,1,1-Trichloroethane			<0.50		ug/L		0.5	25-APR-18
1,1,2-Trichloroethane			<0.50		ug/L		0.5	25-APR-18
1,2-Dibromoethane			<0.20		ug/L		0.2	25-APR-18
1,1-Dichloroethane			<0.50		ug/L		0.5	25-APR-18
1,1-Dichloroethylene			<0.50		ug/L		0.5	25-APR-18
1,2-Dichlorobenzene			<0.50		ug/L		0.5	25-APR-18
1,2-Dichloroethane			<0.50		ug/L		0.5	25-APR-18
1,2-Dichloropropane			<0.50		ug/L		0.5	25-APR-18
1,3-Dichlorobenzene			<0.50		ug/L		0.5	25-APR-18
1,4-Dichlorobenzene			<0.50		ug/L		0.5	25-APR-18
Acetone			<20		ug/L		20	25-APR-18
Benzene			<0.50		ug/L		0.5	25-APR-18
Bromodichloromethane			<1.0		ug/L		1	25-APR-18
Bromoform			<1.0		ug/L		1	25-APR-18
Bromomethane			<0.50		ug/L		0.5	25-APR-18
Carbon tetrachloride			<0.50		ug/L		0.5	25-APR-18
Chlorobenzene			<0.50		ug/L		0.5	25-APR-18
Chloroethane			<1.0		ug/L		1	25-APR-18
Chloroform			<1.0		ug/L		1	25-APR-18



Quality Control Report

Workorder: L2083897

Report Date: 01-MAY-18

Page 23 of 25

Client: GHD Limited (Waterloo)
 651 COLBY DRIVE
 WATERLOO ON N2V 1C2
 Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-ROU-HS-WT								
	Water							
Batch	R4022624							
WG2755013-2 MB								
cis-1,2-Dichloroethylene			<0.50		ug/L		0.5	25-APR-18
cis-1,3-Dichloropropene			<0.50		ug/L		0.5	25-APR-18
Dibromochloromethane			<1.0		ug/L		1	25-APR-18
Dichlorodifluoromethane			<1.0		ug/L		1	25-APR-18
Dichloromethane			<2.0		ug/L		2	25-APR-18
Ethylbenzene			<0.50		ug/L		0.5	25-APR-18
m+p-Xylenes			<1.0		ug/L		1	25-APR-18
Methyl Ethyl Ketone			<20		ug/L		20	25-APR-18
Methyl Isobutyl Ketone			<20		ug/L		20	25-APR-18
n-Hexane			<0.50		ug/L		0.5	25-APR-18
MTBE			<0.50		ug/L		0.5	25-APR-18
o-Xylene			<0.50		ug/L		0.5	25-APR-18
Styrene			<0.50		ug/L		0.5	25-APR-18
Tetrachloroethylene			<0.50		ug/L		0.5	25-APR-18
Toluene			<0.50		ug/L		0.5	25-APR-18
trans-1,2-Dichloroethylene			<0.50		ug/L		0.5	25-APR-18
trans-1,3-Dichloropropene			<0.50		ug/L		0.5	25-APR-18
Trichloroethylene			<0.50		ug/L		0.5	25-APR-18
Trichlorofluoromethane			<1.0		ug/L		1	25-APR-18
Vinyl chloride			<0.50		ug/L		0.5	25-APR-18
Surrogate: 1,4-Difluorobenzene			98.1		%		70-130	25-APR-18
Surrogate: 4-Bromofluorobenzene			89.4		%		70-130	25-APR-18
WG2755013-5 MS		WG2755013-3						
1,1,1,2-Tetrachloroethane			100.5		%		50-150	26-APR-18
1,1,2,2-Tetrachloroethane			94.7		%		50-150	26-APR-18
1,1,1-Trichloroethane			101.3		%		50-150	26-APR-18
1,1,2-Trichloroethane			90.5		%		50-150	26-APR-18
1,2-Dibromoethane			93.7		%		50-150	26-APR-18
1,1-Dichloroethane			103.1		%		50-150	26-APR-18
1,1-Dichloroethylene			91.7		%		50-150	26-APR-18
1,2-Dichlorobenzene			95.0		%		50-150	26-APR-18
1,2-Dichloroethane			91.0		%		50-150	26-APR-18
1,2-Dichloropropane			103.6		%		50-150	26-APR-18
1,3-Dichlorobenzene			97.4		%		50-150	26-APR-18



Quality Control Report

Workorder: L2083897

Report Date: 01-MAY-18

Page 24 of 25

Client: GHD Limited (Waterloo)
 651 COLBY DRIVE
 WATERLOO ON N2V 1C2
 Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-ROU-HS-WT								
	Water							
Batch	R4022624							
WG2755013-5 MS		WG2755013-3						
1,4-Dichlorobenzene			99.5		%		50-150	26-APR-18
Acetone			98.3		%		50-150	26-APR-18
Benzene			99.1		%		50-150	26-APR-18
Bromodichloromethane			98.7		%		50-150	26-APR-18
Bromoform			93.9		%		50-150	26-APR-18
Bromomethane			91.7		%		50-150	26-APR-18
Carbon tetrachloride			92.8		%		50-150	26-APR-18
Chlorobenzene			102.1		%		50-150	26-APR-18
Chloroethane			99.0		%		50-150	26-APR-18
Chloroform			96.5		%		50-150	26-APR-18
cis-1,2-Dichloroethylene			93.4		%		50-150	26-APR-18
cis-1,3-Dichloropropene			97.0		%		50-150	26-APR-18
Dibromochloromethane			99.1		%		50-150	26-APR-18
Dichlorodifluoromethane			70.1		%		50-150	26-APR-18
Dichloromethane			99.6		%		50-150	26-APR-18
Ethylbenzene			97.0		%		50-150	26-APR-18
m+p-Xylenes			104.6		%		50-150	26-APR-18
Methyl Ethyl Ketone			85.3		%		50-150	26-APR-18
Methyl Isobutyl Ketone			93.8		%		50-150	26-APR-18
n-Hexane			101.3		%		50-150	26-APR-18
MTBE			101.9		%		50-150	26-APR-18
o-Xylene			96.7		%		50-150	26-APR-18
Styrene			95.5		%		50-150	26-APR-18
Tetrachloroethylene			95.4		%		50-150	26-APR-18
Toluene			95.2		%		50-150	26-APR-18
trans-1,2-Dichloroethylene			100.2		%		50-150	26-APR-18
trans-1,3-Dichloropropene			86.9		%		50-150	26-APR-18
Trichloroethylene			99.4		%		50-150	26-APR-18
Trichlorofluoromethane			97.1		%		50-150	26-APR-18
Vinyl chloride			90.7		%		50-150	26-APR-18

Quality Control Report

Workorder: L2083897

Report Date: 01-MAY-18

Client: GHD Limited (Waterloo)
651 COLBY DRIVE
WATERLOO ON N2V 1C2
Contact: JENNIFER BALKWILL

Page 25 of 25

Legend:

Limit ALS Control Limit (Data Quality Objectives)
DUP Duplicate
RPD Relative Percent Difference
N/A Not Available
LCS Laboratory Control Sample
SRM Standard Reference Material
MS Matrix Spike
MSD Matrix Spike Duplicate
ADE Average Desorption Efficiency
MB Method Blank
IRM Internal Reference Material
CRM Certified Reference Material
CCV Continuing Calibration Verification
CVS Calibration Verification Standard
LCSD Laboratory Control Sample Duplicate

Sample Parameter Qualifier Definitions:

Qualifier	Description
J	Duplicate results and limits are expressed in terms of absolute difference.
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.
RPD-NA	Relative Percent Difference Not Available due to result(s) being less than detection limit.

Hold Time Exceedances:

All test results reported with this submission were conducted within ALS recommended hold times.

ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where available). For more information, please contact ALS.

The ALS Quality Control Report is provided to ALS clients upon request. ALS includes comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against pre-determined data quality objectives to provide confidence in the accuracy of associated test results.

Please note that this report may contain QC results from anonymous Sample Duplicates and Matrix Spikes that do not originate from this Work Order.



Chain of Custody (COC) / Analytical Request Form

Canada Toll Free: 1 800 668 9878



L2083897-COFC

COC Number: 14 -

Page 1 of 1

www.alsglobal.com

Report To		Acct#13791		Report Format / Distribution				Select Service Level Below (Rush Turnaround Time (TAT) is not available for all tests)											
Company: GHD LIMITED		Contact: Jennifer Balkwill		Select Report Format: <input checked="" type="checkbox"/> PDF <input checked="" type="checkbox"/> EXCEL <input checked="" type="checkbox"/> EDD (DIGITAL)				R <input checked="" type="checkbox"/> Regular (Standard TAT if received by 3 pm - business days)											
Address: 651 Colby Drive, Waterloo, Ontario N2V 1C2		Phone: 519-884-0510		Quality Control (QC) Report with Report <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No				P <input type="checkbox"/> Priority (2-4 bus. days if received by 3pm) 50% surcharge - contact ALS to confirm TAT											
				<input type="checkbox"/> Criteria on Report - provide details below if box checked				E <input type="checkbox"/> Emergency (1-2 bus. days if received by 3pm) 100% surcharge - contact ALS to confirm TAT											
				Select Distribution: <input checked="" type="checkbox"/> EMAIL <input type="checkbox"/> MAIL <input type="checkbox"/> FAX				E2 <input type="checkbox"/> Same day or weekend emergency - contact ALS to confirm TAT and surcharge											
				Email 1 or Fax Jennifer.Balkwill@ghd.com				Specify Date Required for E2,E or P:											
				Email 2 See PO															
Invoice To		Same as Report To <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Invoice Distribution				Analysis Request											
Copy of Invoice with Report <input type="checkbox"/> Yes <input type="checkbox"/> No				Select Invoice Distribution: <input checked="" type="checkbox"/> EMAIL <input type="checkbox"/> MAIL <input checked="" type="checkbox"/> FAX				Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below											
Company: GHD LIMITED		Contact: Jennifer Balkwill		Email 1 or Fax Jennifer.Balkwill@ghd.com															
				Email 2															
Project Information				Oil and Gas Required Fields (client use)															
ALS Quote #:		Job #: 44985		Approver ID:		Cost Center:													
PO / AFE: 73506479		LSD:		GL Account:		Routing Code:													
				Activity Code:		Location:													
ALS Lab Work Order # (lab use only)		L2083897 24A		ALS Contact: Rick H		Sampler:													
ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)			Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	ALK, Conductivity, pH, TDS, TSS, Phenols	Br, NO2, NO3, SO4, Cl, F (ANIONS-IC-6-WT)	DOC (C-DIS-ORG-WT), COD, TKN, TP	Total CN (CN-TOT-WT)	Un-ionized NH3 (ETL-NH3-UNION-CLL-WT)	Total Metals (MET-T-Ms-WT, WT-44985-Metals)	Total Mercury (HG-T-CVAAA-WT)	Total Cr 6+ (CR-CR6-IC-WT), Hardness calc	VOCs (VOC-ROU-HS-WT, WT-44985-VOC)	SVOCs (SVOC-44985-P-WT)	CLIENT SUPPLIED TEMPERATURE **	CLIENT SUPPLIED pH **	Number of Containers
	EQ Pond Discharge			23/4/18	1400	Grab	R	R	R	R	R	R	R	R	R	R	10	7.7	11
	West Storm Water Pond			"	"	"	R	R	R	R	R	R	R	R	R	R	11	7.2	11
	East Storm Water Pond			"	"	"	R	R	R	R	R	R	R	R	R	R	11	6.7	11
Drinking Water (DW) Samples¹ (client use)				Special Instructions / Specify Criteria to add on report (client Use)				SAMPLE CONDITION AS RECEIVED (lab use only)											
Are samples taken from a Regulated DW System? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No				**Please fill in Client Supplied temperature and pH for Unionized NH3 calculation**				Frozen <input type="checkbox"/> SIF Observations Yes <input type="checkbox"/> No <input type="checkbox"/>											
Are samples for human drinking water use? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No								Ice packs Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Custody seal intact Yes <input type="checkbox"/> No <input type="checkbox"/>											
								Cooling initiated <input type="checkbox"/>											
								INITIAL COOLER TEMPERATURES °C					FINAL COOLER TEMPERATURES °C						
								14.8°C											
SHIPMENT RELEASE (client use)		INITIAL SHIPMENT RECEPTION (lab use only)		FINAL SHIPMENT RECEPTION (lab use only)															
Released by: [Signature]		Date: 9/23/18 Time: 1600		Received by: [Signature]		Date: [Blank] Time: [Blank]		Received by: [Signature]		Date: Apr. 24/18 Time: 11:40									

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

ALS-FM-0226a v09 Form04 January 2014

AP



GHD Limited (Waterloo)
ATTN: JENNIFER BALKWILL
651 COLBY DRIVE
WATERLOO ON N2V 1C2

Date Received: 25-APR-18
Report Date: 27-APR-18 11:35 (MT)
Version: FINAL

Client Phone: 519-884-0510

Certificate of Analysis

Lab Work Order #: L2084377
Project P.O. #: 73506479
Job Reference: 44985
C of C Numbers:
Legal Site Desc:

Taryn Symborski
Account Manager

[This report shall not be reproduced except in full without the written authority of the Laboratory.]

ADDRESS: 9450 17 Avenue NW, Edmonton, AB T6N 1M9 Canada | Phone: +1 780 413 5227 | Fax: +1 780 437 2311
ALS CANADA LTD Part of the ALS Group An ALS Limited Company

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2084377-1 EQ POND DISCHARGE							
Sampled By: CLIENT on 23-APR-18 @ 14:00							
Matrix: GRAB							
Microtox Physical Tests							
Turbidity	N/A				26-APR-18	26-APR-18	R4023788
Colour	Colourless				26-APR-18	26-APR-18	R4023788
Clarification	None				26-APR-18	26-APR-18	R4023788
Initial pH	8.0		0.10	pH	26-APR-18	26-APR-18	R4023788
Final pH	8.0		0.10	pH	26-APR-18	26-APR-18	R4023788
Lab Treatment	None				26-APR-18	26-APR-18	R4023788
Microtox Original							
EC50 (15min) Original	>100		1.0	%	26-APR-18	26-APR-18	R4023788
EC20 (15min) Original	>100		1.0	%	26-APR-18	26-APR-18	R4023788
EC50 (5min) Original	>100		1.0	%	26-APR-18	26-APR-18	R4023788
EC20 (5min) Original	>100		1.0	%	26-APR-18	26-APR-18	R4023788
Interpretation Original	NON TOXIC				26-APR-18	26-APR-18	R4023788

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
MICROTOX-ORG-ED	Water	Microtox Original	ERCB Directive 050
Light output of luminescent bacteria is measured after they have been challenged by a sample of unknown toxicity, and compared to the light output of a control reagent blank. The difference in light output is attributed to the effect of the sample on the organisms, and the degree of light loss indicates metabolic inhibition and the degree of toxicity of the sample to the bacteria. EC50(5) and EC50(15) values are reported, and refer to the effective concentration of the sample that caused a 50% decrease in the light output in 5 and 15 minutes.			
MICROTOX-PHYSICAL-ED	Water	Microtox Physical Tests	ERCB Directive 050

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
ED	ALS ENVIRONMENTAL - EDMONTON, ALBERTA, CANADA

Chain of Custody Numbers:

GLOSSARY OF REPORT TERMS

Surrogates are compounds that are similar in behaviour to target analyte(s), but that do not normally occur in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery. In reports that display the D.L. column, laboratory objectives for surrogates are listed there.

mg/kg - milligrams per kilogram based on dry weight of sample

mg/kg wwt - milligrams per kilogram based on wet weight of sample

mg/kg lwt - milligrams per kilogram based on lipid weight of sample

mg/L - unit of concentration based on volume, parts per million.

< - Less than.

D.L. - The reporting limit.

N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.

UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.



Quality Control Report

Workorder: L2084377

Report Date: 27-APR-18

Page 1 of 2

Client: GHD Limited (Waterloo)
 651 COLBY DRIVE
 WATERLOO ON N2V 1C2

Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MICROTOX-ORG-ED								
	Water							
Batch	R4023788							
WG2759488-2 CRM		PHENOL_ED						
EC50 (5min) Original			17.2		mg/L		13-26	26-APR-18
WG2759488-3 CRM		PHENOL_ED						
EC50 (5min) Original			22.7		mg/L		13-26	26-APR-18
WG2759488-4 DUP		L2084125-1						
EC50 (15min) Original		>100	>100	RPD-NA	%	N/A		26-APR-18
EC20 (15min) Original		>100	>100	RPD-NA	%	N/A		26-APR-18
EC50 (5min) Original		>100	>100	RPD-NA	%	N/A		26-APR-18
EC20 (5min) Original		>100	>100	RPD-NA	%	N/A		26-APR-18
WG2759488-1 MB								
EC50 (15min) Original			PASS					26-APR-18
EC20 (15min) Original			28.6					26-APR-18
EC50 (5min) Original			PASS					26-APR-18
EC20 (5min) Original			33.1					26-APR-18

Quality Control Report

Workorder: L2084377

Report Date: 27-APR-18

Client: GHD Limited (Waterloo)
651 COLBY DRIVE
WATERLOO ON N2V 1C2
Contact: JENNIFER BALKWILL

Page 2 of 2

Legend:

Limit	ALS Control Limit (Data Quality Objectives)
DUP	Duplicate
RPD	Relative Percent Difference
N/A	Not Available
LCS	Laboratory Control Sample
SRM	Standard Reference Material
MS	Matrix Spike
MSD	Matrix Spike Duplicate
ADE	Average Desorption Efficiency
MB	Method Blank
IRM	Internal Reference Material
CRM	Certified Reference Material
CCV	Continuing Calibration Verification
CVS	Calibration Verification Standard
LCSD	Laboratory Control Sample Duplicate

Sample Parameter Qualifier Definitions:

Qualifier	Description
RPD-NA	Relative Percent Difference Not Available due to result(s) being less than detection limit.

Hold Time Exceedances:

All test results reported with this submission were conducted within ALS recommended hold times.

ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where available). For more information, please contact ALS.

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Please note that this report may contain QC results from anonymous Sample Duplicates and Matrix Spikes that do not originate from this Work Order.



Report To		Acct#13791		Report Format / Distribution		Select Service Level Below (Rush Turnaround Time (TAT) is not available for all tests)																																	
Company: GHD LIMITED		Contact: Jennifer Balkwill		Address: 651 Colby Drive, Waterloo, Ontario N2V 1C2		Phone: 519-884-0510		Select Report Format: <input checked="" type="checkbox"/> PDF <input checked="" type="checkbox"/> EXCEL <input checked="" type="checkbox"/> EDDO (DIGITAL)		Quality Control (QC) Report with Report <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Criteria on Report - provide details below if box checked		Select Distribution: <input checked="" type="checkbox"/> EMAIL <input type="checkbox"/> MAIL <input type="checkbox"/> FAX		Email 1 or Fax: Jennifer.Balkwill@ghd.com		Email 2: See PO		R <input checked="" type="checkbox"/> Regular (Standard TAT if received by 3 pm - business days) P <input type="checkbox"/> Priority (2-4 bus. days if received by 3pm) 50% surcharge - contact ALS to confirm TAT E <input type="checkbox"/> Emergency (1-2 bus. days if received by 3pm) 100% surcharge - contact ALS to confirm TAT E2 <input type="checkbox"/> Same day or weekend emergency - contact ALS to confirm TAT and surcharge																			
Invoice To: Same as Report To <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Copy of Invoice with Report <input type="checkbox"/> Yes <input type="checkbox"/> No		Company: GHD LIMITED		Contact: Jennifer Balkwill		Project Information		Oil and Gas Required Fields (client use)		Approver ID: _____		Cost Center: _____		GL Account: _____		Routing Code: _____		Activity Code: _____		Location: _____		ALS Lab Work Order # (lab use only): 12084377		ALS Contact: Rick H		Sampler: _____		Analysis Request									
ALS Sample # (lab use only)		Sample Identification and/or Coordinates (This description will appear on the report)				Date (dd-mmm-yy)		Time (hh:mm)		Sample Type		MICROTOX (MICROTOX-ORG-ED)		MICROTOX (MICROTOX-PHYSICAL-ED)		Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below										Number of Containers													
		EQ Pond Discharge				23/4/18		1400		6vab		R																2											
Drinking Water (DW) Samples¹ (client use)				Special Instructions / Specify Criteria to add on report (client Use)				SAMPLE CONDITION AS RECEIVED (lab use only)																															
Are samples taken from a Regulated DW System? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No				Please send to ALS Edmonton ASAP for analysis (short HT)				Frozen <input type="checkbox"/>		SIF Observations Yes <input type="checkbox"/> No <input type="checkbox"/>		Ice packs Yes <input type="checkbox"/> No <input type="checkbox"/>		Custody seal intact Yes <input type="checkbox"/> No <input type="checkbox"/>		Cooling Initiated <input type="checkbox"/>		INITIAL COOLER TEMPERATURES °C		FINAL COOLER TEMPERATURES °C																			
Are samples for human drinking water use? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No								14-8																															
SHIPMENT RELEASE (client use)				INITIAL SHIPMENT RECEPTION (lab use only)				FINAL SHIPMENT RECEPTION (lab use only)																															
Released by: <i>[Signature]</i>		Date: 21/4/18		Time: 1600		Received by: <i>[Signature]</i>		Date: 4/25/18		Time: 8:57		Received by: _____		Date: _____		Time: _____																							



GHD Limited (Waterloo)
ATTN: JENNIFER BALKWILL
455 PHILLIP STREET
WATERLOO ON N2L 3X2

Date Received: 29-AUG-18
Report Date: 06-SEP-18 15:24 (MT)
Version: FINAL

Client Phone: 519-884-0510

Certificate of Analysis

Lab Work Order #: L2155268
Project P.O. #: 73506479
Job Reference: 44985
C of C Numbers:
Legal Site Desc:

Rick Hawthorne
Account Manager

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ADDRESS: 60 Northland Road, Unit 1, Waterloo, ON N2V 2B8 Canada | Phone: +1 519 886 6910 | Fax: +1 519 886 9047
ALS CANADA LTD Part of the ALS Group An ALS Limited Company

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2155268-1 EQ POND DISCHARGE							
Sampled By: CLIENT on 28-AUG-18 @ 11:30							
Matrix: WATER							
Field Tests							
pH, Client Supplied	7.63		0.10	pH		06-SEP-18	R4203813
Temperature, Client	26.0		-50	Deg. C		06-SEP-18	R4203813
Physical Tests							
Conductivity	626		3.0	umhos/cm		30-AUG-18	R4195064
Hardness (as CaCO3)	220	HTC	10	mg/L		31-AUG-18	
pH	7.95		0.10	pH units		30-AUG-18	R4195064
Total Suspended Solids	2.2		2.0	mg/L	31-AUG-18	04-SEP-18	R4197628
Total Dissolved Solids	386	DLDS	20	mg/L		02-SEP-18	R4198155
Anions and Nutrients							
Alkalinity, Total (as CaCO3)	83		10	mg/L		30-AUG-18	R4194475
Unionized ammonia	0.00777		0.00062	mg/L		06-SEP-18	
Ammonia, Total (as N)	0.252		0.020	mg/L		04-SEP-18	R4199867
Bromide (Br)	0.69		0.10	mg/L		31-AUG-18	R4196990
Chloride (Cl)	59.3		0.50	mg/L		31-AUG-18	R4196990
Fluoride (F)	0.508		0.020	mg/L		31-AUG-18	R4196990
Nitrate (as N)	0.060		0.020	mg/L		31-AUG-18	R4196990
Nitrite (as N)	<0.010		0.010	mg/L		31-AUG-18	R4196990
Total Kjeldahl Nitrogen	0.57		0.15	mg/L	31-AUG-18	31-AUG-18	R4195858
Phosphorus, Total	0.0277		0.0030	mg/L	31-AUG-18	05-SEP-18	R4200849
Sulfate (SO4)	143		0.30	mg/L		31-AUG-18	R4196990
Cyanides							
Cyanide, Total	<0.0020		0.0020	mg/L		04-SEP-18	R4201428
Organic / Inorganic Carbon							
Dissolved Organic Carbon	4.83		0.50	mg/L		04-SEP-18	R4198291
Total Metals							
Aluminum (Al)-Total	0.113		0.010	mg/L	30-AUG-18	30-AUG-18	R4194258
Antimony (Sb)-Total	0.00042		0.00010	mg/L	30-AUG-18	30-AUG-18	R4194258
Arsenic (As)-Total	0.00179		0.00010	mg/L	30-AUG-18	30-AUG-18	R4194258
Barium (Ba)-Total	0.0390		0.00020	mg/L	30-AUG-18	30-AUG-18	R4194258
Beryllium (Be)-Total	<0.00010		0.00010	mg/L	30-AUG-18	30-AUG-18	R4194258
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	30-AUG-18	30-AUG-18	R4194258
Boron (B)-Total	0.357		0.010	mg/L	30-AUG-18	30-AUG-18	R4194258
Cadmium (Cd)-Total	<0.000040	DLM	0.000040	mg/L	30-AUG-18	30-AUG-18	R4194258
Calcium (Ca)-Total	55.8		0.50	mg/L	30-AUG-18	30-AUG-18	R4194258
Cobalt (Co)-Total	0.00014		0.00010	mg/L	30-AUG-18	30-AUG-18	R4194258
Copper (Cu)-Total	<0.0010		0.0010	mg/L	30-AUG-18	30-AUG-18	R4194258
Iron (Fe)-Total	0.087		0.050	mg/L	30-AUG-18	30-AUG-18	R4194258
Lead (Pb)-Total	<0.00010		0.00010	mg/L	30-AUG-18	30-AUG-18	R4194258
Magnesium (Mg)-Total	19.6		0.050	mg/L	30-AUG-18	30-AUG-18	R4194258
Manganese (Mn)-Total	0.0835		0.00050	mg/L	30-AUG-18	30-AUG-18	R4194258
Mercury (Hg)-Total	<0.000010		0.000010	mg/L		30-AUG-18	R4194529
Molybdenum (Mo)-Total	0.0495		0.000050	mg/L	30-AUG-18	30-AUG-18	R4194258

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2155268-1 EQ POND DISCHARGE							
Sampled By: CLIENT on 28-AUG-18 @ 11:30							
Matrix: WATER							
Total Metals							
Nickel (Ni)-Total	0.00301		0.00050	mg/L	30-AUG-18	30-AUG-18	R4194258
Potassium (K)-Total	6.71		0.050	mg/L	30-AUG-18	30-AUG-18	R4194258
Selenium (Se)-Total	0.00117		0.000050	mg/L	30-AUG-18	30-AUG-18	R4194258
Silicon (Si)-Total	1.13		0.10	mg/L	30-AUG-18	30-AUG-18	R4194258
Silver (Ag)-Total	<0.000050		0.000050	mg/L	30-AUG-18	30-AUG-18	R4194258
Sodium (Na)-Total	34.3		0.50	mg/L	30-AUG-18	30-AUG-18	R4194258
Strontium (Sr)-Total	0.542		0.0010	mg/L	30-AUG-18	30-AUG-18	R4194258
Thallium (Tl)-Total	0.000026		0.000010	mg/L	30-AUG-18	30-AUG-18	R4194258
Tin (Sn)-Total	<0.00010		0.00010	mg/L	30-AUG-18	30-AUG-18	R4194258
Vanadium (V)-Total	0.00072		0.00050	mg/L	30-AUG-18	30-AUG-18	R4194258
Zinc (Zn)-Total	<0.0030		0.0030	mg/L	30-AUG-18	30-AUG-18	R4194258
Speciated Metals							
Chromium, Hexavalent	<0.00050		0.00050	mg/L		05-SEP-18	R4199249
Aggregate Organics							
COD	25		10	mg/L		05-SEP-18	R4203489
Phenols (4AAP)	<0.0010		0.0010	mg/L		31-AUG-18	R4197608
Volatile Organic Compounds							
Acetone	<20		20	ug/L		04-SEP-18	R4197233
Benzene	<0.50		0.50	ug/L		04-SEP-18	R4197233
Bromodichloromethane	<1.0		1.0	ug/L		04-SEP-18	R4197233
Bromoform	<1.0		1.0	ug/L		04-SEP-18	R4197233
Bromomethane	<0.50		0.50	ug/L		04-SEP-18	R4197233
Carbon tetrachloride	<0.50		0.50	ug/L		04-SEP-18	R4197233
Chlorobenzene	<0.50		0.50	ug/L		04-SEP-18	R4197233
Dibromochloromethane	<1.0		1.0	ug/L		04-SEP-18	R4197233
Chloroethane	<1.0		1.0	ug/L		04-SEP-18	R4197233
Chloroform	<1.0		1.0	ug/L		04-SEP-18	R4197233
1,2-Dibromoethane	<0.20		0.20	ug/L		04-SEP-18	R4197233
1,2-Dichlorobenzene	<0.50		0.50	ug/L		04-SEP-18	R4197233
1,3-Dichlorobenzene	<0.50		0.50	ug/L		04-SEP-18	R4197233
1,4-Dichlorobenzene	<0.50		0.50	ug/L		04-SEP-18	R4197233
Dichlorodifluoromethane	<1.0		1.0	ug/L		04-SEP-18	R4197233
1,1-Dichloroethane	<0.50		0.50	ug/L		04-SEP-18	R4197233
1,2-Dichloroethane	<0.50		0.50	ug/L		04-SEP-18	R4197233
1,1-Dichloroethylene	<0.50		0.50	ug/L		04-SEP-18	R4197233
cis-1,2-Dichloroethylene	<0.50		0.50	ug/L		04-SEP-18	R4197233
trans-1,2-Dichloroethylene	<0.50		0.50	ug/L		04-SEP-18	R4197233
Dichloromethane	<2.0		2.0	ug/L		04-SEP-18	R4197233
1,2-Dichloropropane	<0.50		0.50	ug/L		04-SEP-18	R4197233
cis-1,3-Dichloropropene	<0.50		0.50	ug/L		04-SEP-18	R4197233
trans-1,3-Dichloropropene	<0.50		0.50	ug/L		04-SEP-18	R4197233
Ethylbenzene	<0.50		0.50	ug/L		04-SEP-18	R4197233

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2155268-1 EQ POND DISCHARGE							
Sampled By: CLIENT on 28-AUG-18 @ 11:30							
Matrix: WATER							
Volatile Organic Compounds							
n-Hexane	<0.50		0.50	ug/L		04-SEP-18	R4197233
Methyl Ethyl Ketone	<20		20	ug/L		04-SEP-18	R4197233
Methyl Isobutyl Ketone	<20		20	ug/L		04-SEP-18	R4197233
MTBE	<0.50		0.50	ug/L		04-SEP-18	R4197233
Styrene	<0.50		0.50	ug/L		04-SEP-18	R4197233
1,1,1,2-Tetrachloroethane	<0.50		0.50	ug/L		04-SEP-18	R4197233
1,1,2,2-Tetrachloroethane	<0.50		0.50	ug/L		04-SEP-18	R4197233
Tetrachloroethylene	<0.50		0.50	ug/L		04-SEP-18	R4197233
Toluene	<0.50		0.50	ug/L		04-SEP-18	R4197233
1,1,1-Trichloroethane	<0.50		0.50	ug/L		04-SEP-18	R4197233
1,1,2-Trichloroethane	<0.50		0.50	ug/L		04-SEP-18	R4197233
Trichloroethylene	<0.50		0.50	ug/L		04-SEP-18	R4197233
Trichlorofluoromethane	<1.0		1.0	ug/L		04-SEP-18	R4197233
Vinyl chloride	<0.50		0.50	ug/L		04-SEP-18	R4197233
o-Xylene	<0.50		0.50	ug/L		04-SEP-18	R4197233
m+p-Xylenes	<1.0		1.0	ug/L		04-SEP-18	R4197233
Xylenes (Total)	<1.1		1.1	ug/L		04-SEP-18	
Surrogate: 4-Bromofluorobenzene	87.5		70-130	%		04-SEP-18	R4197233
Surrogate: 1,4-Difluorobenzene	97.5		70-130	%		04-SEP-18	R4197233
Trihalomethanes							
Total THMs	<2.0		2.0	ug/L		04-SEP-18	
Acid Extractables							
2,3,6-Trichlorophenol	<0.50		0.50	ug/L	31-AUG-18	06-SEP-18	R4203980
Surrogate: 2,4,6-Tribromophenol	109.5		40-150	%	31-AUG-18	06-SEP-18	R4203980
Semi-Volatile Organics							
Acenaphthene	<0.20		0.20	ug/L	31-AUG-18	06-SEP-18	R4203690
Acenaphthylene	<0.20		0.20	ug/L	31-AUG-18	06-SEP-18	R4203690
Anthracene	<0.20		0.20	ug/L	31-AUG-18	06-SEP-18	R4203690
Benzo(a)anthracene	<0.20		0.20	ug/L	31-AUG-18	06-SEP-18	R4203690
Benzo(a)pyrene	<0.050		0.050	ug/L	31-AUG-18	06-SEP-18	R4203690
Benzo(b)fluoranthene	<0.20		0.20	ug/L	31-AUG-18	06-SEP-18	R4203690
Benzo(ghi)perylene	<0.20		0.20	ug/L	31-AUG-18	06-SEP-18	R4203690
Benzo(k)fluoranthene	<0.20		0.20	ug/L	31-AUG-18	06-SEP-18	R4203690
4-Chloroaniline	<0.40		0.40	ug/L	31-AUG-18	06-SEP-18	R4203690
Bis(2-chloroethyl)ether	<0.40		0.40	ug/L	31-AUG-18	06-SEP-18	R4203690
2-Chlorophenol	<0.30		0.30	ug/L	31-AUG-18	06-SEP-18	R4203690
Chrysene	<0.20		0.20	ug/L	31-AUG-18	06-SEP-18	R4203690
Dibenzo(a,h)anthracene	<0.20		0.20	ug/L	31-AUG-18	06-SEP-18	R4203690
1,2-Dichlorobenzene	<0.40		0.40	ug/L	31-AUG-18	06-SEP-18	R4203690
1,3-Dichlorobenzene	<0.40		0.40	ug/L	31-AUG-18	06-SEP-18	R4203690
1,4-Dichlorobenzene	<0.40		0.40	ug/L	31-AUG-18	06-SEP-18	R4203690
3,3'-Dichlorobenzidine	<0.40		0.40	ug/L	31-AUG-18	06-SEP-18	R4203690

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2155268-1 EQ POND DISCHARGE Sampled By: CLIENT on 28-AUG-18 @ 11:30 Matrix: WATER							
Semi-Volatile Organics							
2,4-Dichlorophenol	<0.30		0.30	ug/L	31-AUG-18	06-SEP-18	R4203690
Diethylphthalate	<0.20		0.20	ug/L	31-AUG-18	06-SEP-18	R4203690
Dimethylphthalate	<0.20		0.20	ug/L	31-AUG-18	06-SEP-18	R4203690
2,4-Dimethylphenol	<0.50		0.50	ug/L	31-AUG-18	06-SEP-18	R4203690
2,4-Dinitrophenol	<1.0		1.0	ug/L	31-AUG-18	06-SEP-18	R4203690
2,4-Dinitrotoluene	<0.40		0.40	ug/L	31-AUG-18	06-SEP-18	R4203690
2,6-Dinitrotoluene	<0.40		0.40	ug/L	31-AUG-18	06-SEP-18	R4203690
Bis(2-ethylhexyl)phthalate	<2.0		2.0	ug/L	31-AUG-18	06-SEP-18	R4203690
Fluoranthene	<0.20		0.20	ug/L	31-AUG-18	06-SEP-18	R4203690
Fluorene	<0.20		0.20	ug/L	31-AUG-18	06-SEP-18	R4203690
Hexachlorobenzene	<0.040		0.040	ug/L	31-AUG-18	06-SEP-18	R4203690
Hexachlorobutadiene	<0.20		0.20	ug/L	31-AUG-18	06-SEP-18	R4203690
Indeno(1,2,3-cd)pyrene	<0.20		0.20	ug/L	31-AUG-18	06-SEP-18	R4203690
1-Methylnaphthalene	<0.40		0.40	ug/L	31-AUG-18	06-SEP-18	R4203690
2-Methylnaphthalene	<0.40		0.40	ug/L	31-AUG-18	06-SEP-18	R4203690
Naphthalene	<0.20		0.20	ug/L	31-AUG-18	06-SEP-18	R4203690
Pentachlorophenol	<0.50		0.50	ug/L	31-AUG-18	06-SEP-18	R4203690
Perylene	<0.20		0.20	ug/L	31-AUG-18	06-SEP-18	R4203690
Phenanthrene	<0.20		0.20	ug/L	31-AUG-18	06-SEP-18	R4203690
Pyrene	<0.20		0.20	ug/L	31-AUG-18	06-SEP-18	R4203690
2,3,4,5-Tetrachlorophenol	<0.50		0.50	ug/L	31-AUG-18	06-SEP-18	R4203690
2,3,4,6-Tetrachlorophenol	<0.50		0.50	ug/L	31-AUG-18	06-SEP-18	R4203690
1,2,4-Trichlorobenzene	<0.40		0.40	ug/L	31-AUG-18	06-SEP-18	R4203690
2,4,5-Trichlorophenol	<0.50		0.50	ug/L	31-AUG-18	06-SEP-18	R4203690
2,4,6-Trichlorophenol	<0.50		0.50	ug/L	31-AUG-18	06-SEP-18	R4203690
Surrogate: 2-Fluorobiphenyl	87.3		40-130	%	31-AUG-18	06-SEP-18	R4203690
Surrogate: Nitrobenzene d5	92.5		50-130	%	31-AUG-18	06-SEP-18	R4203690
Surrogate: p-Terphenyl d14	122.2		40-130	%	31-AUG-18	06-SEP-18	R4203690
Report Remarks : raised Cd LOR to remove potential Mo interference							
L2155268-2 WEST STORM WATER POND Sampled By: CLIENT on 28-AUG-18 @ 11:15 Matrix: WATER							
Field Tests							
pH, Client Supplied	7.74		0.10	pH		06-SEP-18	R4203813
Temperature, Client	24.0		-50	Deg. C		06-SEP-18	R4203813
Physical Tests							
Conductivity	580		3.0	umhos/cm		30-AUG-18	R4195064
Hardness (as CaCO3)	217	HTC	10	mg/L		31-AUG-18	
pH	7.94		0.10	pH units		30-AUG-18	R4195064
Total Suspended Solids	4.5		2.0	mg/L	30-AUG-18	31-AUG-18	R4195321
Total Dissolved Solids	350	DLDS	20	mg/L		02-SEP-18	R4198155
Anions and Nutrients							

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2155268-2 WEST STORM WATER POND Sampled By: CLIENT on 28-AUG-18 @ 11:15 Matrix: WATER							
Anions and Nutrients							
Alkalinity, Total (as CaCO ₃)	88		10	mg/L		30-AUG-18	R4194475
Unionized ammonia	0.00252		0.00069	mg/L		06-SEP-18	
Ammonia, Total (as N)	0.073		0.020	mg/L		04-SEP-18	R4199867
Bromide (Br)	0.66		0.10	mg/L		31-AUG-18	R4196990
Chloride (Cl)	52.0		0.50	mg/L		31-AUG-18	R4196990
Fluoride (F)	0.499		0.020	mg/L		31-AUG-18	R4196990
Nitrate (as N)	0.084		0.020	mg/L		31-AUG-18	R4196990
Nitrite (as N)	<0.010		0.010	mg/L		31-AUG-18	R4196990
Total Kjeldahl Nitrogen	0.43		0.15	mg/L	31-AUG-18	31-AUG-18	R4195858
Phosphorus, Total	0.0234		0.0030	mg/L	31-AUG-18	05-SEP-18	R4200849
Sulfate (SO ₄)	125		0.30	mg/L		31-AUG-18	R4196990
Cyanides							
Cyanide, Total	<0.0020		0.0020	mg/L		04-SEP-18	R4201428
Organic / Inorganic Carbon							
Dissolved Organic Carbon	4.50		0.50	mg/L		04-SEP-18	R4198291
Total Metals							
Aluminum (Al)-Total	0.256		0.010	mg/L	30-AUG-18	30-AUG-18	R4194258
Antimony (Sb)-Total	0.00041		0.00010	mg/L	30-AUG-18	30-AUG-18	R4194258
Arsenic (As)-Total	0.00207		0.00010	mg/L	30-AUG-18	30-AUG-18	R4194258
Barium (Ba)-Total	0.0386		0.00020	mg/L	30-AUG-18	30-AUG-18	R4194258
Beryllium (Be)-Total	<0.00010		0.00010	mg/L	30-AUG-18	30-AUG-18	R4194258
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	30-AUG-18	30-AUG-18	R4194258
Boron (B)-Total	0.149		0.010	mg/L	30-AUG-18	30-AUG-18	R4194258
Cadmium (Cd)-Total	<0.000050	DLM	0.000050	mg/L	30-AUG-18	30-AUG-18	R4194258
Calcium (Ca)-Total	59.4		0.50	mg/L	30-AUG-18	30-AUG-18	R4194258
Cobalt (Co)-Total	0.00028		0.00010	mg/L	30-AUG-18	30-AUG-18	R4194258
Copper (Cu)-Total	0.0033		0.0010	mg/L	30-AUG-18	30-AUG-18	R4194258
Iron (Fe)-Total	0.285		0.050	mg/L	30-AUG-18	30-AUG-18	R4194258
Lead (Pb)-Total	0.00055		0.00010	mg/L	30-AUG-18	30-AUG-18	R4194258
Magnesium (Mg)-Total	16.6		0.050	mg/L	30-AUG-18	30-AUG-18	R4194258
Manganese (Mn)-Total	0.0299		0.00050	mg/L	30-AUG-18	30-AUG-18	R4194258
Mercury (Hg)-Total	<0.000010		0.000010	mg/L		30-AUG-18	R4194529
Molybdenum (Mo)-Total	0.0435		0.000050	mg/L	30-AUG-18	30-AUG-18	R4194258
Nickel (Ni)-Total	0.00361		0.00050	mg/L	30-AUG-18	30-AUG-18	R4194258
Potassium (K)-Total	6.08		0.050	mg/L	30-AUG-18	30-AUG-18	R4194258
Selenium (Se)-Total	0.00141		0.000050	mg/L	30-AUG-18	30-AUG-18	R4194258
Silicon (Si)-Total	1.89		0.10	mg/L	30-AUG-18	30-AUG-18	R4194258
Silver (Ag)-Total	<0.000050		0.000050	mg/L	30-AUG-18	30-AUG-18	R4194258
Sodium (Na)-Total	31.2		0.50	mg/L	30-AUG-18	30-AUG-18	R4194258
Strontium (Sr)-Total	0.569		0.0010	mg/L	30-AUG-18	30-AUG-18	R4194258
Thallium (Tl)-Total	0.000024		0.000010	mg/L	30-AUG-18	30-AUG-18	R4194258
Tin (Sn)-Total	<0.00010		0.00010	mg/L	30-AUG-18	30-AUG-18	R4194258

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2155268-2 WEST STORM WATER POND Sampled By: CLIENT on 28-AUG-18 @ 11:15 Matrix: WATER							
Total Metals							
Vanadium (V)-Total	0.00088		0.00050	mg/L	30-AUG-18	30-AUG-18	R4194258
Zinc (Zn)-Total	0.0045		0.0030	mg/L	30-AUG-18	30-AUG-18	R4194258
Speciated Metals							
Chromium, Hexavalent	<0.00050		0.00050	mg/L		05-SEP-18	R4199249
Aggregate Organics							
COD	25		10	mg/L		05-SEP-18	R4203489
Phenols (4AAP)	0.0010		0.0010	mg/L		31-AUG-18	R4197608
Volatile Organic Compounds							
Acetone	<20		20	ug/L		04-SEP-18	R4197233
Benzene	<0.50		0.50	ug/L		04-SEP-18	R4197233
Bromodichloromethane	<1.0		1.0	ug/L		04-SEP-18	R4197233
Bromoform	<1.0		1.0	ug/L		04-SEP-18	R4197233
Bromomethane	<0.50		0.50	ug/L		04-SEP-18	R4197233
Carbon tetrachloride	<0.50		0.50	ug/L		04-SEP-18	R4197233
Chlorobenzene	<0.50		0.50	ug/L		04-SEP-18	R4197233
Dibromochloromethane	<1.0		1.0	ug/L		04-SEP-18	R4197233
Chloroethane	<1.0		1.0	ug/L		04-SEP-18	R4197233
Chloroform	<1.0		1.0	ug/L		04-SEP-18	R4197233
1,2-Dibromoethane	<0.20		0.20	ug/L		04-SEP-18	R4197233
1,2-Dichlorobenzene	<0.50		0.50	ug/L		04-SEP-18	R4197233
1,3-Dichlorobenzene	<0.50		0.50	ug/L		04-SEP-18	R4197233
1,4-Dichlorobenzene	<0.50		0.50	ug/L		04-SEP-18	R4197233
Dichlorodifluoromethane	<1.0		1.0	ug/L		04-SEP-18	R4197233
1,1-Dichloroethane	<0.50		0.50	ug/L		04-SEP-18	R4197233
1,2-Dichloroethane	<0.50		0.50	ug/L		04-SEP-18	R4197233
1,1-Dichloroethylene	<0.50		0.50	ug/L		04-SEP-18	R4197233
cis-1,2-Dichloroethylene	<0.50		0.50	ug/L		04-SEP-18	R4197233
trans-1,2-Dichloroethylene	<0.50		0.50	ug/L		04-SEP-18	R4197233
Dichloromethane	<2.0		2.0	ug/L		04-SEP-18	R4197233
1,2-Dichloropropane	<0.50		0.50	ug/L		04-SEP-18	R4197233
cis-1,3-Dichloropropene	<0.50		0.50	ug/L		04-SEP-18	R4197233
trans-1,3-Dichloropropene	<0.50		0.50	ug/L		04-SEP-18	R4197233
Ethylbenzene	<0.50		0.50	ug/L		04-SEP-18	R4197233
n-Hexane	<0.50		0.50	ug/L		04-SEP-18	R4197233
Methyl Ethyl Ketone	<20		20	ug/L		04-SEP-18	R4197233
Methyl Isobutyl Ketone	<20		20	ug/L		04-SEP-18	R4197233
MTBE	<0.50		0.50	ug/L		04-SEP-18	R4197233
Styrene	<0.50		0.50	ug/L		04-SEP-18	R4197233
1,1,1,2-Tetrachloroethane	<0.50		0.50	ug/L		04-SEP-18	R4197233
1,1,1,2,2-Tetrachloroethane	<0.50		0.50	ug/L		04-SEP-18	R4197233
Tetrachloroethylene	<0.50		0.50	ug/L		04-SEP-18	R4197233
Toluene	<0.50		0.50	ug/L		04-SEP-18	R4197233

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ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2155268-2 WEST STORM WATER POND							
Sampled By: CLIENT on 28-AUG-18 @ 11:15							
Matrix: WATER							
Volatile Organic Compounds							
1,1,1-Trichloroethane	<0.50		0.50	ug/L		04-SEP-18	R4197233
1,1,2-Trichloroethane	<0.50		0.50	ug/L		04-SEP-18	R4197233
Trichloroethylene	<0.50		0.50	ug/L		04-SEP-18	R4197233
Trichlorofluoromethane	<1.0		1.0	ug/L		04-SEP-18	R4197233
Vinyl chloride	<0.50		0.50	ug/L		04-SEP-18	R4197233
o-Xylene	<0.50		0.50	ug/L		04-SEP-18	R4197233
m+p-Xylenes	<1.0		1.0	ug/L		04-SEP-18	R4197233
Xylenes (Total)	<1.1		1.1	ug/L		04-SEP-18	
Surrogate: 4-Bromofluorobenzene	87.5		70-130	%		04-SEP-18	R4197233
Surrogate: 1,4-Difluorobenzene	97.1		70-130	%		04-SEP-18	R4197233
Trihalomethanes							
Total THMs	<2.0		2.0	ug/L		04-SEP-18	
Acid Extractables							
2,3,6-Trichlorophenol	<0.50		0.50	ug/L	31-AUG-18	06-SEP-18	R4203980
Surrogate: 2,4,6-Tribromophenol	120.3		40-150	%	31-AUG-18	06-SEP-18	R4203980
Semi-Volatile Organics							
Acenaphthene	<0.20		0.20	ug/L	31-AUG-18	06-SEP-18	R4203690
Acenaphthylene	<0.20		0.20	ug/L	31-AUG-18	06-SEP-18	R4203690
Anthracene	<0.20		0.20	ug/L	31-AUG-18	06-SEP-18	R4203690
Benzo(a)anthracene	<0.20		0.20	ug/L	31-AUG-18	06-SEP-18	R4203690
Benzo(a)pyrene	<0.050		0.050	ug/L	31-AUG-18	06-SEP-18	R4203690
Benzo(b)fluoranthene	<0.20		0.20	ug/L	31-AUG-18	06-SEP-18	R4203690
Benzo(ghi)perylene	<0.20		0.20	ug/L	31-AUG-18	06-SEP-18	R4203690
Benzo(k)fluoranthene	<0.20		0.20	ug/L	31-AUG-18	06-SEP-18	R4203690
4-Chloroaniline	<0.40		0.40	ug/L	31-AUG-18	06-SEP-18	R4203690
Bis(2-chloroethyl)ether	<0.40		0.40	ug/L	31-AUG-18	06-SEP-18	R4203690
2-Chlorophenol	<0.30		0.30	ug/L	31-AUG-18	06-SEP-18	R4203690
Chrysene	<0.20		0.20	ug/L	31-AUG-18	06-SEP-18	R4203690
Dibenzo(a,h)anthracene	<0.20		0.20	ug/L	31-AUG-18	06-SEP-18	R4203690
1,2-Dichlorobenzene	<0.40		0.40	ug/L	31-AUG-18	06-SEP-18	R4203690
1,3-Dichlorobenzene	<0.40		0.40	ug/L	31-AUG-18	06-SEP-18	R4203690
1,4-Dichlorobenzene	<0.40		0.40	ug/L	31-AUG-18	06-SEP-18	R4203690
3,3'-Dichlorobenzidine	<0.40		0.40	ug/L	31-AUG-18	06-SEP-18	R4203690
2,4-Dichlorophenol	<0.30		0.30	ug/L	31-AUG-18	06-SEP-18	R4203690
Diethylphthalate	<0.20		0.20	ug/L	31-AUG-18	06-SEP-18	R4203690
Dimethylphthalate	<0.20		0.20	ug/L	31-AUG-18	06-SEP-18	R4203690
2,4-Dimethylphenol	<0.50		0.50	ug/L	31-AUG-18	06-SEP-18	R4203690
2,4-Dinitrophenol	<1.0		1.0	ug/L	31-AUG-18	06-SEP-18	R4203690
2,4-Dinitrotoluene	<0.40		0.40	ug/L	31-AUG-18	06-SEP-18	R4203690
2,6-Dinitrotoluene	<0.40		0.40	ug/L	31-AUG-18	06-SEP-18	R4203690
Bis(2-ethylhexyl)phthalate	<2.0		2.0	ug/L	31-AUG-18	06-SEP-18	R4203690
Fluoranthene	<0.20		0.20	ug/L	31-AUG-18	06-SEP-18	R4203690

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ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2155268-2 WEST STORM WATER POND Sampled By: CLIENT on 28-AUG-18 @ 11:15 Matrix: WATER							
Semi-Volatile Organics							
Fluorene	<0.20		0.20	ug/L	31-AUG-18	06-SEP-18	R4203690
Hexachlorobenzene	<0.040		0.040	ug/L	31-AUG-18	06-SEP-18	R4203690
Hexachlorobutadiene	<0.20		0.20	ug/L	31-AUG-18	06-SEP-18	R4203690
Indeno(1,2,3-cd)pyrene	<0.20		0.20	ug/L	31-AUG-18	06-SEP-18	R4203690
1-Methylnaphthalene	<0.40		0.40	ug/L	31-AUG-18	06-SEP-18	R4203690
2-Methylnaphthalene	<0.40		0.40	ug/L	31-AUG-18	06-SEP-18	R4203690
Naphthalene	<0.20		0.20	ug/L	31-AUG-18	06-SEP-18	R4203690
Pentachlorophenol	<0.50		0.50	ug/L	31-AUG-18	06-SEP-18	R4203690
Perylene	<0.20		0.20	ug/L	31-AUG-18	06-SEP-18	R4203690
Phenanthrene	<0.20		0.20	ug/L	31-AUG-18	06-SEP-18	R4203690
Pyrene	<0.20		0.20	ug/L	31-AUG-18	06-SEP-18	R4203690
2,3,4,5-Tetrachlorophenol	<0.50		0.50	ug/L	31-AUG-18	06-SEP-18	R4203690
2,3,4,6-Tetrachlorophenol	<0.50		0.50	ug/L	31-AUG-18	06-SEP-18	R4203690
1,2,4-Trichlorobenzene	<0.40		0.40	ug/L	31-AUG-18	06-SEP-18	R4203690
2,4,5-Trichlorophenol	<0.50		0.50	ug/L	31-AUG-18	06-SEP-18	R4203690
2,4,6-Trichlorophenol	<0.50		0.50	ug/L	31-AUG-18	06-SEP-18	R4203690
Surrogate: 2-Fluorobiphenyl	88.3		40-130	%	31-AUG-18	06-SEP-18	R4203690
Surrogate: Nitrobenzene d5	95.5		50-130	%	31-AUG-18	06-SEP-18	R4203690
Surrogate: p-Terphenyl d14	120.2		40-130	%	31-AUG-18	06-SEP-18	R4203690
Report Remarks : raised Cd LOR to remove potential Mo interference							
L2155268-3 EAST STORM WATER POND Sampled By: CLIENT on 28-AUG-18 @ 11:00 Matrix: WATER							
Field Tests							
pH, Client Supplied	7.62		0.10	pH		06-SEP-18	R4203813
Temperature, Client	23.0		-50	Deg. C		06-SEP-18	R4203813
Physical Tests							
Conductivity	516		3.0	umhos/cm		30-AUG-18	R4195064
Hardness (as CaCO3)	198	HTC	10	mg/L		31-AUG-18	
pH	7.82		0.10	pH units		30-AUG-18	R4195064
Total Suspended Solids	14.1		2.0	mg/L	30-AUG-18	31-AUG-18	R4195321
Total Dissolved Solids	319	DLDS	20	mg/L		02-SEP-18	R4198155
Anions and Nutrients							
Alkalinity, Total (as CaCO3)	115		10	mg/L		30-AUG-18	R4194475
Unionized ammonia	0.00588		0.00049	mg/L		06-SEP-18	
Ammonia, Total (as N)	0.240		0.020	mg/L		04-SEP-18	R4199867
Bromide (Br)	0.40		0.10	mg/L		31-AUG-18	R4196990
Chloride (Cl)	34.8		0.50	mg/L		31-AUG-18	R4196990
Fluoride (F)	0.561		0.020	mg/L		31-AUG-18	R4196990
Nitrate (as N)	0.023		0.020	mg/L		31-AUG-18	R4196990
Nitrite (as N)	<0.010		0.010	mg/L		31-AUG-18	R4196990
Total Kjeldahl Nitrogen	0.88		0.15	mg/L	31-AUG-18	31-AUG-18	R4195858

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ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2155268-3 EAST STORM WATER POND Sampled By: CLIENT on 28-AUG-18 @ 11:00 Matrix: WATER							
Anions and Nutrients							
Phosphorus, Total	0.0709		0.0030	mg/L	31-AUG-18	05-SEP-18	R4200849
Sulfate (SO4)	90.3		0.30	mg/L		31-AUG-18	R4196990
Cyanides							
Cyanide, Total	<0.0020		0.0020	mg/L		04-SEP-18	R4201428
Organic / Inorganic Carbon							
Dissolved Organic Carbon	5.34		0.50	mg/L		04-SEP-18	R4198291
Total Metals							
Aluminum (Al)-Total	1.24		0.010	mg/L	30-AUG-18	30-AUG-18	R4194258
Antimony (Sb)-Total	0.00046		0.00010	mg/L	30-AUG-18	30-AUG-18	R4194258
Arsenic (As)-Total	0.00469		0.00010	mg/L	30-AUG-18	30-AUG-18	R4194258
Barium (Ba)-Total	0.0749		0.00020	mg/L	30-AUG-18	30-AUG-18	R4194258
Beryllium (Be)-Total	<0.00010		0.00010	mg/L	30-AUG-18	30-AUG-18	R4194258
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	30-AUG-18	30-AUG-18	R4194258
Boron (B)-Total	0.085		0.010	mg/L	30-AUG-18	30-AUG-18	R4194258
Cadmium (Cd)-Total	<0.00020	DLM	0.00020	mg/L	30-AUG-18	30-AUG-18	R4194258
Calcium (Ca)-Total	56.0		0.50	mg/L	30-AUG-18	30-AUG-18	R4194258
Cobalt (Co)-Total	0.00122		0.00010	mg/L	30-AUG-18	30-AUG-18	R4194258
Copper (Cu)-Total	0.0037		0.0010	mg/L	30-AUG-18	30-AUG-18	R4194258
Iron (Fe)-Total	1.61		0.050	mg/L	30-AUG-18	30-AUG-18	R4194258
Lead (Pb)-Total	0.00232		0.00010	mg/L	30-AUG-18	30-AUG-18	R4194258
Magnesium (Mg)-Total	14.2		0.050	mg/L	30-AUG-18	30-AUG-18	R4194258
Manganese (Mn)-Total	0.175		0.00050	mg/L	30-AUG-18	30-AUG-18	R4194258
Mercury (Hg)-Total	0.000033		0.000010	mg/L		30-AUG-18	R4194529
Molybdenum (Mo)-Total	0.0604		0.000050	mg/L	30-AUG-18	30-AUG-18	R4194258
Nickel (Ni)-Total	0.00522		0.00050	mg/L	30-AUG-18	30-AUG-18	R4194258
Potassium (K)-Total	12.4		0.050	mg/L	30-AUG-18	30-AUG-18	R4194258
Selenium (Se)-Total	0.00107		0.000050	mg/L	30-AUG-18	30-AUG-18	R4194258
Silicon (Si)-Total	4.81		0.10	mg/L	30-AUG-18	30-AUG-18	R4194258
Silver (Ag)-Total	<0.000050		0.000050	mg/L	30-AUG-18	30-AUG-18	R4194258
Sodium (Na)-Total	22.2		0.50	mg/L	30-AUG-18	30-AUG-18	R4194258
Strontium (Sr)-Total	0.512		0.0010	mg/L	30-AUG-18	30-AUG-18	R4194258
Thallium (Tl)-Total	0.000034		0.000010	mg/L	30-AUG-18	30-AUG-18	R4194258
Tin (Sn)-Total	0.00011		0.00010	mg/L	30-AUG-18	30-AUG-18	R4194258
Vanadium (V)-Total	0.00303		0.00050	mg/L	30-AUG-18	30-AUG-18	R4194258
Zinc (Zn)-Total	0.0157		0.0030	mg/L	30-AUG-18	30-AUG-18	R4194258
Speciated Metals							
Chromium, Hexavalent	<0.00050		0.00050	mg/L		05-SEP-18	R4199249
Aggregate Organics							
COD	33		10	mg/L		05-SEP-18	R4203489
Phenols (4AAP)	0.0143		0.0010	mg/L		31-AUG-18	R4197608
Volatile Organic Compounds							
Acetone	<20		20	ug/L		04-SEP-18	R4197233

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ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2155268-3 EAST STORM WATER POND Sampled By: CLIENT on 28-AUG-18 @ 11:00 Matrix: WATER							
Volatile Organic Compounds							
Benzene	<0.50		0.50	ug/L		04-SEP-18	R4197233
Bromodichloromethane	<1.0		1.0	ug/L		04-SEP-18	R4197233
Bromoform	<1.0		1.0	ug/L		04-SEP-18	R4197233
Bromomethane	<0.50		0.50	ug/L		04-SEP-18	R4197233
Carbon tetrachloride	<0.50		0.50	ug/L		04-SEP-18	R4197233
Chlorobenzene	<0.50		0.50	ug/L		04-SEP-18	R4197233
Dibromochloromethane	<1.0		1.0	ug/L		04-SEP-18	R4197233
Chloroethane	<1.0		1.0	ug/L		04-SEP-18	R4197233
Chloroform	<1.0		1.0	ug/L		04-SEP-18	R4197233
1,2-Dibromoethane	<0.20		0.20	ug/L		04-SEP-18	R4197233
1,2-Dichlorobenzene	<0.50		0.50	ug/L		04-SEP-18	R4197233
1,3-Dichlorobenzene	<0.50		0.50	ug/L		04-SEP-18	R4197233
1,4-Dichlorobenzene	<0.50		0.50	ug/L		04-SEP-18	R4197233
Dichlorodifluoromethane	<1.0		1.0	ug/L		04-SEP-18	R4197233
1,1-Dichloroethane	<0.50		0.50	ug/L		04-SEP-18	R4197233
1,2-Dichloroethane	<0.50		0.50	ug/L		04-SEP-18	R4197233
1,1-Dichloroethylene	<0.50		0.50	ug/L		04-SEP-18	R4197233
cis-1,2-Dichloroethylene	<0.50		0.50	ug/L		04-SEP-18	R4197233
trans-1,2-Dichloroethylene	<0.50		0.50	ug/L		04-SEP-18	R4197233
Dichloromethane	<2.0		2.0	ug/L		04-SEP-18	R4197233
1,2-Dichloropropane	<0.50		0.50	ug/L		04-SEP-18	R4197233
cis-1,3-Dichloropropene	<0.50		0.50	ug/L		04-SEP-18	R4197233
trans-1,3-Dichloropropene	<0.50		0.50	ug/L		04-SEP-18	R4197233
Ethylbenzene	<0.50		0.50	ug/L		04-SEP-18	R4197233
n-Hexane	<0.50		0.50	ug/L		04-SEP-18	R4197233
Methyl Ethyl Ketone	<20		20	ug/L		04-SEP-18	R4197233
Methyl Isobutyl Ketone	<20		20	ug/L		04-SEP-18	R4197233
MTBE	<0.50		0.50	ug/L		04-SEP-18	R4197233
Styrene	<0.50		0.50	ug/L		04-SEP-18	R4197233
1,1,1,2-Tetrachloroethane	<0.50		0.50	ug/L		04-SEP-18	R4197233
1,1,1,2,2-Tetrachloroethane	<0.50		0.50	ug/L		04-SEP-18	R4197233
Tetrachloroethylene	<0.50		0.50	ug/L		04-SEP-18	R4197233
Toluene	<0.50		0.50	ug/L		04-SEP-18	R4197233
1,1,1-Trichloroethane	<0.50		0.50	ug/L		04-SEP-18	R4197233
1,1,2-Trichloroethane	<0.50		0.50	ug/L		04-SEP-18	R4197233
Trichloroethylene	<0.50		0.50	ug/L		04-SEP-18	R4197233
Trichlorofluoromethane	<1.0		1.0	ug/L		04-SEP-18	R4197233
Vinyl chloride	<0.50		0.50	ug/L		04-SEP-18	R4197233
o-Xylene	<0.50		0.50	ug/L		04-SEP-18	R4197233
m+p-Xylenes	<1.0		1.0	ug/L		04-SEP-18	R4197233
Xylenes (Total)	<1.1		1.1	ug/L		04-SEP-18	

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2155268-3 EAST STORM WATER POND Sampled By: CLIENT on 28-AUG-18 @ 11:00 Matrix: WATER							
Volatile Organic Compounds							
Surrogate: 4-Bromofluorobenzene	86.8		70-130	%		04-SEP-18	R4197233
Surrogate: 1,4-Difluorobenzene	96.8		70-130	%		04-SEP-18	R4197233
Trihalomethanes							
Total THMs	<2.0		2.0	ug/L		04-SEP-18	
Acid Extractables							
2,3,6-Trichlorophenol	<0.50		0.50	ug/L	31-AUG-18	06-SEP-18	R4203980
Surrogate: 2,4,6-Tribromophenol	119.9		40-150	%	31-AUG-18	06-SEP-18	R4203980
Semi-Volatile Organics							
Acenaphthene	<0.20		0.20	ug/L	31-AUG-18	06-SEP-18	R4203690
Acenaphthylene	<0.20		0.20	ug/L	31-AUG-18	06-SEP-18	R4203690
Anthracene	<0.20		0.20	ug/L	31-AUG-18	06-SEP-18	R4203690
Benzo(a)anthracene	<0.20		0.20	ug/L	31-AUG-18	06-SEP-18	R4203690
Benzo(a)pyrene	<0.050		0.050	ug/L	31-AUG-18	06-SEP-18	R4203690
Benzo(b)fluoranthene	<0.20		0.20	ug/L	31-AUG-18	06-SEP-18	R4203690
Benzo(ghi)perylene	<0.20		0.20	ug/L	31-AUG-18	06-SEP-18	R4203690
Benzo(k)fluoranthene	<0.20		0.20	ug/L	31-AUG-18	06-SEP-18	R4203690
4-Chloroaniline	<0.40		0.40	ug/L	31-AUG-18	06-SEP-18	R4203690
Bis(2-chloroethyl)ether	<0.40		0.40	ug/L	31-AUG-18	06-SEP-18	R4203690
2-Chlorophenol	<0.30		0.30	ug/L	31-AUG-18	06-SEP-18	R4203690
Chrysene	<0.20		0.20	ug/L	31-AUG-18	06-SEP-18	R4203690
Dibenzo(a,h)anthracene	<0.20		0.20	ug/L	31-AUG-18	06-SEP-18	R4203690
1,2-Dichlorobenzene	<0.40		0.40	ug/L	31-AUG-18	06-SEP-18	R4203690
1,3-Dichlorobenzene	<0.40		0.40	ug/L	31-AUG-18	06-SEP-18	R4203690
1,4-Dichlorobenzene	<0.40		0.40	ug/L	31-AUG-18	06-SEP-18	R4203690
3,3'-Dichlorobenzidine	<0.40		0.40	ug/L	31-AUG-18	06-SEP-18	R4203690
2,4-Dichlorophenol	<0.30		0.30	ug/L	31-AUG-18	06-SEP-18	R4203690
Diethylphthalate	<0.20		0.20	ug/L	31-AUG-18	06-SEP-18	R4203690
Dimethylphthalate	<0.20		0.20	ug/L	31-AUG-18	06-SEP-18	R4203690
2,4-Dimethylphenol	<0.50		0.50	ug/L	31-AUG-18	06-SEP-18	R4203690
2,4-Dinitrophenol	<1.0		1.0	ug/L	31-AUG-18	06-SEP-18	R4203690
2,4-Dinitrotoluene	<0.40		0.40	ug/L	31-AUG-18	06-SEP-18	R4203690
2,6-Dinitrotoluene	<0.40		0.40	ug/L	31-AUG-18	06-SEP-18	R4203690
Bis(2-ethylhexyl)phthalate	<2.0		2.0	ug/L	31-AUG-18	06-SEP-18	R4203690
Fluoranthene	<0.20		0.20	ug/L	31-AUG-18	06-SEP-18	R4203690
Fluorene	<0.20		0.20	ug/L	31-AUG-18	06-SEP-18	R4203690
Hexachlorobenzene	<0.040		0.040	ug/L	31-AUG-18	06-SEP-18	R4203690
Hexachlorobutadiene	<0.20		0.20	ug/L	31-AUG-18	06-SEP-18	R4203690
Indeno(1,2,3-cd)pyrene	<0.20		0.20	ug/L	31-AUG-18	06-SEP-18	R4203690
1-Methylnaphthalene	<0.40		0.40	ug/L	31-AUG-18	06-SEP-18	R4203690
2-Methylnaphthalene	<0.40		0.40	ug/L	31-AUG-18	06-SEP-18	R4203690
Naphthalene	<0.20		0.20	ug/L	31-AUG-18	06-SEP-18	R4203690
Pentachlorophenol	<0.50		0.50	ug/L	31-AUG-18	06-SEP-18	R4203690

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2155268-3 EAST STORM WATER POND Sampled By: CLIENT on 28-AUG-18 @ 11:00 Matrix: WATER							
Semi-Volatile Organics							
Perylene	<0.20		0.20	ug/L	31-AUG-18	06-SEP-18	R4203690
Phenanthrene	<0.20		0.20	ug/L	31-AUG-18	06-SEP-18	R4203690
Pyrene	<0.20		0.20	ug/L	31-AUG-18	06-SEP-18	R4203690
2,3,4,5-Tetrachlorophenol	<0.50		0.50	ug/L	31-AUG-18	06-SEP-18	R4203690
2,3,4,6-Tetrachlorophenol	<0.50		0.50	ug/L	31-AUG-18	06-SEP-18	R4203690
1,2,4-Trichlorobenzene	<0.40		0.40	ug/L	31-AUG-18	06-SEP-18	R4203690
2,4,5-Trichlorophenol	<0.50		0.50	ug/L	31-AUG-18	06-SEP-18	R4203690
2,4,6-Trichlorophenol	<0.50		0.50	ug/L	31-AUG-18	06-SEP-18	R4203690
Surrogate: 2-Fluorobiphenyl	87.3		40-130	%	31-AUG-18	06-SEP-18	R4203690
Surrogate: Nitrobenzene d5	92.7		50-130	%	31-AUG-18	06-SEP-18	R4203690
Surrogate: p-Terphenyl d14	119.5		40-130	%	31-AUG-18	06-SEP-18	R4203690
Report Remarks : raised Cd LOR to remove potential Mo interference							

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

Reference Information

QC Samples with Qualifiers & Comments:

QC Type Description	Parameter	Qualifier	Applies to Sample Number(s)
Matrix Spike	Dissolved Organic Carbon	MS-B	L2155268-1, -2, -3
Matrix Spike	Barium (Ba)-Total	MS-B	L2155268-1, -2, -3
Matrix Spike	Boron (B)-Total	MS-B	L2155268-1, -2, -3
Matrix Spike	Calcium (Ca)-Total	MS-B	L2155268-1, -2, -3
Matrix Spike	Magnesium (Mg)-Total	MS-B	L2155268-1, -2, -3
Matrix Spike	Manganese (Mn)-Total	MS-B	L2155268-1, -2, -3
Matrix Spike	Potassium (K)-Total	MS-B	L2155268-1, -2, -3
Matrix Spike	Silicon (Si)-Total	MS-B	L2155268-1, -2, -3
Matrix Spike	Sodium (Na)-Total	MS-B	L2155268-1, -2, -3
Matrix Spike	Strontium (Sr)-Total	MS-B	L2155268-1, -2, -3
Matrix Spike	Ammonia, Total (as N)	MS-B	L2155268-1, -2, -3
Matrix Spike	Nitrate (as N)	MS-B	L2155268-1, -2, -3
Matrix Spike	Phosphorus, Total	MS-B	L2155268-1, -2, -3

Sample Parameter Qualifier key listed:

Qualifier	Description
DLDS	Detection Limit Raised: Dilution required due to high Dissolved Solids / Electrical Conductivity.
DLM	Detection Limit Adjusted due to sample matrix effects (e.g. chemical interference, colour, turbidity).
HTC	Hardness was calculated from Total Ca and/or Mg concentrations and may be biased high (dissolved Ca/Mg results unavailable).
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
625-ACID-EXTRA-WT	Water	EPA 8270 Acid Extractables Aqueous samples are extracted and extracts are analyzed on GC/MSD.	SW846 8270
625-WT	Water	EPA 8270 Extractables Aqueous samples are extracted and extracts are analyzed on GC/MSD. Depending on the analytical GC/MS column used benzo(j)fluoranthene may chromatographically co-elute with benzo(b)fluoranthene or benzo(k)fluoranthene.	SW846 8270
N-nitrosodiphenylamine is reported as diphenylamine. N-nitrosodiphenylamine decomposes in the gas chromatographic inlet and cannot be separated from diphenylamine. (EPA 8270D)			
ALK-WT	Water	Alkalinity, Total (as CaCO ₃) This analysis is carried out using procedures adapted from EPA Method 310.2 "Alkalinity". Total Alkalinity is determined using the methyl orange colourimetric method.	EPA 310.2
BR-IC-N-WT	Water	Bromide in Water by IC Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.	EPA 300.1 (mod)
C-DIS-ORG-WT	Water	Dissolved Organic Carbon Sample is filtered through a 0.45um filter, then injected into a heated reaction chamber which is packed with an oxidative catalyst. The water is vaporized and the organic carbon is oxidized to carbon dioxide. The carbon dioxide is transported in a carrier gas and is measured by a non-dispersive infrared detector.	APHA 5310B
CL-IC-N-WT	Water	Chloride by IC Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.	EPA 300.1 (mod)
Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).			
CN-TOT-WT	Water	Cyanide, Total Total cyanide is determined by the combination of UV digestion and distillation. Cyanide is converted to cyanogen chloride by reacting with chloramine-T, the cyanogen chloride then reacts with a combination of barbituric acid and isonicotinic acid to form a highly colored complex.	ISO 14403-2
When using this method, high levels of thiocyanate in samples can cause false positives at ~1-2% of the thiocyanate concentration. For samples with detectable cyanide analyzed by this method, ALS recommends analysis for thiocyanate to check for this potential interference			
COD-T-WT	Water	Chemical Oxygen Demand This analysis is carried out using procedures adapted from APHA Method 5220 "Chemical Oxygen Demand (COD)". Chemical oxygen demand is determined using the closed reflux colourimetric method.	APHA 5220 D
CR-CR6-IC-WT	Water	Chromium +6 This analysis is carried out using procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846, Method 7199, published by the United States Environmental Protection Agency (EPA). The procedure involves analysis for chromium (VI) by ion chromatography using diphenylcarbazide in a sulphuric acid solution. Chromium (III) is calculated as the difference between the total chromium and the chromium (VI) results.	EPA 7199

Reference Information

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

EC-WT Water Conductivity APHA 2510 B
Water samples can be measured directly by immersing the conductivity cell into the sample.

ETL-NH3-UNION-CLI-WT Water Un-ionized ammonia CALCULATION

F-IC-N-WT Water Fluoride in Water by IC EPA 300.1 (mod)
Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

HARDNESS-CALC-WT Water Hardness APHA 2340 B
Hardness (also known as Total Hardness) is calculated from the sum of Calcium and Magnesium concentrations, expressed in CaCO₃ equivalents. Dissolved Calcium and Magnesium concentrations are preferentially used for the hardness calculation.

HG-T-CVAA-WT Water Total Mercury in Water by CVAAS EPA 1631E (mod)

Water samples undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS.

MET-T-CCMS-WT Water Total Metals in Water by CRC EPA 200.2/6020A (mod)
Water samples are digested with nitric and perchloric acids, and analyzed by CRC ICPMS.

Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

NH3-WT Water Ammonia, Total as N EPA 350.1
Sample is measured colorimetrically. When sample is turbid a distillation step is required, sample is distilled into a solution of boric acid and measured colorimetrically.

NO2-IC-WT Water Nitrite in Water by IC EPA 300.1 (mod)
Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

NO3-IC-WT Water Nitrate in Water by IC EPA 300.1 (mod)
Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

P-T-COL-WT Water Total P in Water by Colour APHA 4500-P PHOSPHORUS

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Total Phosphorus is determined colorimetrically after persulfate digestion of the sample.

PH,TEMP-CLIENT-WT Water pH & Temperature Results supplied by client

PH-WT Water pH APHA 4500 H-Electrode
Water samples are analyzed directly by a calibrated pH meter.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011). Holdtime for samples under this regulation is 28 days

PHENOLS-4AAP-WT Water Phenol (4AAP) EPA 9066
An automated method is used to distill the sample. The distillate is then buffered to pH 9.4 which reacts with 4AAP and potassium ferricyanide to form a red complex which is measured colorimetrically.

SO4-IC-N-WT Water Sulfate in Water by IC EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

SOLIDS-TDS-WT Water Total Dissolved Solids APHA 2540C
This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total Dissolved Solids (TDS) are determined by filtering a sample through a glass fibre filter, TDS is determined by evaporating the filtrate to dryness at 180 degrees Celsius.

SOLIDS-TSS-WT Water Suspended solids APHA 2540 D-Gravimetric
A well-mixed sample is filtered through a weighed standard glass fibre filter and the residue retained is dried in an oven at 104–1°C for a minimum of four hours or until a constant weight is achieved.

THM-SUM-PPB-CALC-WT Water Total Trihalomethanes (THMs) CALCULATION
Total Trihalomethanes (THMs) represents the sum of bromodichloromethane, bromoform, chlorodibromomethane and chloroform. For the purpose of calculation, results less than the detection limit (DL) are treated as zero.

TKN-WT Water Total Kjeldahl Nitrogen APHA 4500-Norg D
This analysis is carried out using procedures adapted from APHA Method 4500-Norg "Nitrogen (Organic)". Total Kjeldahl Nitrogen is determined by sample digestion at 380 Celsius with analysis using an automated colorimetric method.

VOC-ROU-HS-WT Water Volatile Organic Compounds SW846 8260

Reference Information

Aqueous samples are analyzed by headspace-GC/MS.

XYLENES-SUM-CALC- WT	Water	Sum of Xylene Isomer Concentrations	CALCULATION
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Total xylenes represents the sum of o-xylene and m&p-xylene.

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
WT	ALS ENVIRONMENTAL - WATERLOO, ONTARIO, CANADA

Chain of Custody Numbers:

GLOSSARY OF REPORT TERMS

Surrogates are compounds that are similar in behaviour to target analyte(s), but that do not normally occur in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery. In reports that display the D.L. column, laboratory objectives for surrogates are listed there.

mg/kg - milligrams per kilogram based on dry weight of sample

mg/kg wwt - milligrams per kilogram based on wet weight of sample

mg/kg lwt - milligrams per kilogram based on lipid weight of sample

mg/L - unit of concentration based on volume, parts per million.

< - Less than.

D.L. - The reporting limit.

N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.

UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.



Quality Control Report

Workorder: L2155268

Report Date: 06-SEP-18

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Client: GHD Limited (Waterloo)
 455 PHILLIP STREET
 WATERLOO ON N2L 3X2

Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
625-ACID-EXTRA-WT		Water						
Batch	R4203980							
WG2864960-2	LCS							
2,3,6-Trichlorophenol			98.4		%		50-130	06-SEP-18
WG2864960-3	LCSD	WG2864960-2						
2,3,6-Trichlorophenol		98.4	98.8		%	0.4	50	06-SEP-18
WG2864960-1	MB							
2,3,6-Trichlorophenol			<0.50		ug/L		0.5	06-SEP-18
Surrogate: 2,4,6-Tribromophenol			83.6		%		40-150	06-SEP-18
625-WT		Water						
Batch	R4203690							
WG2864960-2	LCS							
1-Methylnaphthalene			85.1		%		50-140	06-SEP-18
1,2-Dichlorobenzene			88.2		%		40-130	06-SEP-18
1,2,4-Trichlorobenzene			87.7		%		40-130	06-SEP-18
1,3-Dichlorobenzene			87.7		%		50-140	06-SEP-18
1,4-Dichlorobenzene			86.9		%		40-130	06-SEP-18
2-Chlorophenol			88.3		%		50-140	06-SEP-18
2-Methylnaphthalene			90.6		%		50-140	06-SEP-18
2,3,4,5-Tetrachlorophenol			91.4		%		50-140	06-SEP-18
2,3,4,6-Tetrachlorophenol			97.5		%		50-140	06-SEP-18
2,4-Dichlorophenol			98.3		%		50-140	06-SEP-18
2,4-Dimethylphenol			82.6		%		50-140	06-SEP-18
2,4-Dinitrophenol			77.0		%		40-140	06-SEP-18
2,4-Dinitrotoluene			93.3		%		50-140	06-SEP-18
2,4,5-Trichlorophenol			101.6		%		50-140	06-SEP-18
2,4,6-Trichlorophenol			100.9		%		50-140	06-SEP-18
2,6-Dinitrotoluene			91.7		%		50-140	06-SEP-18
3,3'-Dichlorobenzidine			61.1		%		50-140	06-SEP-18
4-Chloroaniline			77.3		%		30-140	06-SEP-18
Acenaphthene			93.0		%		50-140	06-SEP-18
Acenaphthylene			92.1		%		50-140	06-SEP-18
Anthracene			93.9		%		50-140	06-SEP-18
Benzo(a)anthracene			90.4		%		50-140	06-SEP-18
Benzo(a)pyrene			60.0		%		60-130	06-SEP-18
Benzo(b)fluoranthene			71.0		%		50-140	06-SEP-18
Benzo(ghi)perylene			50.5		%		50-140	06-SEP-18



Quality Control Report

Workorder: L2155268

Report Date: 06-SEP-18

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Client: GHD Limited (Waterloo)
 455 PHILLIP STREET
 WATERLOO ON N2L 3X2

Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
625-WT	Water							
Batch	R4203690							
WG2864960-2 LCS								
Benzo(k)fluoranthene			67.0		%		50-140	06-SEP-18
Bis(2-chloroethyl)ether			95.8		%		50-140	06-SEP-18
Bis(2-ethylhexyl)phthalate			130.7		%		50-140	06-SEP-18
Chrysene			91.3		%		50-140	06-SEP-18
Dibenzo(a,h)anthracene			54.2		%		50-140	06-SEP-18
Diethylphthalate			95.8		%		50-140	06-SEP-18
Dimethylphthalate			95.0		%		50-140	06-SEP-18
Fluoranthene			133.4		%		50-140	06-SEP-18
Fluorene			95.2		%		50-140	06-SEP-18
Hexachlorobenzene			88.8		%		40-130	06-SEP-18
Hexachlorobutadiene			83.8		%		40-130	06-SEP-18
Indeno(1,2,3-cd)pyrene			56.5		%		50-140	06-SEP-18
Naphthalene			91.3		%		50-140	06-SEP-18
Pentachlorophenol			83.3		%		50-140	06-SEP-18
Perylene			56.5		%		50-140	06-SEP-18
Phenanthrene			92.9		%		50-140	06-SEP-18
Pyrene			128.3		%		50-140	06-SEP-18
WG2864960-3 LCSD		WG2864960-2						
1-Methylnaphthalene		85.1	82.4		%	3.3	50	06-SEP-18
1,2-Dichlorobenzene		88.2	84.3		%	4.6	50	06-SEP-18
1,2,4-Trichlorobenzene		87.7	82.0		%	6.8	50	06-SEP-18
1,3-Dichlorobenzene		87.7	83.5		%	4.9	50	06-SEP-18
1,4-Dichlorobenzene		86.9	84.0		%	3.3	50	06-SEP-18
2-Chlorophenol		88.3	86.3		%	2.3	50	06-SEP-18
2-Methylnaphthalene		90.6	85.4		%	6.0	50	06-SEP-18
2,3,4,5-Tetrachlorophenol		91.4	88.9		%	2.7	50	06-SEP-18
2,3,4,6-Tetrachlorophenol		97.5	96.6		%	0.9	50	06-SEP-18
2,4-Dichlorophenol		98.3	94.6		%	3.8	50	06-SEP-18
2,4-Dimethylphenol		82.6	98.1		%	17	50	06-SEP-18
2,4-Dinitrophenol		77.0	72.8		%	5.6	50	06-SEP-18
2,4-Dinitrotoluene		93.3	90.3		%	3.2	50	06-SEP-18
2,4,5-Trichlorophenol		101.6	98.5		%	3.1	50	06-SEP-18
2,4,6-Trichlorophenol		100.9	97.2		%	3.7	50	06-SEP-18



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Client: GHD Limited (Waterloo)
 455 PHILLIP STREET
 WATERLOO ON N2L 3X2

Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
625-WT	Water							
Batch	R4203690							
WG2864960-3	LCSD	WG2864960-2						
2,6-Dinitrotoluene		91.7	91.3		%	0.5	50	06-SEP-18
3,3'-Dichlorobenzidine		61.1	56.8		%	7.4	50	06-SEP-18
4-Chloroaniline		77.3	83.9		%	8.3	50	06-SEP-18
Acenaphthene		93.0	89.3		%	4.1	50	06-SEP-18
Acenaphthylene		92.1	88.3		%	4.2	50	06-SEP-18
Anthracene		93.9	89.8		%	4.4	50	06-SEP-18
Benzo(a)anthracene		90.4	91.3		%	0.9	50	06-SEP-18
Benzo(a)pyrene		60.0	53.7		%	11	50	06-SEP-18
Benzo(b)fluoranthene		71.0	65.8		%	7.7	50	06-SEP-18
Benzo(ghi)perylene		50.5	41.5		%	19	50	06-SEP-18
Benzo(k)fluoranthene		67.0	62.1		%	7.6	50	06-SEP-18
Bis(2-chloroethyl)ether		95.8	92.6		%	3.4	50	06-SEP-18
Bis(2-ethylhexyl)phthalate		130.7	130.1		%	0.4	50	06-SEP-18
Chrysene		91.3	91.4		%	0.1	50	06-SEP-18
Dibenzo(a,h)anthracene		54.2	44.8		%	19	50	06-SEP-18
Diethylphthalate		95.8	90.8		%	5.3	50	06-SEP-18
Dimethylphthalate		95.0	91.1		%	4.2	50	06-SEP-18
Fluoranthene		133.4	137.7		%	3.1	50	06-SEP-18
Fluorene		95.2	91.1		%	4.4	50	06-SEP-18
Hexachlorobenzene		88.8	85.0		%	4.3	50	06-SEP-18
Hexachlorobutadiene		83.8	79.8		%	5.0	50	06-SEP-18
Indeno(1,2,3-cd)pyrene		56.5	43.7		%	26	50	06-SEP-18
Naphthalene		91.3	86.9		%	5.0	50	06-SEP-18
Pentachlorophenol		83.3	83.1		%	0.3	50	06-SEP-18
Perylene		56.5	49.5		%	13	50	06-SEP-18
Phenanthrene		92.9	89.5		%	3.7	50	06-SEP-18
Pyrene		128.3	129.7		%	1.1	50	06-SEP-18
WG2864960-1	MB							
1-Methylnaphthalene			<0.40		ug/L		0.4	06-SEP-18
1,2-Dichlorobenzene			<0.40		ug/L		0.4	06-SEP-18
1,2,4-Trichlorobenzene			<0.40		ug/L		0.4	06-SEP-18
1,3-Dichlorobenzene			<0.40		ug/L		0.4	06-SEP-18
1,4-Dichlorobenzene			<0.40		ug/L		0.4	06-SEP-18



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Client: GHD Limited (Waterloo)
 455 PHILLIP STREET
 WATERLOO ON N2L 3X2

Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
625-WT	Water							
Batch	R4203690							
WG2864960-1 MB								
2-Chlorophenol			<0.30		ug/L		0.3	06-SEP-18
2-Methylnaphthalene			<0.40		ug/L		0.4	06-SEP-18
2,3,4,5-Tetrachlorophenol			<0.50		ug/L		0.5	06-SEP-18
2,3,4,6-Tetrachlorophenol			<0.50		ug/L		0.5	06-SEP-18
2,4-Dichlorophenol			<0.30		ug/L		0.3	06-SEP-18
2,4-Dimethylphenol			<0.50		ug/L		0.5	06-SEP-18
2,4-Dinitrophenol			<1.0		ug/L		1	06-SEP-18
2,4-Dinitrotoluene			<0.40		ug/L		0.4	06-SEP-18
2,4,5-Trichlorophenol			<0.50		ug/L		0.5	06-SEP-18
2,4,6-Trichlorophenol			<0.50		ug/L		0.5	06-SEP-18
2,6-Dinitrotoluene			<0.40		ug/L		0.4	06-SEP-18
3,3'-Dichlorobenzidine			<0.40		ug/L		0.4	06-SEP-18
4-Chloroaniline			<0.40		ug/L		0.4	06-SEP-18
Acenaphthene			<0.20		ug/L		0.2	06-SEP-18
Acenaphthylene			<0.20		ug/L		0.2	06-SEP-18
Anthracene			<0.20		ug/L		0.2	06-SEP-18
Benzo(a)anthracene			<0.20		ug/L		0.2	06-SEP-18
Benzo(a)pyrene			<0.050		ug/L		0.05	06-SEP-18
Benzo(b)fluoranthene			<0.20		ug/L		0.2	06-SEP-18
Benzo(ghi)perylene			<0.20		ug/L		0.2	06-SEP-18
Benzo(k)fluoranthene			<0.20		ug/L		0.2	06-SEP-18
Bis(2-chloroethyl)ether			<0.40		ug/L		0.4	06-SEP-18
Bis(2-ethylhexyl)phthalate			<1.0		ug/L		1	06-SEP-18
Chrysene			<0.20		ug/L		0.2	06-SEP-18
Dibenzo(a,h)anthracene			<0.20		ug/L		0.2	06-SEP-18
Diethylphthalate			<0.20		ug/L		0.2	06-SEP-18
Dimethylphthalate			<0.20		ug/L		0.2	06-SEP-18
Fluoranthene			<0.20		ug/L		0.2	06-SEP-18
Fluorene			<0.20		ug/L		0.2	06-SEP-18
Hexachlorobenzene			<0.040		ug/L		0.04	06-SEP-18
Hexachlorobutadiene			<0.20		ug/L		0.2	06-SEP-18
Indeno(1,2,3-cd)pyrene			<0.20		ug/L		0.2	06-SEP-18
Naphthalene			<0.20		ug/L		0.2	06-SEP-18



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 455 PHILLIP STREET
 WATERLOO ON N2L 3X2

Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
625-WT Water								
Batch R4203690								
WG2864960-1 MB								
	Pentachlorophenol		<0.50		ug/L		0.5	06-SEP-18
	Perylene		<0.20		ug/L		0.2	06-SEP-18
	Phenanthrene		<0.20		ug/L		0.2	06-SEP-18
	Pyrene		<0.20		ug/L		0.2	06-SEP-18
	Surrogate: 2-Fluorobiphenyl		78.8		%		40-130	06-SEP-18
	Surrogate: Nitrobenzene d5		85.0		%		50-130	06-SEP-18
	Surrogate: p-Terphenyl d14		128.7		%		40-130	06-SEP-18
ALK-WT Water								
Batch R4194475								
WG2864017-11 CRM WT-ALK-CRM								
	Alkalinity, Total (as CaCO3)		106.2		%		80-120	30-AUG-18
WG2864017-12 DUP L2154928-1								
	Alkalinity, Total (as CaCO3)	90	85		mg/L	6.0	20	30-AUG-18
WG2864017-10 LCS								
	Alkalinity, Total (as CaCO3)		98.3		%		85-115	30-AUG-18
WG2864017-9 MB								
	Alkalinity, Total (as CaCO3)		<10		mg/L		10	30-AUG-18
BR-IC-N-WT Water								
Batch R4196990								
WG2865824-10 DUP L2155191-2								
	Bromide (Br)	<0.10	<0.10	RPD-NA	mg/L	N/A	20	31-AUG-18
WG2865824-7 LCS								
	Bromide (Br)		97.6		%		85-115	31-AUG-18
WG2865824-6 MB								
	Bromide (Br)		<0.10		mg/L		0.1	31-AUG-18
WG2865824-9 MS L2155191-2								
	Bromide (Br)		91.7		%		75-125	31-AUG-18
C-DIS-ORG-WT Water								
Batch R4198291								
WG2866771-3 DUP L2154362-21								
	Dissolved Organic Carbon	23.5	22.7		mg/L	3.4	20	04-SEP-18
WG2866771-2 LCS								
	Dissolved Organic Carbon		95.2		%		80-120	04-SEP-18
WG2866771-1 MB								
	Dissolved Organic Carbon		<0.50		mg/L		0.5	04-SEP-18
WG2866771-4 MS L2154362-21								



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 WATERLOO ON N2L 3X2
 Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
C-DIS-ORG-WT								
	Water							
Batch	R4198291							
WG2866771-4	MS	L2154362-21						
Dissolved Organic Carbon			N/A	MS-B	%		-	04-SEP-18
CL-IC-N-WT								
	Water							
Batch	R4196990							
WG2865824-10	DUP	L2155191-2						
Chloride (Cl)		44.8	44.9		mg/L	0.1	20	31-AUG-18
WG2865824-7	LCS		100.5		%		90-110	31-AUG-18
Chloride (Cl)								
WG2865824-6	MB		<0.50		mg/L		0.5	31-AUG-18
Chloride (Cl)								
WG2865824-9	MS	L2155191-2						
Chloride (Cl)			103.8		%		75-125	31-AUG-18
CN-TOT-WT								
	Water							
Batch	R4201428							
WG2867319-3	DUP	L2154160-1						
Cyanide, Total		<0.0020	<0.0020	RPD-NA	mg/L	N/A	20	04-SEP-18
WG2867319-2	LCS		89.7		%		80-120	04-SEP-18
Cyanide, Total								
WG2867319-1	MB		<0.0020		mg/L		0.002	04-SEP-18
Cyanide, Total								
WG2867319-4	MS	L2154160-1						
Cyanide, Total			82.0		%		70-130	04-SEP-18
COD-T-WT								
	Water							
Batch	R4203489							
WG2868995-3	DUP	L2154890-1						
COD		23	23		mg/L	3.1	20	05-SEP-18
WG2868995-2	LCS		102.3		%		85-115	05-SEP-18
COD								
WG2868995-1	MB		<10		mg/L		10	05-SEP-18
COD								
WG2868995-4	MS	L2154890-1						
COD			117.1		%		75-125	05-SEP-18
CR-CR6-IC-WT								
	Water							



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455 PHILLIP STREET
WATERLOO ON N2L 3X2

Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
CR-CR6-IC-WT		Water						
Batch	R4199249							
WG2867431-9	DUP	WG2867431-8						
Chromium, Hexavalent		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	05-SEP-18
WG2867431-7	LCS							
Chromium, Hexavalent			99.1		%		80-120	05-SEP-18
WG2867431-6	MB							
Chromium, Hexavalent			<0.00050		mg/L		0.0005	05-SEP-18
WG2867431-10	MS	WG2867431-8						
Chromium, Hexavalent			98.9		%		70-130	05-SEP-18
EC-WT		Water						
Batch	R4195064							
WG2863795-4	DUP	WG2863795-3						
Conductivity		153	149		umhos/cm	3.0	10	30-AUG-18
WG2863795-2	LCS							
Conductivity			100.0		%		90-110	30-AUG-18
WG2863795-1	MB							
Conductivity			<3.0		umhos/cm		3	30-AUG-18
F-IC-N-WT		Water						
Batch	R4196990							
WG2865824-10	DUP	L2155191-2						
Fluoride (F)		0.158	0.155		mg/L	1.6	20	31-AUG-18
WG2865824-7	LCS							
Fluoride (F)			99.7		%		90-110	31-AUG-18
WG2865824-6	MB							
Fluoride (F)			<0.020		mg/L		0.02	31-AUG-18
WG2865824-9	MS	L2155191-2						
Fluoride (F)			97.2		%		75-125	31-AUG-18
HG-T-CVAA-WT		Water						
Batch	R4194529							
WG2863999-3	DUP	L2154362-8						
Mercury (Hg)-Total		<0.000010	<0.000010	RPD-NA	mg/L	N/A	20	30-AUG-18
WG2863999-2	LCS							
Mercury (Hg)-Total			100.0		%		80-120	30-AUG-18
WG2863999-1	MB							
Mercury (Hg)-Total			<0.000010		mg/L		0.00001	30-AUG-18
WG2863999-4	MS	L2154362-9						
Mercury (Hg)-Total			96.4		%		70-130	30-AUG-18
MET-T-CCMS-WT		Water						



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Client: GHD Limited (Waterloo)
 455 PHILLIP STREET
 WATERLOO ON N2L 3X2

Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-WT								
	Water							
Batch	R4194258							
WG2863711-4	DUP	WG2863711-3						
Aluminum (Al)-Total		<0.0050	0.0051	RPD-NA	mg/L	N/A	20	30-AUG-18
Antimony (Sb)-Total		0.00046	0.00047		mg/L	2.3	20	30-AUG-18
Arsenic (As)-Total		0.00052	0.00052		mg/L	0.3	20	30-AUG-18
Barium (Ba)-Total		0.156	0.153		mg/L	1.6	20	30-AUG-18
Beryllium (Be)-Total		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	30-AUG-18
Bismuth (Bi)-Total		<0.000050	<0.000050	RPD-NA	mg/L	N/A	20	30-AUG-18
Boron (B)-Total		0.209	0.200		mg/L	4.2	20	30-AUG-18
Cadmium (Cd)-Total		0.0000084	0.0000093		mg/L	10	20	30-AUG-18
Calcium (Ca)-Total		83.6	82.7		mg/L	1.1	20	30-AUG-18
Cobalt (Co)-Total		0.00043	0.00043		mg/L	0.2	20	30-AUG-18
Copper (Cu)-Total		0.0041	0.0040		mg/L	2.0	20	30-AUG-18
Iron (Fe)-Total		<0.010	<0.010	RPD-NA	mg/L	N/A	20	30-AUG-18
Lead (Pb)-Total		0.000213	0.000215		mg/L	0.9	20	30-AUG-18
Magnesium (Mg)-Total		32.1	30.9		mg/L	3.8	20	30-AUG-18
Manganese (Mn)-Total		0.150	0.149		mg/L	0.8	20	30-AUG-18
Molybdenum (Mo)-Total		0.00620	0.00630		mg/L	1.6	20	30-AUG-18
Nickel (Ni)-Total		0.00177	0.00169		mg/L	4.6	20	30-AUG-18
Potassium (K)-Total		7.06	7.04		mg/L	0.2	20	30-AUG-18
Selenium (Se)-Total		0.00202	0.00204		mg/L	0.7	20	30-AUG-18
Silicon (Si)-Total		6.23	6.25		mg/L	0.3	20	30-AUG-18
Silver (Ag)-Total		<0.000050	<0.000050	RPD-NA	mg/L	N/A	20	30-AUG-18
Sodium (Na)-Total		44.0	41.9		mg/L	4.7	20	30-AUG-18
Strontium (Sr)-Total		2.44	2.33		mg/L	4.4	20	30-AUG-18
Thallium (Tl)-Total		0.000032	0.000033		mg/L	3.4	20	30-AUG-18
Tin (Sn)-Total		0.00165	0.00165		mg/L	0.1	20	30-AUG-18
Vanadium (V)-Total		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	30-AUG-18
Zinc (Zn)-Total		0.0088	0.0094		mg/L	6.8	20	30-AUG-18
WG2863711-2	LCS							
Aluminum (Al)-Total			103.9		%		80-120	30-AUG-18
Antimony (Sb)-Total			99.5		%		80-120	30-AUG-18
Arsenic (As)-Total			101.2		%		80-120	30-AUG-18
Barium (Ba)-Total			101.0		%		80-120	30-AUG-18
Beryllium (Be)-Total			100.6		%		80-120	30-AUG-18



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Client: GHD Limited (Waterloo)
 455 PHILLIP STREET
 WATERLOO ON N2L 3X2

Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-WT		Water						
Batch	R4194258							
WG2863711-2	LCS							
Bismuth (Bi)-Total			103.3		%		80-120	30-AUG-18
Boron (B)-Total			91.3		%		80-120	30-AUG-18
Cadmium (Cd)-Total			98.9		%		80-120	30-AUG-18
Calcium (Ca)-Total			98.0		%		80-120	30-AUG-18
Cobalt (Co)-Total			101.0		%		80-120	30-AUG-18
Copper (Cu)-Total			99.99		%		80-120	30-AUG-18
Iron (Fe)-Total			99.9		%		80-120	30-AUG-18
Lead (Pb)-Total			104.0		%		80-120	30-AUG-18
Magnesium (Mg)-Total			101.9		%		80-120	30-AUG-18
Manganese (Mn)-Total			101.2		%		80-120	30-AUG-18
Molybdenum (Mo)-Total			101.9		%		80-120	30-AUG-18
Nickel (Ni)-Total			100.9		%		80-120	30-AUG-18
Potassium (K)-Total			102.7		%		80-120	30-AUG-18
Selenium (Se)-Total			99.97		%		80-120	30-AUG-18
Silicon (Si)-Total			99.3		%		60-140	30-AUG-18
Silver (Ag)-Total			100.7		%		80-120	30-AUG-18
Sodium (Na)-Total			99.7		%		80-120	30-AUG-18
Strontium (Sr)-Total			104.6		%		80-120	30-AUG-18
Thallium (Tl)-Total			99.96		%		80-120	30-AUG-18
Tin (Sn)-Total			98.8		%		80-120	30-AUG-18
Vanadium (V)-Total			102.3		%		80-120	30-AUG-18
Zinc (Zn)-Total			93.7		%		80-120	30-AUG-18
WG2863711-1	MB							
Aluminum (Al)-Total			<0.0050		mg/L		0.005	30-AUG-18
Antimony (Sb)-Total			<0.00010		mg/L		0.0001	30-AUG-18
Arsenic (As)-Total			<0.00010		mg/L		0.0001	30-AUG-18
Barium (Ba)-Total			<0.00010		mg/L		0.0001	30-AUG-18
Beryllium (Be)-Total			<0.00010		mg/L		0.0001	30-AUG-18
Bismuth (Bi)-Total			<0.000050		mg/L		0.00005	30-AUG-18
Boron (B)-Total			<0.010		mg/L		0.01	30-AUG-18
Cadmium (Cd)-Total			<0.0000050		mg/L		0.000005	30-AUG-18
Calcium (Ca)-Total			<0.050		mg/L		0.05	30-AUG-18
Cobalt (Co)-Total			<0.00010		mg/L		0.0001	30-AUG-18
Copper (Cu)-Total			<0.0010		mg/L		0.001	30-AUG-18



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Client: GHD Limited (Waterloo)
 455 PHILLIP STREET
 WATERLOO ON N2L 3X2
 Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-WT								
	Water							
Batch	R4194258							
WG2863711-1	MB							
Iron (Fe)-Total			<0.010		mg/L		0.01	30-AUG-18
Lead (Pb)-Total			<0.000050		mg/L		0.00005	30-AUG-18
Magnesium (Mg)-Total			<0.0050		mg/L		0.005	30-AUG-18
Manganese (Mn)-Total			<0.00050		mg/L		0.0005	30-AUG-18
Molybdenum (Mo)-Total			<0.000050		mg/L		0.00005	30-AUG-18
Nickel (Ni)-Total			<0.00050		mg/L		0.0005	30-AUG-18
Potassium (K)-Total			<0.050		mg/L		0.05	30-AUG-18
Selenium (Se)-Total			<0.000050		mg/L		0.00005	30-AUG-18
Silicon (Si)-Total			<0.10		mg/L		0.1	30-AUG-18
Silver (Ag)-Total			<0.000050		mg/L		0.00005	30-AUG-18
Sodium (Na)-Total			<0.050		mg/L		0.05	30-AUG-18
Strontium (Sr)-Total			<0.0010		mg/L		0.001	30-AUG-18
Thallium (Tl)-Total			<0.000010		mg/L		0.00001	30-AUG-18
Tin (Sn)-Total			<0.00010		mg/L		0.0001	30-AUG-18
Vanadium (V)-Total			<0.00050		mg/L		0.0005	30-AUG-18
Zinc (Zn)-Total			<0.0030		mg/L		0.003	30-AUG-18
WG2863711-5	MS	WG2863711-6						
Aluminum (Al)-Total			101.9		%		70-130	30-AUG-18
Antimony (Sb)-Total			100.3		%		70-130	30-AUG-18
Arsenic (As)-Total			99.9		%		70-130	30-AUG-18
Barium (Ba)-Total			N/A	MS-B	%		-	30-AUG-18
Beryllium (Be)-Total			97.0		%		70-130	30-AUG-18
Bismuth (Bi)-Total			97.8		%		70-130	30-AUG-18
Boron (B)-Total			N/A	MS-B	%		-	30-AUG-18
Cadmium (Cd)-Total			99.5		%		70-130	30-AUG-18
Calcium (Ca)-Total			N/A	MS-B	%		-	30-AUG-18
Cobalt (Co)-Total			97.4		%		70-130	30-AUG-18
Copper (Cu)-Total			90.0		%		70-130	30-AUG-18
Iron (Fe)-Total			94.7		%		70-130	30-AUG-18
Lead (Pb)-Total			99.2		%		70-130	30-AUG-18
Magnesium (Mg)-Total			N/A	MS-B	%		-	30-AUG-18
Manganese (Mn)-Total			N/A	MS-B	%		-	30-AUG-18
Molybdenum (Mo)-Total			106.4		%		70-130	30-AUG-18
Nickel (Ni)-Total			95.6		%		70-130	30-AUG-18



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 WATERLOO ON N2L 3X2

Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-WT		Water						
Batch	R4194258							
WG2863711-5 MS		WG2863711-6						
Potassium (K)-Total			N/A	MS-B	%		-	30-AUG-18
Selenium (Se)-Total			100.4		%		70-130	30-AUG-18
Silicon (Si)-Total			N/A	MS-B	%		-	30-AUG-18
Silver (Ag)-Total			96.7		%		70-130	30-AUG-18
Sodium (Na)-Total			N/A	MS-B	%		-	30-AUG-18
Strontium (Sr)-Total			N/A	MS-B	%		-	30-AUG-18
Thallium (Tl)-Total			95.3		%		70-130	30-AUG-18
Tin (Sn)-Total			99.3		%		70-130	30-AUG-18
Vanadium (V)-Total			103.9		%		70-130	30-AUG-18
Zinc (Zn)-Total			89.6		%		70-130	30-AUG-18
NH3-WT		Water						
Batch	R4199867							
WG2867525-3 DUP		L2155268-1						
Ammonia, Total (as N)		0.252	0.253		mg/L	0.4	20	04-SEP-18
WG2867525-7 DUP		L2155638-1						
Ammonia, Total (as N)		4.90	5.00		mg/L	1.9	20	04-SEP-18
WG2867525-2 LCS								
Ammonia, Total (as N)			102.6		%		85-115	04-SEP-18
WG2867525-6 LCS								
Ammonia, Total (as N)			107.2		%		85-115	04-SEP-18
WG2867525-1 MB								
Ammonia, Total (as N)			<0.020		mg/L		0.02	04-SEP-18
WG2867525-5 MB								
Ammonia, Total (as N)			<0.020		mg/L		0.02	04-SEP-18
WG2867525-4 MS		L2155268-1						
Ammonia, Total (as N)			114.8		%		75-125	04-SEP-18
WG2867525-8 MS		L2155638-1						
Ammonia, Total (as N)			N/A	MS-B	%		-	04-SEP-18
NO2-IC-WT		Water						
Batch	R4196990							
WG2865824-10 DUP		L2155191-2						
Nitrite (as N)		0.016	0.016		mg/L	0.2	25	31-AUG-18
WG2865824-7 LCS								
Nitrite (as N)			98.4		%		70-130	31-AUG-18
WG2865824-6 MB								
Nitrite (as N)			<0.010		mg/L		0.01	31-AUG-18



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 455 PHILLIP STREET
 WATERLOO ON N2L 3X2
 Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
NO2-IC-WT								
Water								
Batch	R4196990							
WG2865824-9	MS	L2155191-2						
Nitrite (as N)			102.1		%		70-130	31-AUG-18
NO3-IC-WT								
Water								
Batch	R4196990							
WG2865824-10	DUP	L2155191-2						
Nitrate (as N)		4.46	4.46		mg/L	0.0	25	31-AUG-18
WG2865824-7	LCS							
Nitrate (as N)			100.3		%		70-130	31-AUG-18
WG2865824-6	MB							
Nitrate (as N)			<0.020		mg/L		0.02	31-AUG-18
WG2865824-9	MS	L2155191-2						
Nitrate (as N)			N/A	MS-B	%		-	31-AUG-18
P-T-COL-WT								
Water								
Batch	R4200849							
WG2865539-3	DUP	L2154890-1						
Phosphorus, Total		0.197	0.217		mg/L	9.6	20	05-SEP-18
WG2865539-2	LCS							
Phosphorus, Total			96.9		%		80-120	05-SEP-18
WG2865539-1	MB							
Phosphorus, Total			<0.0030		mg/L		0.003	05-SEP-18
WG2865539-4	MS	L2154890-1						
Phosphorus, Total			N/A	MS-B	%		-	05-SEP-18
PH-WT								
Water								
Batch	R4195064							
WG2863795-4	DUP	WG2863795-3						
pH		6.35	6.34	J	pH units	0.01	0.2	30-AUG-18
WG2863795-2	LCS							
pH			7.02		pH units		6.9-7.1	30-AUG-18
PHENOLS-4AAP-WT								
Water								
Batch	R4197608							
WG2865269-19	DUP	L2153600-4						
Phenols (4AAP)		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	31-AUG-18
WG2865269-18	LCS							
Phenols (4AAP)			93.6		%		85-115	31-AUG-18
WG2865269-17	MB							
Phenols (4AAP)			<0.0010		mg/L		0.001	31-AUG-18



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 455 PHILLIP STREET
 WATERLOO ON N2L 3X2

Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PHENOLS-4AAP-WT								
Water								
Batch R4197608								
WG2865269-20	MS	L2153600-4	99.0		%		75-125	31-AUG-18
Phenols (4AAP)								
SO4-IC-N-WT								
Water								
Batch R4196990								
WG2865824-10	DUP	L2155191-2	21.1	21.1	mg/L	0.1	20	31-AUG-18
Sulfate (SO4)								
WG2865824-7	LCS		101.4		%		90-110	31-AUG-18
Sulfate (SO4)								
WG2865824-6	MB		<0.30		mg/L		0.3	31-AUG-18
Sulfate (SO4)								
WG2865824-9	MS	L2155191-2	105.8		%		75-125	31-AUG-18
Sulfate (SO4)								
SOLIDS-TDS-WT								
Water								
Batch R4198155								
WG2866375-3	DUP	L2154052-3	417	405	mg/L	2.8	20	02-SEP-18
Total Dissolved Solids								
WG2866375-2	LCS		94.6		%		85-115	02-SEP-18
Total Dissolved Solids								
WG2866375-1	MB		<10		mg/L		10	02-SEP-18
Total Dissolved Solids								
SOLIDS-TSS-WT								
Water								
Batch R4195321								
WG2864340-3	DUP	L2155417-1	249	245	mg/L	1.5	20	31-AUG-18
Total Suspended Solids								
WG2864340-2	LCS		99.5		%		85-115	31-AUG-18
Total Suspended Solids								
WG2864340-1	MB		<2.0		mg/L		2	31-AUG-18
Total Suspended Solids								
Batch R4197628								
WG2865096-3	DUP	L2155727-2	410	486	mg/L	17	20	04-SEP-18
Total Suspended Solids								
WG2865096-2	LCS		101.0		%		85-115	04-SEP-18
Total Suspended Solids								
WG2865096-1	MB		<2.0		mg/L		2	04-SEP-18
Total Suspended Solids								
TKN-WT								
Water								



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 455 PHILLIP STREET
 WATERLOO ON N2L 3X2

Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
TKN-WT								
	Water							
Batch	R4195858							
WG2864953-3	DUP	L2151955-1						
Total Kjeldahl Nitrogen		<0.15	<0.15	RPD-NA	mg/L	N/A	20	31-AUG-18
WG2864953-2	LCS							
Total Kjeldahl Nitrogen			107.0		%		75-125	31-AUG-18
WG2864953-1	MB							
Total Kjeldahl Nitrogen			<0.15		mg/L		0.15	31-AUG-18
WG2864953-4	MS	L2151955-1						
Total Kjeldahl Nitrogen			104.6		%		70-130	31-AUG-18
VOC-ROU-HS-WT								
	Water							
Batch	R4197233							
WG2861458-4	DUP	WG2861458-3						
1,1,1,2-Tetrachloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	04-SEP-18
1,1,2,2-Tetrachloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	04-SEP-18
1,1,1-Trichloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	04-SEP-18
1,1,2-Trichloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	04-SEP-18
1,2-Dibromoethane		<0.20	<0.20	RPD-NA	ug/L	N/A	30	04-SEP-18
1,1-Dichloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	04-SEP-18
1,1-Dichloroethylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	04-SEP-18
1,2-Dichlorobenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	04-SEP-18
1,2-Dichloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	04-SEP-18
1,2-Dichloropropane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	04-SEP-18
1,3-Dichlorobenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	04-SEP-18
1,4-Dichlorobenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	04-SEP-18
Acetone		<20	<20	RPD-NA	ug/L	N/A	30	04-SEP-18
Benzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	04-SEP-18
Bromodichloromethane		<1.0	<1.0	RPD-NA	ug/L	N/A	30	04-SEP-18
Bromoform		<1.0	<1.0	RPD-NA	ug/L	N/A	30	04-SEP-18
Bromomethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	04-SEP-18
Carbon tetrachloride		<0.50	<0.50	RPD-NA	ug/L	N/A	30	04-SEP-18
Chlorobenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	04-SEP-18
Chloroethane		<1.0	<1.0	RPD-NA	ug/L	N/A	30	04-SEP-18
Chloroform		<1.0	<1.0	RPD-NA	ug/L	N/A	30	04-SEP-18
cis-1,2-Dichloroethylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	04-SEP-18
cis-1,3-Dichloropropene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	04-SEP-18
Dibromochloromethane		<1.0	<1.0	RPD-NA	ug/L	N/A	30	04-SEP-18



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 455 PHILLIP STREET
 WATERLOO ON N2L 3X2
 Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-ROU-HS-WT		Water						
Batch	R4197233							
WG2861458-4	DUP	WG2861458-3						
Dichlorodifluoromethane		<1.0	<1.0	RPD-NA	ug/L	N/A	30	04-SEP-18
Dichloromethane		<2.0	<2.0	RPD-NA	ug/L	N/A	30	04-SEP-18
Ethylbenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	04-SEP-18
m+p-Xylenes		<1.0	<1.0	RPD-NA	ug/L	N/A	30	04-SEP-18
Methyl Ethyl Ketone		<20	<20	RPD-NA	ug/L	N/A	30	04-SEP-18
Methyl Isobutyl Ketone		<20	<20	RPD-NA	ug/L	N/A	30	04-SEP-18
n-Hexane		0.73	0.74		ug/L	1.4	30	04-SEP-18
MTBE		<0.50	<0.50	RPD-NA	ug/L	N/A	30	04-SEP-18
o-Xylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	04-SEP-18
Styrene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	04-SEP-18
Tetrachloroethylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	04-SEP-18
Toluene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	04-SEP-18
trans-1,2-Dichloroethylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	04-SEP-18
trans-1,3-Dichloropropene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	04-SEP-18
Trichloroethylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	04-SEP-18
Trichlorofluoromethane		<1.0	<1.0	RPD-NA	ug/L	N/A	30	04-SEP-18
Vinyl chloride		<0.50	<0.50	RPD-NA	ug/L	N/A	30	04-SEP-18
WG2861458-1	LCS							
1,1,1,2-Tetrachloroethane			102.6		%		70-130	04-SEP-18
1,1,1,2-Tetrachloroethane			103.0		%		70-130	04-SEP-18
1,1,1-Trichloroethane			112.3		%		70-130	04-SEP-18
1,1,2-Trichloroethane			105.7		%		70-130	04-SEP-18
1,2-Dibromoethane			99.9		%		70-130	04-SEP-18
1,1-Dichloroethane			125.3		%		70-130	04-SEP-18
1,1-Dichloroethylene			110.6		%		70-130	04-SEP-18
1,2-Dichlorobenzene			107.8		%		70-130	04-SEP-18
1,2-Dichloroethane			113.9		%		70-130	04-SEP-18
1,2-Dichloropropane			113.1		%		70-130	04-SEP-18
1,3-Dichlorobenzene			110.9		%		70-130	04-SEP-18
1,4-Dichlorobenzene			111.5		%		70-130	04-SEP-18
Acetone			108.0		%		60-140	04-SEP-18
Benzene			112.4		%		70-130	04-SEP-18
Bromodichloromethane			112.3		%		70-130	04-SEP-18



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 455 PHILLIP STREET
 WATERLOO ON N2L 3X2

Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-ROU-HS-WT								
	Water							
Batch	R4197233							
WG2861458-1	LCS							
Bromoform			94.5		%		70-130	04-SEP-18
Bromomethane			84.6		%		60-140	04-SEP-18
Carbon tetrachloride			109.3		%		70-130	04-SEP-18
Chlorobenzene			109.6		%		70-130	04-SEP-18
Chloroethane			106.4		%		70-130	04-SEP-18
Chloroform			114.1		%		70-130	04-SEP-18
cis-1,2-Dichloroethylene			107.0		%		70-130	04-SEP-18
cis-1,3-Dichloropropene			111.3		%		70-130	04-SEP-18
Dibromochloromethane			101.7		%		70-130	04-SEP-18
Dichlorodifluoromethane			106.5		%		50-140	04-SEP-18
Dichloromethane			114.0		%		70-130	04-SEP-18
Ethylbenzene			107.0		%		70-130	04-SEP-18
m+p-Xylenes			110.7		%		70-130	04-SEP-18
Methyl Ethyl Ketone			92.2		%		60-140	04-SEP-18
Methyl Isobutyl Ketone			94.9		%		50-150	04-SEP-18
n-Hexane			106.9		%		70-130	04-SEP-18
MTBE			109.0		%		70-130	04-SEP-18
o-Xylene			105.8		%		70-130	04-SEP-18
Styrene			109.6		%		70-130	04-SEP-18
Tetrachloroethylene			103.5		%		70-130	04-SEP-18
Toluene			104.9		%		70-130	04-SEP-18
trans-1,2-Dichloroethylene			119.3		%		70-130	04-SEP-18
trans-1,3-Dichloropropene			106.5		%		70-130	04-SEP-18
Trichloroethylene			108.6		%		70-130	04-SEP-18
Trichlorofluoromethane			117.1		%		60-140	04-SEP-18
Vinyl chloride			107.6		%		60-140	04-SEP-18
WG2861458-2	MB							
1,1,1,2-Tetrachloroethane			<0.50		ug/L		0.5	04-SEP-18
1,1,2,2-Tetrachloroethane			<0.50		ug/L		0.5	04-SEP-18
1,1,1-Trichloroethane			<0.50		ug/L		0.5	04-SEP-18
1,1,2-Trichloroethane			<0.50		ug/L		0.5	04-SEP-18
1,2-Dibromoethane			<0.20		ug/L		0.2	04-SEP-18
1,1-Dichloroethane			<0.50		ug/L		0.5	04-SEP-18
1,1-Dichloroethylene			<0.50		ug/L		0.5	04-SEP-18



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 455 PHILLIP STREET
 WATERLOO ON N2L 3X2

Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-ROU-HS-WT								
	Water							
Batch	R4197233							
WG2861458-2 MB								
1,2-Dichlorobenzene			<0.50		ug/L		0.5	04-SEP-18
1,2-Dichloroethane			<0.50		ug/L		0.5	04-SEP-18
1,2-Dichloropropane			<0.50		ug/L		0.5	04-SEP-18
1,3-Dichlorobenzene			<0.50		ug/L		0.5	04-SEP-18
1,4-Dichlorobenzene			<0.50		ug/L		0.5	04-SEP-18
Acetone			<20		ug/L		20	04-SEP-18
Benzene			<0.50		ug/L		0.5	04-SEP-18
Bromodichloromethane			<1.0		ug/L		1	04-SEP-18
Bromoform			<1.0		ug/L		1	04-SEP-18
Bromomethane			<0.50		ug/L		0.5	04-SEP-18
Carbon tetrachloride			<0.50		ug/L		0.5	04-SEP-18
Chlorobenzene			<0.50		ug/L		0.5	04-SEP-18
Chloroethane			<1.0		ug/L		1	04-SEP-18
Chloroform			<1.0		ug/L		1	04-SEP-18
cis-1,2-Dichloroethylene			<0.50		ug/L		0.5	04-SEP-18
cis-1,3-Dichloropropene			<0.50		ug/L		0.5	04-SEP-18
Dibromochloromethane			<1.0		ug/L		1	04-SEP-18
Dichlorodifluoromethane			<1.0		ug/L		1	04-SEP-18
Dichloromethane			<2.0		ug/L		2	04-SEP-18
Ethylbenzene			<0.50		ug/L		0.5	04-SEP-18
m+p-Xylenes			<1.0		ug/L		1	04-SEP-18
Methyl Ethyl Ketone			<20		ug/L		20	04-SEP-18
Methyl Isobutyl Ketone			<20		ug/L		20	04-SEP-18
n-Hexane			<0.50		ug/L		0.5	04-SEP-18
MTBE			<0.50		ug/L		0.5	04-SEP-18
o-Xylene			<0.50		ug/L		0.5	04-SEP-18
Styrene			<0.50		ug/L		0.5	04-SEP-18
Tetrachloroethylene			<0.50		ug/L		0.5	04-SEP-18
Toluene			<0.50		ug/L		0.5	04-SEP-18
trans-1,2-Dichloroethylene			<0.50		ug/L		0.5	04-SEP-18
trans-1,3-Dichloropropene			<0.50		ug/L		0.5	04-SEP-18
Trichloroethylene			<0.50		ug/L		0.5	04-SEP-18
Trichlorofluoromethane			<1.0		ug/L		1	04-SEP-18



Quality Control Report

Workorder: L2155268

Report Date: 06-SEP-18

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Client: GHD Limited (Waterloo)
 455 PHILLIP STREET
 WATERLOO ON N2L 3X2
 Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-ROU-HS-WT								
	Water							
Batch	R4197233							
WG2861458-2	MB							
Vinyl chloride			<0.50		ug/L		0.5	04-SEP-18
Surrogate: 1,4-Difluorobenzene			96.2		%		70-130	04-SEP-18
Surrogate: 4-Bromofluorobenzene			86.6		%		70-130	04-SEP-18
WG2861458-5	MS	WG2861458-3						
1,1,1,2-Tetrachloroethane			102.9		%		50-150	04-SEP-18
1,1,2,2-Tetrachloroethane			114.5		%		50-150	04-SEP-18
1,1,1-Trichloroethane			109.8		%		50-150	04-SEP-18
1,1,2-Trichloroethane			115.0		%		50-150	04-SEP-18
1,2-Dibromoethane			110.8		%		50-150	04-SEP-18
1,1-Dichloroethane			127.3		%		50-150	04-SEP-18
1,1-Dichloroethylene			106.5		%		50-150	04-SEP-18
1,2-Dichlorobenzene			109.6		%		50-150	04-SEP-18
1,2-Dichloroethane			127.8		%		50-150	04-SEP-18
1,2-Dichloropropane			118.6		%		50-150	04-SEP-18
1,3-Dichlorobenzene			109.8		%		50-150	04-SEP-18
1,4-Dichlorobenzene			111.3		%		50-150	04-SEP-18
Acetone			132.6		%		50-150	04-SEP-18
Benzene			113.7		%		50-150	04-SEP-18
Bromodichloromethane			119.4		%		50-150	04-SEP-18
Bromoform			104.0		%		50-150	04-SEP-18
Bromomethane			85.3		%		50-150	04-SEP-18
Carbon tetrachloride			105.3		%		50-150	04-SEP-18
Chlorobenzene			109.6		%		50-150	04-SEP-18
Chloroethane			103.9		%		50-150	04-SEP-18
Chloroform			117.4		%		50-150	04-SEP-18
cis-1,2-Dichloroethylene			110.1		%		50-150	04-SEP-18
cis-1,3-Dichloropropene			117.8		%		50-150	04-SEP-18
Dibromochloromethane			108.6		%		50-150	04-SEP-18
Dichlorodifluoromethane			95.4		%		50-150	04-SEP-18
Dichloromethane			122.3		%		50-150	04-SEP-18
Ethylbenzene			99.6		%		50-150	04-SEP-18
m+p-Xylenes			104.5		%		50-150	04-SEP-18
Methyl Ethyl Ketone			115.6		%		50-150	04-SEP-18
Methyl Isobutyl Ketone			111.2		%		50-150	04-SEP-18



Quality Control Report

Workorder: L2155268

Report Date: 06-SEP-18

Page 19 of 20

Client: GHD Limited (Waterloo)
455 PHILLIP STREET
WATERLOO ON N2L 3X2

Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-ROU-HS-WT	Water							
Batch	R4197233							
WG2861458-5 MS		WG2861458-3						
n-Hexane			129.9		%		50-150	04-SEP-18
MTBE			108.1		%		50-150	04-SEP-18
o-Xylene			99.99		%		50-150	04-SEP-18
Styrene			103.0		%		50-150	04-SEP-18
Tetrachloroethylene			97.4		%		50-150	04-SEP-18
Toluene			100.7		%		50-150	04-SEP-18
trans-1,2-Dichloroethylene			117.8		%		50-150	04-SEP-18
trans-1,3-Dichloropropene			111.2		%		50-150	04-SEP-18
Trichloroethylene			106.3		%		50-150	04-SEP-18
Trichlorofluoromethane			110.4		%		50-150	04-SEP-18
Vinyl chloride			101.4		%		50-150	04-SEP-18

Quality Control Report

Workorder: L2155268

Report Date: 06-SEP-18

Client: GHD Limited (Waterloo)
455 PHILLIP STREET
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Page 20 of 20

Legend:

Limit ALS Control Limit (Data Quality Objectives)
DUP Duplicate
RPD Relative Percent Difference
N/A Not Available
LCS Laboratory Control Sample
SRM Standard Reference Material
MS Matrix Spike
MSD Matrix Spike Duplicate
ADE Average Desorption Efficiency
MB Method Blank
IRM Internal Reference Material
CRM Certified Reference Material
CCV Continuing Calibration Verification
CVS Calibration Verification Standard
LCSD Laboratory Control Sample Duplicate

Sample Parameter Qualifier Definitions:

Qualifier	Description
J	Duplicate results and limits are expressed in terms of absolute difference.
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.
RPD-NA	Relative Percent Difference Not Available due to result(s) being less than detection limit.

Hold Time Exceedances:

All test results reported with this submission were conducted within ALS recommended hold times.

ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where available). For more information, please contact ALS.

The ALS Quality Control Report is provided to ALS clients upon request. ALS includes comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against pre-determined data quality objectives to provide confidence in the accuracy of associated test results.

Please note that this report may contain QC results from anonymous Sample Duplicates and Matrix Spikes that do not originate from this Work Order.



Chain of Custody (COC) / Analytical Request Form

Canada Toll Free: 1 800 668 9878

www.alsglobal.com



L2155268-COFC

COC Number: 14 -

Page 1 of 1

Report To Company: GHD LIMITED Contact: Jennifer Balkwill Address: 651 Colby Drive, Waterloo, Ontario N2V 1C2 Phone: 519-884-0510		Acct#13791		Report Format / Distribution Select Report Format: <input checked="" type="checkbox"/> PDF <input checked="" type="checkbox"/> EXCEL <input checked="" type="checkbox"/> EDD (DIGITAL) Quality Control (QC) Report with Report <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Criteria on Report - provide details below if box checked Select Distribution: <input checked="" type="checkbox"/> EMAIL <input type="checkbox"/> MAIL <input type="checkbox"/> FAX Email 1 or Fax Jennifer.Balkwill@ghd.com Email 2 See PO			Select Service Level Below (Rush Turnaround Time (TAT) is not available for all tests) R <input checked="" type="checkbox"/> Regular (Standard TAT if received by 3 pm - business days) P <input type="checkbox"/> Priority (2-4 bus. days if received by 3pm) 50% surcharge - contact ALS to confirm TAT E <input type="checkbox"/> Emergency (1-2 bus. days if received by 3pm) 100% surcharge - contact ALS to confirm TAT E2 <input type="checkbox"/> Same day or weekend emergency - contact ALS to confirm TAT and surcharge Specify Date Required for E2,E or P:																																																								
Invoice To Same as Report To <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Copy of Invoice with Report <input type="checkbox"/> Yes <input type="checkbox"/> No Company: GHD LIMITED Contact: Jennifer Balkwill		Invoice Distribution Select Invoice Distribution: <input checked="" type="checkbox"/> EMAIL <input type="checkbox"/> MAIL <input type="checkbox"/> FAX Email 1 or Fax Jennifer.Balkwill@ghd.com Email 2			Analysis Request Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below																																																										
Project Information ALS Quote #: 44985 Job #: 73506479 PO / AFE: 73506479 LSD:		Oil and Gas Required Fields (client use) Approver ID: Cost Center: GL Account: Routing Code: Activity Code: Location:			<table border="1"> <tr> <td>ALX, Conductivity, pH, TDS, TSS, ISS, Phenols</td> <td>Br, NO2, NO3, SO4, Cl, F (ANIONS-C-6-WT)</td> <td>DOC (C-DIS-ORG-WT), COD, TKN, TP</td> <td>Total CN (CN-TOT-WT)</td> <td>Un-ionized NH3 (ETL-NH3-UNION-CL-P-WT)</td> <td>Total Metals (MET-T-M5-WT-WT-44985-Metals)</td> <td>Total Mercury (HG-T-CVAAA-WT)</td> <td>Total Cr 6+ (CR-CR6-C-WT), Hardness calc</td> <td>VOCs(VOC-ROU-HS-WT-WT-44985-VOC)</td> <td>SVOCs (SVOC-44985-P-WT)</td> <td>CLIENT SUPPLIED TEMPERATURE **</td> <td>CLIENT SUPPLIED pH **</td> <td rowspan="4">Number of Containers</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table>										ALX, Conductivity, pH, TDS, TSS, ISS, Phenols	Br, NO2, NO3, SO4, Cl, F (ANIONS-C-6-WT)	DOC (C-DIS-ORG-WT), COD, TKN, TP	Total CN (CN-TOT-WT)	Un-ionized NH3 (ETL-NH3-UNION-CL-P-WT)	Total Metals (MET-T-M5-WT-WT-44985-Metals)	Total Mercury (HG-T-CVAAA-WT)	Total Cr 6+ (CR-CR6-C-WT), Hardness calc	VOCs(VOC-ROU-HS-WT-WT-44985-VOC)	SVOCs (SVOC-44985-P-WT)	CLIENT SUPPLIED TEMPERATURE **	CLIENT SUPPLIED pH **	Number of Containers																																				
ALX, Conductivity, pH, TDS, TSS, ISS, Phenols	Br, NO2, NO3, SO4, Cl, F (ANIONS-C-6-WT)	DOC (C-DIS-ORG-WT), COD, TKN, TP	Total CN (CN-TOT-WT)	Un-ionized NH3 (ETL-NH3-UNION-CL-P-WT)	Total Metals (MET-T-M5-WT-WT-44985-Metals)	Total Mercury (HG-T-CVAAA-WT)	Total Cr 6+ (CR-CR6-C-WT), Hardness calc	VOCs(VOC-ROU-HS-WT-WT-44985-VOC)	SVOCs (SVOC-44985-P-WT)	CLIENT SUPPLIED TEMPERATURE **	CLIENT SUPPLIED pH **	Number of Containers																																																			
ALS Lab Work Order # (lab use only) L2155268		ALS Contact: Rick H		Sampler:																																																											
ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)			Date (dd-mmm-yy)	Time (hh:mm)	Sample Type																																																									
	EQ Pond Discharge			28/08/18	11:30	Water	R	R	R	R	R	R	R	R	R	R	R	R	R	26	7.63																																										
	West Storm Water Pond			28/08/18	11:15	Water	R	R	R	R	R	R	R	R	R	R	R	R	R	24	7.74																																										
	East Storm Water Pond			28/08/18	11:00	Water	R	R	R	R	R	R	R	R	R	R	R	R	R	23	7.62																																										
Drinking Water (DW) Samples¹ (client use) Are samples taken from a Regulated DW System? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Are samples for human drinking water use? <input type="checkbox"/> Yes <input type="checkbox"/> No		Special Instructions / Specify Criteria to add on report (client Use) **Please fill in Client Supplied temperature and pH for Unionized NH3 calculation**			SAMPLE CONDITION AS RECEIVED (lab use only) Frozen <input type="checkbox"/> SIF Observations Yes <input type="checkbox"/> No <input type="checkbox"/> Ice packs Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Custody seal intact Yes <input type="checkbox"/> No <input type="checkbox"/> Cooling Initiated <input type="checkbox"/> INITIAL COOLER TEMPERATURES °C: FINAL COOLER TEMPERATURES °C: 28.0																																																										
SHIPMENT RELEASE (client use) Released by: R. Tobin Date: Aug 28/18 Time: 14:00		INITIAL SHIPMENT RECEPTION (lab use only) Received by: Date: Time:			FINAL SHIPMENT RECEPTION (lab use only) Received by: Rameel Date: Aug 28/18 Time: 10:30																																																										

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

16-FM-0256-02 Rev 04 January 2014

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy

1. If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.



GHD Limited (Waterloo)
ATTN: JENNIFER BALKWILL
455 PHILLIP STREET
WATERLOO ON N2L 3X2

Date Received: 30-AUG-18
Report Date: 04-SEP-18 16:06 (MT)
Version: FINAL

Client Phone: 519-884-0510

Certificate of Analysis

Lab Work Order #: L2155768
Project P.O. #: 73506479
Job Reference: 44985
C of C Numbers:
Legal Site Desc:

Suzette Chin
Account Manager

[This report shall not be reproduced except in full without the written authority of the Laboratory.]

ADDRESS: 9450 17 Avenue NW, Edmonton, AB T6N 1M9 Canada | Phone: +1 780 413 5227 | Fax: +1 780 437 2311
ALS CANADA LTD Part of the ALS Group An ALS Limited Company

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2155768-1 EQ POND DISCHARGE							
Sampled By: CLIENT on 28-AUG-18 @ 11:30							
Matrix: WATER							
Microtox Physical Tests							
Turbidity	Low				30-AUG-18	31-AUG-18	R4198507
Colour	Colourless				30-AUG-18	31-AUG-18	R4198507
Clarification	None				30-AUG-18	31-AUG-18	R4198507
Initial pH	8.0		0.10	pH	30-AUG-18	31-AUG-18	R4198507
Final pH	8.0		0.10	pH	30-AUG-18	31-AUG-18	R4198507
Lab Treatment	None				30-AUG-18	31-AUG-18	R4198507
Microtox Original							
EC50 (15min) Original	>100		1.0	%	30-AUG-18	31-AUG-18	R4198507
EC20 (15min) Original	>100		1.0	%	30-AUG-18	31-AUG-18	R4198507
EC50 (5min) Original	>100		1.0	%	30-AUG-18	31-AUG-18	R4198507
EC20 (5min) Original	>100		1.0	%	30-AUG-18	31-AUG-18	R4198507
Interpretation Original	NON TOXIC				30-AUG-18	31-AUG-18	R4198507

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
MICROTOX-ORG-ED	Water	Microtox Original	ERCB Directive 050
Light output of luminescent bacteria is measured after they have been challenged by a sample of unknown toxicity, and compared to the light output of a control reagent blank. The difference in light output is attributed to the effect of the sample on the organisms, and the degree of light loss indicates metabolic inhibition and the degree of toxicity of the sample to the bacteria. EC50(5) and EC50(15) values are reported, and refer to the effective concentration of the sample that caused a 50% decrease in the light output in 5 and 15 minutes.			
MICROTOX-PHYSICAL-ED	Water	Microtox Physical Tests	ERCB Directive 050

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
ED	ALS ENVIRONMENTAL - EDMONTON, ALBERTA, CANADA

Chain of Custody Numbers:

GLOSSARY OF REPORT TERMS

Surrogates are compounds that are similar in behaviour to target analyte(s), but that do not normally occur in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery. In reports that display the D.L. column, laboratory objectives for surrogates are listed there.

mg/kg - milligrams per kilogram based on dry weight of sample

mg/kg wwt - milligrams per kilogram based on wet weight of sample

mg/kg lwt - milligrams per kilogram based on lipid weight of sample

mg/L - unit of concentration based on volume, parts per million.

< - Less than.

D.L. - The reporting limit.

N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.

UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.



Environmental

Quality Control Report

Workorder: L2155768

Report Date: 04-SEP-18

Page 1 of 2

Client: GHD Limited (Waterloo)
455 PHILLIP STREET
WATERLOO ON N2L 3X2

Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MICROTOX-ORG-ED								
	Water							
Batch	R4198507							
WG2864736-2 CRM		PHENOL_ED						
EC50 (5min) Original			14.0		mg/L		13-26	31-AUG-18
WG2864736-3 CRM		PHENOL_ED						
EC50 (5min) Original			22.1		mg/L		13-26	31-AUG-18
WG2864736-4 DUP		L2155512-1						
EC50 (15min) Original		>100	>100	RPD-NA	%	N/A		31-AUG-18
EC20 (15min) Original		>100	>100	RPD-NA	%	N/A		31-AUG-18
EC50 (5min) Original		>100	>100	RPD-NA	%	N/A		31-AUG-18
EC20 (5min) Original		>100	>100	RPD-NA	%	N/A		31-AUG-18
WG2864736-1 MB								
EC50 (15min) Original			PASS					31-AUG-18
EC20 (15min) Original			PASS					31-AUG-18
EC50 (5min) Original			PASS					31-AUG-18
EC20 (5min) Original			PASS					31-AUG-18

Quality Control Report

Workorder: L2155768

Report Date: 04-SEP-18

Client: GHD Limited (Waterloo)
455 PHILLIP STREET
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Page 2 of 2

Legend:

Limit ALS Control Limit (Data Quality Objectives)
DUP Duplicate
RPD Relative Percent Difference
N/A Not Available
LCS Laboratory Control Sample
SRM Standard Reference Material
MS Matrix Spike
MSD Matrix Spike Duplicate
ADE Average Desorption Efficiency
MB Method Blank
IRM Internal Reference Material
CRM Certified Reference Material
CCV Continuing Calibration Verification
CVS Calibration Verification Standard
LCSD Laboratory Control Sample Duplicate

Sample Parameter Qualifier Definitions:

Qualifier	Description
RPD-NA	Relative Percent Difference Not Available due to result(s) being less than detection limit.

Hold Time Exceedances:

All test results reported with this submission were conducted within ALS recommended hold times.

ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where available). For more information, please contact ALS.

The ALS Quality Control Report is provided to ALS clients upon request. ALS includes comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against pre-determined data quality objectives to provide confidence in the accuracy of associated test results.

Please note that this report may contain QC results from anonymous Sample Duplicates and Matrix Spikes that do not originate from this Work Order.



L2155768-COFC

Report To		Acct#13791		Report Format / Distribution		Select Service Level Below (Rush Turnaround Time (TAT) is not available for all tests)															
Company: GHD LIMITED		Select Report Format: <input checked="" type="checkbox"/> PDF <input checked="" type="checkbox"/> EXCEL <input checked="" type="checkbox"/> EDD (DIGITAL)		Quality Control (QC) Report with Report <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		R <input checked="" type="checkbox"/> Regular (Standard TAT if received by 3 pm - business days)															
Contact: Jennifer Balkwill		Criteria on Report - provide details below if box checked		Select Distribution: <input checked="" type="checkbox"/> EMAIL <input type="checkbox"/> MAIL <input type="checkbox"/> FAX		P <input type="checkbox"/> Priority (2-4 bus. days if received by 3pm) 50% surcharge - contact ALS to confirm TAT															
Address: 651 Colby Drive, Waterloo, Ontario N2V 1C2		Email 1 or Fax Jennifer.Balkwill@ghd.com		Email 2 See PO		E <input type="checkbox"/> Emergency (1-2 bus. days if received by 3pm) 100% surcharge - contact ALS to confirm TAT															
Phone: 519-884-0510		Specify Date Required for E2, E or P:		E2 <input type="checkbox"/> Same day or weekend emergency - contact ALS to confirm TAT and surcharge																	
Invoice To		Same as Report To <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Invoice Distribution		Analysis Request															
Copy of Invoice with Report <input type="checkbox"/> Yes <input type="checkbox"/> No		Select Invoice Distribution: <input checked="" type="checkbox"/> EMAIL <input type="checkbox"/> MAIL <input checked="" type="checkbox"/> FAX		Email 1 or Fax Jennifer.Balkwill@ghd.com		Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below															
Company: GHD LIMITED		Email 2		Project Information		Oil and Gas Required Fields (client use)		MICROTOX (MICROTOX-ORG-ED)													
Contact: Jennifer Balkwill		Approver ID:		GL Account:		Cost Center:		MICROTOX (MICROTOX-PHYSICAL-ED)													
ALS Quote #: 44985		Activity Code:		Routing Code:		Location:		Number of Containers													
Job #: 44985		ALS Contact: Rick H		ALS Lab Work Order # (lab use only) L2155768		Sampler:															
PO / AFE: 73506479		Date		Time		Sample Type															
LSD:		EQ Pond Discharge		28/08/18		11:30		Water													
Drinking Water (DW) Samples ¹ (client use)		Special Instructions / Specify Criteria to add on report (client use)		Sample Identification and/or Coordinates (This description will appear on the report)		Date (dd-mmm-yy)		Time (hh:mm)		Sample Type											
Are samples taken from a Regulated DW System? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		Please send to ALS Edmonton ASAP for analysis (short HT)		EQ Pond Discharge		28/08/18		11:30		Water											
Are samples for human drinking water use? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No																					
SHIPMENT RELEASE (client use)		INITIAL SHIPMENT RECEPTION (lab use only)		SAMPLE CONDITION AS RECEIVED (lab use only)		Frozen <input type="checkbox"/>		SIF Observations Yes <input type="checkbox"/> No <input type="checkbox"/>		Ice packs Yes <input type="checkbox"/> No <input type="checkbox"/>		Custody seal intact Yes <input type="checkbox"/> No <input type="checkbox"/>		Cooling Initiated <input type="checkbox"/>		INITIAL COOLER TEMPERATURES °C		FINAL COOLER TEMPERATURES °C			
Released by: R Tobin		Date: August 12, 2018		Received by: Rm		Date: 8/30/18		Time: 8:47		Received by:		Date:		Time:		18-3					

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

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ALS-FM-0220v-001 Form 04 January 2014

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1. If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.



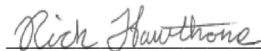
GHD Limited (Waterloo)
ATTN: LAURA ERMETA
455 PHILLIP STREET
WATERLOO ON N2L 3X2

Date Received: 08-NOV-18
Report Date: 21-NOV-18 10:38 (MT)
Version: FINAL

Client Phone: 519-884-0510

Certificate of Analysis

Lab Work Order #: L2193905
Project P.O. #: 73506479
Job Reference: 44985
C of C Numbers:
Legal Site Desc:



Rick Hawthorne
Account Manager

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ADDRESS: 60 Northland Road, Unit 1, Waterloo, ON N2V 2B8 Canada | Phone: +1 519 886 6910 | Fax: +1 519 886 9047
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ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2193905-1 EQ SAMPLE DISCHARGE							
Sampled By: CLIENT on 07-NOV-18 @ 11:30							
Matrix: WATER							
Field Tests							
pH, Client Supplied	8.30		0.10	pH		08-NOV-18	R4326168
Temperature, Client	4.0		-50	Deg. C		08-NOV-18	R4326168
Physical Tests							
Conductivity	605		3.0	umhos/cm		08-NOV-18	R4327688
Hardness (as CaCO3)	226	HTC	10	mg/L		12-NOV-18	
pH	7.95		0.10	pH units		08-NOV-18	R4327688
Total Suspended Solids	6.2		2.0	mg/L	12-NOV-18	13-NOV-18	R4329658
Total Dissolved Solids	369	DLDS	20	mg/L		11-NOV-18	R4329178
Anions and Nutrients							
Alkalinity, Total (as CaCO3)	111		10	mg/L		12-NOV-18	R4329212
Unionized ammonia	0.0138		0.00054	mg/L		09-NOV-18	
Ammonia, Total (as N)	0.507		0.020	mg/L		09-NOV-18	R4328037
Bromide (Br)	0.66		0.10	mg/L		12-NOV-18	R4329247
Chloride (Cl)	50.3		0.50	mg/L		12-NOV-18	R4329247
Fluoride (F)	0.543		0.020	mg/L		12-NOV-18	R4329247
Nitrate (as N)	0.136		0.020	mg/L		12-NOV-18	R4329247
Nitrite (as N)	<0.010		0.010	mg/L		12-NOV-18	R4329247
Total Kjeldahl Nitrogen	0.72		0.15	mg/L	13-NOV-18	14-NOV-18	R4334968
Phosphorus, Total	0.0192		0.0030	mg/L	09-NOV-18	12-NOV-18	R4329003
Sulfate (SO4)	111		0.30	mg/L		12-NOV-18	R4329247
Cyanides							
Cyanide, Total	<0.0020		0.0020	mg/L		09-NOV-18	R4329186
Organic / Inorganic Carbon							
Dissolved Carbon Filtration Location	LAB					09-NOV-18	R4327949
Dissolved Organic Carbon	4.58		0.50	mg/L	09-NOV-18	12-NOV-18	R4331622
Total Metals							
Aluminum (Al)-Total	0.232		0.010	mg/L	09-NOV-18	09-NOV-18	R4328120
Antimony (Sb)-Total	0.00042		0.00010	mg/L	09-NOV-18	09-NOV-18	R4328120
Arsenic (As)-Total	0.00129		0.00010	mg/L	09-NOV-18	09-NOV-18	R4328120
Barium (Ba)-Total	0.0398		0.00020	mg/L	09-NOV-18	09-NOV-18	R4328120
Beryllium (Be)-Total	<0.00010		0.00010	mg/L	09-NOV-18	09-NOV-18	R4328120
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	09-NOV-18	09-NOV-18	R4328120
Boron (B)-Total	0.153		0.010	mg/L	09-NOV-18	09-NOV-18	R4328120
Cadmium (Cd)-Total	<0.000030	DLM	0.000030	mg/L	09-NOV-18	09-NOV-18	R4328120
Calcium (Ca)-Total	60.9		0.50	mg/L	09-NOV-18	09-NOV-18	R4328120
Cobalt (Co)-Total	0.00024		0.00010	mg/L	09-NOV-18	09-NOV-18	R4328120
Copper (Cu)-Total	0.0013		0.0010	mg/L	09-NOV-18	09-NOV-18	R4328120
Iron (Fe)-Total	0.267		0.050	mg/L	09-NOV-18	09-NOV-18	R4328120
Lead (Pb)-Total	0.00020		0.00010	mg/L	09-NOV-18	09-NOV-18	R4328120
Magnesium (Mg)-Total	18.1		0.050	mg/L	09-NOV-18	09-NOV-18	R4328120
Manganese (Mn)-Total	0.0629		0.00050	mg/L	09-NOV-18	09-NOV-18	R4328120
Mercury (Hg)-Total	<0.000010		0.000010	mg/L		09-NOV-18	R4328123

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2193905-1 EQ SAMPLE DISCHARGE							
Sampled By: CLIENT on 07-NOV-18 @ 11:30							
Matrix: WATER							
Total Metals							
Molybdenum (Mo)-Total	0.0442		0.000050	mg/L	09-NOV-18	09-NOV-18	R4328120
Nickel (Ni)-Total	0.00341		0.00050	mg/L	09-NOV-18	09-NOV-18	R4328120
Potassium (K)-Total	7.64		0.050	mg/L	09-NOV-18	09-NOV-18	R4328120
Selenium (Se)-Total	0.000888		0.000050	mg/L	09-NOV-18	09-NOV-18	R4328120
Silicon (Si)-Total	2.17		0.10	mg/L	09-NOV-18	09-NOV-18	R4328120
Silver (Ag)-Total	<0.000050		0.000050	mg/L	09-NOV-18	09-NOV-18	R4328120
Sodium (Na)-Total	32.7		0.50	mg/L	09-NOV-18	09-NOV-18	R4328120
Strontium (Sr)-Total	0.510		0.0010	mg/L	09-NOV-18	09-NOV-18	R4328120
Thallium (Tl)-Total	0.000015		0.000010	mg/L	09-NOV-18	09-NOV-18	R4328120
Tin (Sn)-Total	<0.00010		0.00010	mg/L	09-NOV-18	09-NOV-18	R4328120
Vanadium (V)-Total	0.00084		0.00050	mg/L	09-NOV-18	09-NOV-18	R4328120
Zinc (Zn)-Total	<0.0030		0.0030	mg/L	09-NOV-18	09-NOV-18	R4328120
Speciated Metals							
Chromium, Hexavalent	<0.00050		0.00050	mg/L		08-NOV-18	R4327675
Aggregate Organics							
COD	18		10	mg/L		12-NOV-18	R4329389
Phenols (4AAP)	<0.0010		0.0010	mg/L		14-NOV-18	R4336894
Volatile Organic Compounds							
Acetone	<20		20	ug/L		14-NOV-18	R4332534
Benzene	<0.50		0.50	ug/L		14-NOV-18	R4332534
Bromodichloromethane	<1.0		1.0	ug/L		14-NOV-18	R4332534
Bromoform	<1.0		1.0	ug/L		14-NOV-18	R4332534
Bromomethane	<0.50		0.50	ug/L		14-NOV-18	R4332534
Carbon tetrachloride	<0.50		0.50	ug/L		14-NOV-18	R4332534
Chlorobenzene	<0.50		0.50	ug/L		14-NOV-18	R4332534
Dibromochloromethane	<1.0		1.0	ug/L		14-NOV-18	R4332534
Chloroethane	<1.0		1.0	ug/L		14-NOV-18	R4332534
Chloroform	<1.0		1.0	ug/L		14-NOV-18	R4332534
1,2-Dibromoethane	<0.20		0.20	ug/L		14-NOV-18	R4332534
1,2-Dichlorobenzene	<0.50		0.50	ug/L		14-NOV-18	R4332534
1,3-Dichlorobenzene	<0.50		0.50	ug/L		14-NOV-18	R4332534
1,4-Dichlorobenzene	<0.50		0.50	ug/L		14-NOV-18	R4332534
Dichlorodifluoromethane	<1.0		1.0	ug/L		14-NOV-18	R4332534
1,1-Dichloroethane	<0.50		0.50	ug/L		14-NOV-18	R4332534
1,2-Dichloroethane	<0.50		0.50	ug/L		14-NOV-18	R4332534
1,1-Dichloroethylene	<0.50		0.50	ug/L		14-NOV-18	R4332534
cis-1,2-Dichloroethylene	<0.50		0.50	ug/L		14-NOV-18	R4332534
trans-1,2-Dichloroethylene	<0.50		0.50	ug/L		14-NOV-18	R4332534
Dichloromethane	<2.0		2.0	ug/L		14-NOV-18	R4332534
1,2-Dichloropropane	<0.50		0.50	ug/L		14-NOV-18	R4332534
cis-1,3-Dichloropropene	<0.50		0.50	ug/L		14-NOV-18	R4332534
trans-1,3-Dichloropropene	<0.50		0.50	ug/L		14-NOV-18	R4332534

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2193905-1 EQ SAMPLE DISCHARGE							
Sampled By: CLIENT on 07-NOV-18 @ 11:30							
Matrix: WATER							
Volatile Organic Compounds							
Ethylbenzene	<0.50		0.50	ug/L		14-NOV-18	R4332534
n-Hexane	<0.50		0.50	ug/L		14-NOV-18	R4332534
Methyl Ethyl Ketone	<20		20	ug/L		14-NOV-18	R4332534
Methyl Isobutyl Ketone	<20		20	ug/L		14-NOV-18	R4332534
MTBE	<0.50		0.50	ug/L		14-NOV-18	R4332534
Styrene	<0.50		0.50	ug/L		14-NOV-18	R4332534
1,1,1,2-Tetrachloroethane	<0.50		0.50	ug/L		14-NOV-18	R4332534
1,1,2,2-Tetrachloroethane	<0.50		0.50	ug/L		14-NOV-18	R4332534
Tetrachloroethylene	<0.50		0.50	ug/L		14-NOV-18	R4332534
Toluene	<0.50		0.50	ug/L		14-NOV-18	R4332534
1,1,1-Trichloroethane	<0.50		0.50	ug/L		14-NOV-18	R4332534
1,1,2-Trichloroethane	<0.50		0.50	ug/L		14-NOV-18	R4332534
Trichloroethylene	<0.50		0.50	ug/L		14-NOV-18	R4332534
Trichlorofluoromethane	<1.0		1.0	ug/L		14-NOV-18	R4332534
Vinyl chloride	<0.50		0.50	ug/L		14-NOV-18	R4332534
o-Xylene	<0.50		0.50	ug/L		14-NOV-18	R4332534
m+p-Xylenes	<1.0		1.0	ug/L		14-NOV-18	R4332534
Xylenes (Total)	<1.1		1.1	ug/L		14-NOV-18	
Surrogate: 4-Bromofluorobenzene	93.6		70-130	%		14-NOV-18	R4332534
Surrogate: 1,4-Difluorobenzene	103.1		70-130	%		14-NOV-18	R4332534
Trihalomethanes							
Total THMs	<2.0		2.0	ug/L		14-NOV-18	
Acid Extractables							
2,3,6-Trichlorophenol	<0.50		0.50	ug/L	13-NOV-18	20-NOV-18	R4345207
Surrogate: 2,4,6-Tribromophenol	98.4		40-150	%	13-NOV-18	20-NOV-18	R4345207
Semi-Volatile Organics							
Acenaphthene	<0.20		0.20	ug/L	13-NOV-18	16-NOV-18	R4332230
Acenaphthylene	<0.20		0.20	ug/L	13-NOV-18	16-NOV-18	R4332230
Anthracene	<0.20		0.20	ug/L	13-NOV-18	16-NOV-18	R4332230
Benzo(a)anthracene	<0.20		0.20	ug/L	13-NOV-18	16-NOV-18	R4332230
Benzo(a)pyrene	<0.050		0.050	ug/L	13-NOV-18	16-NOV-18	R4332230
Benzo(b)fluoranthene	<0.20		0.20	ug/L	13-NOV-18	16-NOV-18	R4332230
Benzo(ghi)perylene	<0.20		0.20	ug/L	13-NOV-18	16-NOV-18	R4332230
Benzo(k)fluoranthene	<0.20		0.20	ug/L	13-NOV-18	16-NOV-18	R4332230
4-Chloroaniline	<0.40		0.40	ug/L	13-NOV-18	16-NOV-18	R4332230
Bis(2-chloroethyl)ether	<0.40		0.40	ug/L	13-NOV-18	16-NOV-18	R4332230
2-Chlorophenol	<0.30		0.30	ug/L	13-NOV-18	16-NOV-18	R4332230
Chrysene	<0.20		0.20	ug/L	13-NOV-18	16-NOV-18	R4332230
Dibenzo(a,h)anthracene	<0.20		0.20	ug/L	13-NOV-18	16-NOV-18	R4332230
1,2-Dichlorobenzene	<0.40		0.40	ug/L	13-NOV-18	16-NOV-18	R4332230
1,3-Dichlorobenzene	<0.40		0.40	ug/L	13-NOV-18	16-NOV-18	R4332230
1,4-Dichlorobenzene	<0.40		0.40	ug/L	13-NOV-18	16-NOV-18	R4332230

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2193905-1 EQ SAMPLE DISCHARGE Sampled By: CLIENT on 07-NOV-18 @ 11:30 Matrix: WATER							
Semi-Volatile Organics							
3,3'-Dichlorobenzidine	<0.40		0.40	ug/L	13-NOV-18	16-NOV-18	R4332230
2,4-Dichlorophenol	<0.30		0.30	ug/L	13-NOV-18	16-NOV-18	R4332230
Diethylphthalate	<0.20		0.20	ug/L	13-NOV-18	16-NOV-18	R4332230
Dimethylphthalate	<0.20		0.20	ug/L	13-NOV-18	16-NOV-18	R4332230
2,4-Dimethylphenol	<0.50		0.50	ug/L	13-NOV-18	16-NOV-18	R4332230
2,4-Dinitrophenol	<1.0		1.0	ug/L	13-NOV-18	16-NOV-18	R4332230
2,4-Dinitrotoluene	<0.40		0.40	ug/L	13-NOV-18	16-NOV-18	R4332230
2,6-Dinitrotoluene	<0.40		0.40	ug/L	13-NOV-18	16-NOV-18	R4332230
Bis(2-ethylhexyl)phthalate	<2.0		2.0	ug/L	13-NOV-18	16-NOV-18	R4332230
Fluoranthene	<0.20		0.20	ug/L	13-NOV-18	16-NOV-18	R4332230
Fluorene	<0.20		0.20	ug/L	13-NOV-18	16-NOV-18	R4332230
Hexachlorobenzene	<0.040		0.040	ug/L	13-NOV-18	16-NOV-18	R4332230
Hexachlorobutadiene	<0.20		0.20	ug/L	13-NOV-18	16-NOV-18	R4332230
Indeno(1,2,3-cd)pyrene	<0.20		0.20	ug/L	13-NOV-18	16-NOV-18	R4332230
1-Methylnaphthalene	<0.40		0.40	ug/L	13-NOV-18	16-NOV-18	R4332230
2-Methylnaphthalene	<0.40		0.40	ug/L	13-NOV-18	16-NOV-18	R4332230
Naphthalene	<0.20		0.20	ug/L	13-NOV-18	16-NOV-18	R4332230
Pentachlorophenol	<0.50		0.50	ug/L	13-NOV-18	16-NOV-18	R4332230
Perylene	<0.20		0.20	ug/L	13-NOV-18	16-NOV-18	R4332230
Phenanthrene	<0.20		0.20	ug/L	13-NOV-18	16-NOV-18	R4332230
Pyrene	<0.20		0.20	ug/L	13-NOV-18	16-NOV-18	R4332230
2,3,4,5-Tetrachlorophenol	<0.50		0.50	ug/L	13-NOV-18	16-NOV-18	R4332230
2,3,4,6-Tetrachlorophenol	<0.50		0.50	ug/L	13-NOV-18	16-NOV-18	R4332230
1,2,4-Trichlorobenzene	<0.40		0.40	ug/L	13-NOV-18	16-NOV-18	R4332230
2,4,5-Trichlorophenol	<0.50		0.50	ug/L	13-NOV-18	16-NOV-18	R4332230
2,4,6-Trichlorophenol	<0.50		0.50	ug/L	13-NOV-18	16-NOV-18	R4332230
Surrogate: 2-Fluorobiphenyl	90.2		40-130	%	13-NOV-18	16-NOV-18	R4332230
Surrogate: Nitrobenzene d5	93.0		40-130	%	13-NOV-18	16-NOV-18	R4332230
Surrogate: p-Terphenyl d14	96.4		40-130	%	13-NOV-18	16-NOV-18	R4332230
Report Remarks : DLM - Cd LOR increased due to potential interference from Mo							
L2193905-2 WEST STORM WATER POND Sampled By: CLIENT on 07-NOV-18 @ 11:30 Matrix: WATER							
Field Tests							
pH, Client Supplied	8.30		0.10	pH		08-NOV-18	R4326168
Temperature, Client	6.0		-50	Deg. C		08-NOV-18	R4326168
Physical Tests							
Conductivity	643		3.0	umhos/cm		08-NOV-18	R4327688
Hardness (as CaCO3)	244	HTC	10	mg/L		12-NOV-18	
pH	8.08		0.10	pH units		08-NOV-18	R4327688
Total Suspended Solids	7.9		2.0	mg/L	12-NOV-18	13-NOV-18	R4329658
Total Dissolved Solids	383	DLDS	20	mg/L		11-NOV-18	R4329178

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2193905-2 WEST STORM WATER POND Sampled By: CLIENT on 07-NOV-18 @ 11:30 Matrix: WATER							
Physical Tests							
Anions and Nutrients							
Alkalinity, Total (as CaCO ₃)	131		10	mg/L		12-NOV-18	R4329212
Unionized ammonia	0.0536		0.0064	mg/L		12-NOV-18	
Ammonia, Total (as N)	1.68	DLHC	0.20	mg/L		12-NOV-18	R4329228
Bromide (Br)	0.71		0.10	mg/L		12-NOV-18	R4329247
Chloride (Cl)	57.3		0.50	mg/L		12-NOV-18	R4329247
Fluoride (F)	0.515		0.020	mg/L		12-NOV-18	R4329247
Nitrate (as N)	0.155		0.020	mg/L		12-NOV-18	R4329247
Nitrite (as N)	<0.010		0.010	mg/L		12-NOV-18	R4329247
Total Kjeldahl Nitrogen	2.55		0.15	mg/L	13-NOV-18	14-NOV-18	R4334968
Phosphorus, Total	0.0296		0.0030	mg/L	13-NOV-18	14-NOV-18	R4331656
Sulfate (SO ₄)	108		0.30	mg/L		12-NOV-18	R4329247
Cyanides							
Cyanide, Total	<0.0020		0.0020	mg/L		09-NOV-18	R4329186
Organic / Inorganic Carbon							
Dissolved Carbon Filtration Location	LAB					09-NOV-18	R4327949
Dissolved Organic Carbon	6.16		0.50	mg/L	09-NOV-18	12-NOV-18	R4331622
Total Metals							
Aluminum (Al)-Total	0.564		0.010	mg/L	09-NOV-18	09-NOV-18	R4328120
Antimony (Sb)-Total	0.00041		0.00010	mg/L	09-NOV-18	09-NOV-18	R4328120
Arsenic (As)-Total	0.00136		0.00010	mg/L	09-NOV-18	09-NOV-18	R4328120
Barium (Ba)-Total	0.0552		0.00020	mg/L	09-NOV-18	09-NOV-18	R4328120
Beryllium (Be)-Total	<0.00010		0.00010	mg/L	09-NOV-18	09-NOV-18	R4328120
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	09-NOV-18	09-NOV-18	R4328120
Boron (B)-Total	0.172		0.010	mg/L	09-NOV-18	09-NOV-18	R4328120
Cadmium (Cd)-Total	<0.000040	DLM	0.000040	mg/L	09-NOV-18	09-NOV-18	R4328120
Calcium (Ca)-Total	67.7		0.50	mg/L	09-NOV-18	09-NOV-18	R4328120
Cobalt (Co)-Total	0.00051		0.00010	mg/L	09-NOV-18	09-NOV-18	R4328120
Copper (Cu)-Total	0.0036		0.0010	mg/L	09-NOV-18	09-NOV-18	R4328120
Iron (Fe)-Total	0.628		0.050	mg/L	09-NOV-18	09-NOV-18	R4328120
Lead (Pb)-Total	0.00055		0.00010	mg/L	09-NOV-18	09-NOV-18	R4328120
Magnesium (Mg)-Total	18.2		0.050	mg/L	09-NOV-18	09-NOV-18	R4328120
Manganese (Mn)-Total	0.0369		0.00050	mg/L	09-NOV-18	09-NOV-18	R4328120
Mercury (Hg)-Total	<0.000010		0.000010	mg/L		09-NOV-18	R4328123
Molybdenum (Mo)-Total	0.0469		0.000050	mg/L	09-NOV-18	09-NOV-18	R4328120
Nickel (Ni)-Total	0.00438		0.00050	mg/L	09-NOV-18	09-NOV-18	R4328120
Potassium (K)-Total	9.66		0.050	mg/L	09-NOV-18	09-NOV-18	R4328120
Selenium (Se)-Total	0.000956		0.000050	mg/L	09-NOV-18	09-NOV-18	R4328120
Silicon (Si)-Total	3.03		0.10	mg/L	09-NOV-18	09-NOV-18	R4328120
Silver (Ag)-Total	<0.000050		0.000050	mg/L	09-NOV-18	09-NOV-18	R4328120
Sodium (Na)-Total	37.0		0.50	mg/L	09-NOV-18	09-NOV-18	R4328120
Strontium (Sr)-Total	0.519		0.0010	mg/L	09-NOV-18	09-NOV-18	R4328120

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2193905-2 WEST STORM WATER POND							
Sampled By: CLIENT on 07-NOV-18 @ 11:30							
Matrix: WATER							
Total Metals							
Thallium (Tl)-Total	0.000022		0.000010	mg/L	09-NOV-18	09-NOV-18	R4328120
Tin (Sn)-Total	<0.00010		0.00010	mg/L	09-NOV-18	09-NOV-18	R4328120
Vanadium (V)-Total	0.00144		0.00050	mg/L	09-NOV-18	09-NOV-18	R4328120
Zinc (Zn)-Total	0.0052		0.0030	mg/L	09-NOV-18	09-NOV-18	R4328120
Speciated Metals							
Chromium, Hexavalent	<0.00050		0.00050	mg/L		08-NOV-18	R4327675
Aggregate Organics							
COD	20		10	mg/L		12-NOV-18	R4329389
Phenols (4AAP)	0.0013		0.0010	mg/L		14-NOV-18	R4336894
Volatile Organic Compounds							
Acetone	<20		20	ug/L		14-NOV-18	R4332534
Benzene	<0.50		0.50	ug/L		14-NOV-18	R4332534
Bromodichloromethane	<1.0		1.0	ug/L		14-NOV-18	R4332534
Bromoform	<1.0		1.0	ug/L		14-NOV-18	R4332534
Bromomethane	<0.50		0.50	ug/L		14-NOV-18	R4332534
Carbon tetrachloride	<0.50		0.50	ug/L		14-NOV-18	R4332534
Chlorobenzene	<0.50		0.50	ug/L		14-NOV-18	R4332534
Dibromochloromethane	<1.0		1.0	ug/L		14-NOV-18	R4332534
Chloroethane	<1.0		1.0	ug/L		14-NOV-18	R4332534
Chloroform	<1.0		1.0	ug/L		14-NOV-18	R4332534
1,2-Dibromoethane	<0.20		0.20	ug/L		14-NOV-18	R4332534
1,2-Dichlorobenzene	<0.50		0.50	ug/L		14-NOV-18	R4332534
1,3-Dichlorobenzene	<0.50		0.50	ug/L		14-NOV-18	R4332534
1,4-Dichlorobenzene	<0.50		0.50	ug/L		14-NOV-18	R4332534
Dichlorodifluoromethane	<1.0		1.0	ug/L		14-NOV-18	R4332534
1,1-Dichloroethane	<0.50		0.50	ug/L		14-NOV-18	R4332534
1,2-Dichloroethane	<0.50		0.50	ug/L		14-NOV-18	R4332534
1,1-Dichloroethylene	<0.50		0.50	ug/L		14-NOV-18	R4332534
cis-1,2-Dichloroethylene	<0.50		0.50	ug/L		14-NOV-18	R4332534
trans-1,2-Dichloroethylene	<0.50		0.50	ug/L		14-NOV-18	R4332534
Dichloromethane	<2.0		2.0	ug/L		14-NOV-18	R4332534
1,2-Dichloropropane	<0.50		0.50	ug/L		14-NOV-18	R4332534
cis-1,3-Dichloropropene	<0.50		0.50	ug/L		14-NOV-18	R4332534
trans-1,3-Dichloropropene	<0.50		0.50	ug/L		14-NOV-18	R4332534
Ethylbenzene	<0.50		0.50	ug/L		14-NOV-18	R4332534
n-Hexane	<0.50		0.50	ug/L		14-NOV-18	R4332534
Methyl Ethyl Ketone	<20		20	ug/L		14-NOV-18	R4332534
Methyl Isobutyl Ketone	<20		20	ug/L		14-NOV-18	R4332534
MTBE	<0.50		0.50	ug/L		14-NOV-18	R4332534
Styrene	<0.50		0.50	ug/L		14-NOV-18	R4332534
1,1,1,2-Tetrachloroethane	<0.50		0.50	ug/L		14-NOV-18	R4332534
1,1,2,2-Tetrachloroethane	<0.50		0.50	ug/L		14-NOV-18	R4332534

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ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2193905-2 WEST STORM WATER POND Sampled By: CLIENT on 07-NOV-18 @ 11:30 Matrix: WATER							
Volatile Organic Compounds							
Tetrachloroethylene	<0.50		0.50	ug/L		14-NOV-18	R4332534
Toluene	<0.50		0.50	ug/L		14-NOV-18	R4332534
1,1,1-Trichloroethane	<0.50		0.50	ug/L		14-NOV-18	R4332534
1,1,2-Trichloroethane	<0.50		0.50	ug/L		14-NOV-18	R4332534
Trichloroethylene	<0.50		0.50	ug/L		14-NOV-18	R4332534
Trichlorofluoromethane	<1.0		1.0	ug/L		14-NOV-18	R4332534
Vinyl chloride	<0.50		0.50	ug/L		14-NOV-18	R4332534
o-Xylene	<0.50		0.50	ug/L		14-NOV-18	R4332534
m+p-Xylenes	<1.0		1.0	ug/L		14-NOV-18	R4332534
Xylenes (Total)	<1.1		1.1	ug/L		14-NOV-18	
Surrogate: 4-Bromofluorobenzene	93.0		70-130	%		14-NOV-18	R4332534
Surrogate: 1,4-Difluorobenzene	103.7		70-130	%		14-NOV-18	R4332534
Trihalomethanes							
Total THMs	<2.0		2.0	ug/L		14-NOV-18	
Acid Extractables							
2,3,6-Trichlorophenol	<0.50		0.50	ug/L	13-NOV-18	20-NOV-18	R4345207
Surrogate: 2,4,6-Tribromophenol	114.1		40-150	%	13-NOV-18	20-NOV-18	R4345207
Semi-Volatile Organics							
Acenaphthene	<0.20		0.20	ug/L	13-NOV-18	16-NOV-18	R4332230
Acenaphthylene	<0.20		0.20	ug/L	13-NOV-18	16-NOV-18	R4332230
Anthracene	<0.20		0.20	ug/L	13-NOV-18	16-NOV-18	R4332230
Benzo(a)anthracene	<0.20		0.20	ug/L	13-NOV-18	16-NOV-18	R4332230
Benzo(a)pyrene	<0.050		0.050	ug/L	13-NOV-18	16-NOV-18	R4332230
Benzo(b)fluoranthene	<0.20		0.20	ug/L	13-NOV-18	16-NOV-18	R4332230
Benzo(ghi)perylene	<0.20		0.20	ug/L	13-NOV-18	16-NOV-18	R4332230
Benzo(k)fluoranthene	<0.20		0.20	ug/L	13-NOV-18	16-NOV-18	R4332230
4-Chloroaniline	<0.40		0.40	ug/L	13-NOV-18	16-NOV-18	R4332230
Bis(2-chloroethyl)ether	<0.40		0.40	ug/L	13-NOV-18	16-NOV-18	R4332230
2-Chlorophenol	<0.30		0.30	ug/L	13-NOV-18	16-NOV-18	R4332230
Chrysene	<0.20		0.20	ug/L	13-NOV-18	16-NOV-18	R4332230
Dibenzo(a,h)anthracene	<0.20		0.20	ug/L	13-NOV-18	16-NOV-18	R4332230
1,2-Dichlorobenzene	<0.40		0.40	ug/L	13-NOV-18	16-NOV-18	R4332230
1,3-Dichlorobenzene	<0.40		0.40	ug/L	13-NOV-18	16-NOV-18	R4332230
1,4-Dichlorobenzene	<0.40		0.40	ug/L	13-NOV-18	16-NOV-18	R4332230
3,3'-Dichlorobenzidine	<0.40		0.40	ug/L	13-NOV-18	16-NOV-18	R4332230
2,4-Dichlorophenol	<0.30		0.30	ug/L	13-NOV-18	16-NOV-18	R4332230
Diethylphthalate	<0.20		0.20	ug/L	13-NOV-18	16-NOV-18	R4332230
Dimethylphthalate	<0.20		0.20	ug/L	13-NOV-18	16-NOV-18	R4332230
2,4-Dimethylphenol	<0.50		0.50	ug/L	13-NOV-18	16-NOV-18	R4332230
2,4-Dinitrophenol	<1.0		1.0	ug/L	13-NOV-18	16-NOV-18	R4332230
2,4-Dinitrotoluene	<0.40		0.40	ug/L	13-NOV-18	16-NOV-18	R4332230
2,6-Dinitrotoluene	<0.40		0.40	ug/L	13-NOV-18	16-NOV-18	R4332230

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ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2193905-2 WEST STORM WATER POND Sampled By: CLIENT on 07-NOV-18 @ 11:30 Matrix: WATER							
Semi-Volatile Organics							
Bis(2-ethylhexyl)phthalate	<2.0		2.0	ug/L	13-NOV-18	16-NOV-18	R4332230
Fluoranthene	<0.20		0.20	ug/L	13-NOV-18	16-NOV-18	R4332230
Fluorene	<0.20		0.20	ug/L	13-NOV-18	16-NOV-18	R4332230
Hexachlorobenzene	<0.040		0.040	ug/L	13-NOV-18	16-NOV-18	R4332230
Hexachlorobutadiene	<0.20		0.20	ug/L	13-NOV-18	16-NOV-18	R4332230
Indeno(1,2,3-cd)pyrene	<0.20		0.20	ug/L	13-NOV-18	16-NOV-18	R4332230
1-Methylnaphthalene	<0.40		0.40	ug/L	13-NOV-18	16-NOV-18	R4332230
2-Methylnaphthalene	<0.40		0.40	ug/L	13-NOV-18	16-NOV-18	R4332230
Naphthalene	<0.20		0.20	ug/L	13-NOV-18	16-NOV-18	R4332230
Pentachlorophenol	<0.50		0.50	ug/L	13-NOV-18	16-NOV-18	R4332230
Perylene	<0.20		0.20	ug/L	13-NOV-18	16-NOV-18	R4332230
Phenanthrene	<0.20		0.20	ug/L	13-NOV-18	16-NOV-18	R4332230
Pyrene	<0.20		0.20	ug/L	13-NOV-18	16-NOV-18	R4332230
2,3,4,5-Tetrachlorophenol	<0.50		0.50	ug/L	13-NOV-18	16-NOV-18	R4332230
2,3,4,6-Tetrachlorophenol	<0.50		0.50	ug/L	13-NOV-18	16-NOV-18	R4332230
1,2,4-Trichlorobenzene	<0.40		0.40	ug/L	13-NOV-18	16-NOV-18	R4332230
2,4,5-Trichlorophenol	<0.50		0.50	ug/L	13-NOV-18	16-NOV-18	R4332230
2,4,6-Trichlorophenol	<0.50		0.50	ug/L	13-NOV-18	16-NOV-18	R4332230
Surrogate: 2-Fluorobiphenyl	97.0		40-130	%	13-NOV-18	16-NOV-18	R4332230
Surrogate: Nitrobenzene d5	99.0		40-130	%	13-NOV-18	16-NOV-18	R4332230
Surrogate: p-Terphenyl d14	101.8		40-130	%	13-NOV-18	16-NOV-18	R4332230
Report Remarks : DLM - Cd LOR increased due to potential interference from Mo							
L2193905-3 EAST STORM WATER POND Sampled By: CLIENT on 07-NOV-18 @ 11:30 Matrix: WATER							
Field Tests							
pH, Client Supplied	8.30		0.10	pH		08-NOV-18	R4326168
Temperature, Client	6.0		-50	Deg. C		08-NOV-18	R4326168
Physical Tests							
Conductivity	662		3.0	umhos/cm		08-NOV-18	R4327688
Hardness (as CaCO3)	251	HTC	10	mg/L		12-NOV-18	
pH	7.78		0.10	pH units		08-NOV-18	R4327688
Total Suspended Solids	15.0		2.0	mg/L	12-NOV-18	13-NOV-18	R4329658
Total Dissolved Solids	433	DLDS	20	mg/L		11-NOV-18	R4329178
Anions and Nutrients							
Alkalinity, Total (as CaCO3)	144		10	mg/L		12-NOV-18	R4329212
Unionized ammonia	0.0186		0.0013	mg/L		16-NOV-18	
Ammonia, Total (as N)	0.584	DLM	0.040	mg/L		16-NOV-18	R4339995
Bromide (Br)	0.76		0.10	mg/L		12-NOV-18	R4329247
Chloride (Cl)	54.8		0.50	mg/L		12-NOV-18	R4329247
Fluoride (F)	0.574		0.020	mg/L		12-NOV-18	R4329247
Nitrate (as N)	0.072		0.020	mg/L		12-NOV-18	R4329247

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ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2193905-3 EAST STORM WATER POND Sampled By: CLIENT on 07-NOV-18 @ 11:30 Matrix: WATER							
Anions and Nutrients							
Nitrite (as N)	<0.010		0.010	mg/L		12-NOV-18	R4329247
Total Kjeldahl Nitrogen	1.31		0.15	mg/L	13-NOV-18	14-NOV-18	R4334968
Phosphorus, Total	0.0542		0.0030	mg/L	13-NOV-18	14-NOV-18	R4331656
Sulfate (SO4)	113		0.30	mg/L		12-NOV-18	R4329247
Cyanides							
Cyanide, Total	<0.0020		0.0020	mg/L		09-NOV-18	R4329186
Organic / Inorganic Carbon							
Dissolved Carbon Filtration Location	LAB					09-NOV-18	R4327949
Dissolved Organic Carbon	7.26		0.50	mg/L	09-NOV-18	12-NOV-18	R4331622
Total Metals							
Aluminum (Al)-Total	1.31		0.010	mg/L	09-NOV-18	09-NOV-18	R4328120
Antimony (Sb)-Total	0.00055		0.00010	mg/L	09-NOV-18	09-NOV-18	R4328120
Arsenic (As)-Total	0.00209		0.00010	mg/L	09-NOV-18	09-NOV-18	R4328120
Barium (Ba)-Total	0.0649		0.00020	mg/L	09-NOV-18	09-NOV-18	R4328120
Beryllium (Be)-Total	<0.00010		0.00010	mg/L	09-NOV-18	09-NOV-18	R4328120
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	09-NOV-18	09-NOV-18	R4328120
Boron (B)-Total	0.099		0.010	mg/L	09-NOV-18	09-NOV-18	R4328120
Cadmium (Cd)-Total	<0.00020	DLM	0.00020	mg/L	09-NOV-18	09-NOV-18	R4328120
Calcium (Ca)-Total	69.5		0.50	mg/L	09-NOV-18	09-NOV-18	R4328120
Cobalt (Co)-Total	0.00121		0.00010	mg/L	09-NOV-18	09-NOV-18	R4328120
Copper (Cu)-Total	0.0034		0.0010	mg/L	09-NOV-18	09-NOV-18	R4328120
Iron (Fe)-Total	1.68		0.050	mg/L	09-NOV-18	09-NOV-18	R4328120
Lead (Pb)-Total	0.00259		0.00010	mg/L	09-NOV-18	09-NOV-18	R4328120
Magnesium (Mg)-Total	18.9		0.050	mg/L	09-NOV-18	09-NOV-18	R4328120
Manganese (Mn)-Total	0.0809		0.00050	mg/L	09-NOV-18	09-NOV-18	R4328120
Mercury (Hg)-Total	0.000053		0.000010	mg/L		09-NOV-18	R4328123
Molybdenum (Mo)-Total	0.0582		0.000050	mg/L	09-NOV-18	09-NOV-18	R4328120
Nickel (Ni)-Total	0.00624		0.00050	mg/L	09-NOV-18	09-NOV-18	R4328120
Potassium (K)-Total	16.8		0.050	mg/L	09-NOV-18	09-NOV-18	R4328120
Selenium (Se)-Total	0.00121		0.000050	mg/L	09-NOV-18	09-NOV-18	R4328120
Silicon (Si)-Total	5.20		0.10	mg/L	09-NOV-18	09-NOV-18	R4328120
Silver (Ag)-Total	<0.000050		0.000050	mg/L	09-NOV-18	09-NOV-18	R4328120
Sodium (Na)-Total	35.6		0.50	mg/L	09-NOV-18	09-NOV-18	R4328120
Strontium (Sr)-Total	0.560		0.0010	mg/L	09-NOV-18	09-NOV-18	R4328120
Thallium (Tl)-Total	0.000046		0.000010	mg/L	09-NOV-18	09-NOV-18	R4328120
Tin (Sn)-Total	0.00013		0.00010	mg/L	09-NOV-18	09-NOV-18	R4328120
Vanadium (V)-Total	0.00330		0.00050	mg/L	09-NOV-18	09-NOV-18	R4328120
Zinc (Zn)-Total	0.0176		0.0030	mg/L	09-NOV-18	09-NOV-18	R4328120
Speciated Metals							
Chromium, Hexavalent	0.00053		0.00050	mg/L		08-NOV-18	R4327675
Aggregate Organics							
COD	32		10	mg/L		12-NOV-18	R4329389

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2193905-3 EAST STORM WATER POND Sampled By: CLIENT on 07-NOV-18 @ 11:30 Matrix: WATER							
Aggregate Organics							
Phenols (4AAP)	0.0017		0.0010	mg/L		14-NOV-18	R4336894
Volatile Organic Compounds							
Acetone	<20		20	ug/L		14-NOV-18	R4332534
Benzene	<0.50		0.50	ug/L		14-NOV-18	R4332534
Bromodichloromethane	<1.0		1.0	ug/L		14-NOV-18	R4332534
Bromoform	<1.0		1.0	ug/L		14-NOV-18	R4332534
Bromomethane	<0.50		0.50	ug/L		14-NOV-18	R4332534
Carbon tetrachloride	<0.50		0.50	ug/L		14-NOV-18	R4332534
Chlorobenzene	<0.50		0.50	ug/L		14-NOV-18	R4332534
Dibromochloromethane	<1.0		1.0	ug/L		14-NOV-18	R4332534
Chloroethane	<1.0		1.0	ug/L		14-NOV-18	R4332534
Chloroform	<1.0		1.0	ug/L		14-NOV-18	R4332534
1,2-Dibromoethane	<0.20		0.20	ug/L		14-NOV-18	R4332534
1,2-Dichlorobenzene	<0.50		0.50	ug/L		14-NOV-18	R4332534
1,3-Dichlorobenzene	<0.50		0.50	ug/L		14-NOV-18	R4332534
1,4-Dichlorobenzene	<0.50		0.50	ug/L		14-NOV-18	R4332534
Dichlorodifluoromethane	<1.0		1.0	ug/L		14-NOV-18	R4332534
1,1-Dichloroethane	<0.50		0.50	ug/L		14-NOV-18	R4332534
1,2-Dichloroethane	<0.50		0.50	ug/L		14-NOV-18	R4332534
1,1-Dichloroethylene	<0.50		0.50	ug/L		14-NOV-18	R4332534
cis-1,2-Dichloroethylene	<0.50		0.50	ug/L		14-NOV-18	R4332534
trans-1,2-Dichloroethylene	<0.50		0.50	ug/L		14-NOV-18	R4332534
Dichloromethane	<2.0		2.0	ug/L		14-NOV-18	R4332534
1,2-Dichloropropane	<0.50		0.50	ug/L		14-NOV-18	R4332534
cis-1,3-Dichloropropene	<0.50		0.50	ug/L		14-NOV-18	R4332534
trans-1,3-Dichloropropene	<0.50		0.50	ug/L		14-NOV-18	R4332534
Ethylbenzene	<0.50		0.50	ug/L		14-NOV-18	R4332534
n-Hexane	<0.50		0.50	ug/L		14-NOV-18	R4332534
Methyl Ethyl Ketone	<20		20	ug/L		14-NOV-18	R4332534
Methyl Isobutyl Ketone	<20		20	ug/L		14-NOV-18	R4332534
MTBE	<0.50		0.50	ug/L		14-NOV-18	R4332534
Styrene	<0.50		0.50	ug/L		14-NOV-18	R4332534
1,1,1,2-Tetrachloroethane	<0.50		0.50	ug/L		14-NOV-18	R4332534
1,1,2,2-Tetrachloroethane	<0.50		0.50	ug/L		14-NOV-18	R4332534
Tetrachloroethylene	<0.50		0.50	ug/L		14-NOV-18	R4332534
Toluene	<0.50		0.50	ug/L		14-NOV-18	R4332534
1,1,1-Trichloroethane	<0.50		0.50	ug/L		14-NOV-18	R4332534
1,1,2-Trichloroethane	<0.50		0.50	ug/L		14-NOV-18	R4332534
Trichloroethylene	<0.50		0.50	ug/L		14-NOV-18	R4332534
Trichlorofluoromethane	<1.0		1.0	ug/L		14-NOV-18	R4332534
Vinyl chloride	<0.50		0.50	ug/L		14-NOV-18	R4332534

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2193905-3 EAST STORM WATER POND Sampled By: CLIENT on 07-NOV-18 @ 11:30 Matrix: WATER							
Volatile Organic Compounds							
o-Xylene	<0.50		0.50	ug/L		14-NOV-18	R4332534
m+p-Xylenes	<1.0		1.0	ug/L		14-NOV-18	R4332534
Xylenes (Total)	<1.1		1.1	ug/L		14-NOV-18	
Surrogate: 4-Bromofluorobenzene	92.7		70-130	%		14-NOV-18	R4332534
Surrogate: 1,4-Difluorobenzene	103.4		70-130	%		14-NOV-18	R4332534
Trihalomethanes							
Total THMs	<2.0		2.0	ug/L		14-NOV-18	
Acid Extractables							
2,3,6-Trichlorophenol	<0.50		0.50	ug/L	13-NOV-18	20-NOV-18	R4345207
Surrogate: 2,4,6-Tribromophenol	113.7		40-150	%	13-NOV-18	20-NOV-18	R4345207
Semi-Volatile Organics							
Acenaphthene	<0.20		0.20	ug/L	13-NOV-18	16-NOV-18	R4332230
Acenaphthylene	<0.20		0.20	ug/L	13-NOV-18	16-NOV-18	R4332230
Anthracene	<0.20		0.20	ug/L	13-NOV-18	16-NOV-18	R4332230
Benzo(a)anthracene	<0.20		0.20	ug/L	13-NOV-18	16-NOV-18	R4332230
Benzo(a)pyrene	<0.050		0.050	ug/L	13-NOV-18	16-NOV-18	R4332230
Benzo(b)fluoranthene	<0.20		0.20	ug/L	13-NOV-18	16-NOV-18	R4332230
Benzo(ghi)perylene	<0.20		0.20	ug/L	13-NOV-18	16-NOV-18	R4332230
Benzo(k)fluoranthene	<0.20		0.20	ug/L	13-NOV-18	16-NOV-18	R4332230
4-Chloroaniline	<0.40		0.40	ug/L	13-NOV-18	16-NOV-18	R4332230
Bis(2-chloroethyl)ether	<0.40		0.40	ug/L	13-NOV-18	16-NOV-18	R4332230
2-Chlorophenol	<0.30		0.30	ug/L	13-NOV-18	16-NOV-18	R4332230
Chrysene	<0.20		0.20	ug/L	13-NOV-18	16-NOV-18	R4332230
Dibenzo(a,h)anthracene	<0.20		0.20	ug/L	13-NOV-18	16-NOV-18	R4332230
1,2-Dichlorobenzene	<0.40		0.40	ug/L	13-NOV-18	16-NOV-18	R4332230
1,3-Dichlorobenzene	<0.40		0.40	ug/L	13-NOV-18	16-NOV-18	R4332230
1,4-Dichlorobenzene	<0.40		0.40	ug/L	13-NOV-18	16-NOV-18	R4332230
3,3'-Dichlorobenzidine	<0.40		0.40	ug/L	13-NOV-18	16-NOV-18	R4332230
2,4-Dichlorophenol	<0.30		0.30	ug/L	13-NOV-18	16-NOV-18	R4332230
Diethylphthalate	<0.20		0.20	ug/L	13-NOV-18	16-NOV-18	R4332230
Dimethylphthalate	<0.20		0.20	ug/L	13-NOV-18	16-NOV-18	R4332230
2,4-Dimethylphenol	<0.50		0.50	ug/L	13-NOV-18	16-NOV-18	R4332230
2,4-Dinitrophenol	<1.0		1.0	ug/L	13-NOV-18	16-NOV-18	R4332230
2,4-Dinitrotoluene	<0.40		0.40	ug/L	13-NOV-18	16-NOV-18	R4332230
2,6-Dinitrotoluene	<0.40		0.40	ug/L	13-NOV-18	16-NOV-18	R4332230
Bis(2-ethylhexyl)phthalate	<2.0		2.0	ug/L	13-NOV-18	16-NOV-18	R4332230
Fluoranthene	<0.20		0.20	ug/L	13-NOV-18	16-NOV-18	R4332230
Fluorene	<0.20		0.20	ug/L	13-NOV-18	16-NOV-18	R4332230
Hexachlorobenzene	<0.040		0.040	ug/L	13-NOV-18	16-NOV-18	R4332230
Hexachlorobutadiene	<0.20		0.20	ug/L	13-NOV-18	16-NOV-18	R4332230
Indeno(1,2,3-cd)pyrene	<0.20		0.20	ug/L	13-NOV-18	16-NOV-18	R4332230
1-Methylnaphthalene	<0.40		0.40	ug/L	13-NOV-18	16-NOV-18	R4332230

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2193905-3 EAST STORM WATER POND Sampled By: CLIENT on 07-NOV-18 @ 11:30 Matrix: WATER							
Semi-Volatile Organics							
2-Methylnaphthalene	<0.40		0.40	ug/L	13-NOV-18	16-NOV-18	R4332230
Naphthalene	<0.20		0.20	ug/L	13-NOV-18	16-NOV-18	R4332230
Pentachlorophenol	<0.50		0.50	ug/L	13-NOV-18	16-NOV-18	R4332230
Perylene	<0.20		0.20	ug/L	13-NOV-18	16-NOV-18	R4332230
Phenanthrene	<0.20		0.20	ug/L	13-NOV-18	16-NOV-18	R4332230
Pyrene	<0.20		0.20	ug/L	13-NOV-18	16-NOV-18	R4332230
2,3,4,5-Tetrachlorophenol	<0.50		0.50	ug/L	13-NOV-18	16-NOV-18	R4332230
2,3,4,6-Tetrachlorophenol	<0.50		0.50	ug/L	13-NOV-18	16-NOV-18	R4332230
1,2,4-Trichlorobenzene	<0.40		0.40	ug/L	13-NOV-18	16-NOV-18	R4332230
2,4,5-Trichlorophenol	<0.50		0.50	ug/L	13-NOV-18	16-NOV-18	R4332230
2,4,6-Trichlorophenol	<0.50		0.50	ug/L	13-NOV-18	16-NOV-18	R4332230
Surrogate: 2-Fluorobiphenyl	89.4		40-130	%	13-NOV-18	16-NOV-18	R4332230
Surrogate: Nitrobenzene d5	94.2		40-130	%	13-NOV-18	16-NOV-18	R4332230
Surrogate: p-Terphenyl d14	87.6		40-130	%	13-NOV-18	16-NOV-18	R4332230
Report Remarks : DLM - Cd LOR increased due to potential interference from Mo							

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

Reference Information

QC Samples with Qualifiers & Comments:

QC Type Description	Parameter	Qualifier	Applies to Sample Number(s)
Matrix Spike	Chloride (Cl)	MS-B	L2193905-1, -2, -3
Matrix Spike	Aluminum (Al)-Total	MS-B	L2193905-1, -2, -3
Matrix Spike	Barium (Ba)-Total	MS-B	L2193905-1, -2, -3
Matrix Spike	Boron (B)-Total	MS-B	L2193905-1, -2, -3
Matrix Spike	Calcium (Ca)-Total	MS-B	L2193905-1, -2, -3
Matrix Spike	Iron (Fe)-Total	MS-B	L2193905-1, -2, -3
Matrix Spike	Magnesium (Mg)-Total	MS-B	L2193905-1, -2, -3
Matrix Spike	Potassium (K)-Total	MS-B	L2193905-1, -2, -3
Matrix Spike	Silicon (Si)-Total	MS-B	L2193905-1, -2, -3
Matrix Spike	Sodium (Na)-Total	MS-B	L2193905-1, -2, -3
Matrix Spike	Strontium (Sr)-Total	MS-B	L2193905-1, -2, -3

Sample Parameter Qualifier key listed:

Qualifier	Description
DLDS	Detection Limit Raised: Dilution required due to high Dissolved Solids / Electrical Conductivity.
DLHC	Detection Limit Raised: Dilution required due to high concentration of test analyte(s).
DLM	Detection Limit Adjusted due to sample matrix effects (e.g. chemical interference, colour, turbidity).
HTC	Hardness was calculated from Total Ca and/or Mg concentrations and may be biased high (dissolved Ca/Mg results unavailable).
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
625-ACID-EXTRA-WT	Water	EPA 8270 Acid Extractables Aqueous samples are extracted and extracts are analyzed on GC/MSD.	SW846 8270
625-WT	Water	EPA 8270 Extractables Aqueous samples are extracted and extracts are analyzed on GC/MSD. Depending on the analytical GC/MS column used benzo(j)fluoranthene may chromatographically co-elute with benzo(b)fluoranthene or benzo(k)fluoranthene.	SW846 8270
N-nitrosodiphenylamine is reported as diphenylamine. N-nitrosodiphenylamine decomposes in the gas chromatographic inlet and cannot be separated from diphenylamine. (EPA 8270D)			
ALK-WT	Water	Alkalinity, Total (as CaCO ₃) This analysis is carried out using procedures adapted from EPA Method 310.2 "Alkalinity". Total Alkalinity is determined using the methyl orange colourimetric method.	EPA 310.2
BR-IC-N-WT	Water	Bromide in Water by IC Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.	EPA 300.1 (mod)
CL-IC-N-WT	Water	Chloride by IC Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.	EPA 300.1 (mod)
Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).			
CN-TOT-WT	Water	Cyanide, Total Total cyanide is determined by the combination of UV digestion and distillation. Cyanide is converted to cyanogen chloride by reacting with chloramine-T, the cyanogen chloride then reacts with a combination of barbituric acid and isonicotinic acid to form a highly colored complex.	ISO 14403-2
When using this method, high levels of thiocyanate in samples can cause false positives at ~1-2% of the thiocyanate concentration. For samples with detectable cyanide analyzed by this method, ALS recommends analysis for thiocyanate to check for this potential interference			
COD-T-WT	Water	Chemical Oxygen Demand This analysis is carried out using procedures adapted from APHA Method 5220 "Chemical Oxygen Demand (COD)". Chemical oxygen demand is determined using the closed reflux colourimetric method.	APHA 5220 D
CR-CR6-IC-WT	Water	Chromium +6 This analysis is carried out using procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846, Method 7199, published by the United States Environmental Protection Agency (EPA). The procedure involves analysis for chromium (VI) by ion chromatography using diphenylcarbazide in a sulphuric acid solution. Chromium (III) is calculated as the difference between the total chromium and the chromium (VI) results.	EPA 7199
Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).			
DOC-WT	Water	Dissolved Organic Carbon Sample is filtered through a 0.45um filter, then injected into a heated reaction chamber which is packed with an oxidative catalyst. The water is vaporized and the organic carbon is oxidized to carbon dioxide. The carbon dioxide is transported in a carrier gas and is measured by a non-dispersive	APHA 5310B

Reference Information

infrared detector.

EC-WT Water Conductivity APHA 2510 B
Water samples can be measured directly by immersing the conductivity cell into the sample.

ETL-NH3-UNION-CLI-WT Water Un-ionized ammonia CALCULATION

F-IC-N-WT Water Fluoride in Water by IC EPA 300.1 (mod)
Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

HARDNESS-CALC-WT Water Hardness APHA 2340 B
Hardness (also known as Total Hardness) is calculated from the sum of Calcium and Magnesium concentrations, expressed in CaCO₃ equivalents. Dissolved Calcium and Magnesium concentrations are preferentially used for the hardness calculation.

HG-T-CVAA-WT Water Total Mercury in Water by CVAAS EPA 1631E (mod)

Water samples undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS.

MET-T-CCMS-WT Water Total Metals in Water by CRC EPA 200.2/6020A (mod)
Water samples are digested with nitric and hydrochloric acids, and analyzed by CRC ICPMS.

Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

NH3-WT Water Ammonia, Total as N EPA 350.1
Sample is measured colorimetrically. When sample is turbid a distillation step is required, sample is distilled into a solution of boric acid and measured colorimetrically.

NO2-IC-WT Water Nitrite in Water by IC EPA 300.1 (mod)
Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

NO3-IC-WT Water Nitrate in Water by IC EPA 300.1 (mod)
Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

P-T-COL-WT Water Total P in Water by Colour APHA 4500-P PHOSPHORUS

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Total Phosphorus is determined colourimetrically after persulphate digestion of the sample.

PH,TEMP-CLIENT-WT Water pH & Temperature Results supplied by client

PH-WT Water pH APHA 4500 H-Electrode
Water samples are analyzed directly by a calibrated pH meter.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011). Holdtime for samples under this regulation is 28 days

PHENOLS-4AAP-WT Water Phenol (4AAP) EPA 9066
An automated method is used to distill the sample. The distillate is then buffered to pH 9.4 which reacts with 4AAP and potassium ferricyanide to form a red complex which is measured colorimetrically.

SO4-IC-N-WT Water Sulfate in Water by IC EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

SOLIDS-TDS-WT Water Total Dissolved Solids APHA 2540C
This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total Dissolved Solids (TDS) are determined by filtering a sample through a glass fibre filter, TDS is determined by evaporating the filtrate to dryness at 180 degrees celsius.

SOLIDS-TSS-WT Water Suspended solids APHA 2540 D-Gravimetric
A well-mixed sample is filtered through a weighed standard glass fibre filter and the residue retained is dried in an oven at 104–1°C for a minimum of four hours or until a constant weight is achieved.

THM-SUM-PPB-CALC-WT Water Total Trihalomethanes (THMs) CALCULATION
Total Trihalomethanes (THMs) represents the sum of bromodichloromethane, bromoform, chlorodibromomethane and chloroform. For the purpose of calculation, results less than the detection limit (DL) are treated as zero.

TKN-WT Water Total Kjeldahl Nitrogen APHA 4500-Norg D
This analysis is carried out using procedures adapted from APHA Method 4500-Norg "Nitrogen (Organic)". Total Kjeldahl Nitrogen is determined by sample digestion at 380 Celsius with analysis using an automated colorimetric method.

VOC-ROU-HS-WT Water Volatile Organic Compounds SW846 8260

Reference Information

Aqueous samples are analyzed by headspace-GC/MS.

XYLENES-SUM-CALC- WT	Water	Sum of Xylene Isomer Concentrations	CALCULATION
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Total xylenes represents the sum of o-xylene and m&p-xylene.

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
WT	ALS ENVIRONMENTAL - WATERLOO, ONTARIO, CANADA

Chain of Custody Numbers:

GLOSSARY OF REPORT TERMS

Surrogates are compounds that are similar in behaviour to target analyte(s), but that do not normally occur in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery. In reports that display the D.L. column, laboratory objectives for surrogates are listed there.

mg/kg - milligrams per kilogram based on dry weight of sample

mg/kg wwt - milligrams per kilogram based on wet weight of sample

mg/kg lwt - milligrams per kilogram based on lipid weight of sample

mg/L - unit of concentration based on volume, parts per million.

< - Less than.

D.L. - The reporting limit.

N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.

UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.



Quality Control Report

Workorder: L2193905

Report Date: 21-NOV-18

Page 1 of 20

Client: GHD Limited (Waterloo)
455 PHILLIP STREET
WATERLOO ON N2L 3X2

Contact: LAURA ERMETA

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
625-ACID-EXTRA-WT								
	Water							
Batch	R4345207							
WG2928712-2	LCS							
2,3,6-Trichlorophenol			83.4		%		50-130	20-NOV-18
WG2928712-3	LCSD	WG2928712-2						
2,3,6-Trichlorophenol		83.4	83.4		%	0.0	50	20-NOV-18
WG2928712-1	MB							
2,3,6-Trichlorophenol			<0.50		ug/L		0.5	20-NOV-18
Surrogate: 2,4,6-Tribromophenol			76.4		%		40-150	20-NOV-18
625-WT								
	Water							
Batch	R4332230							
WG2928712-2	LCS							
1-Methylnaphthalene			89.8		%		50-140	14-NOV-18
1,2-Dichlorobenzene			89.8		%		40-130	14-NOV-18
1,2,4-Trichlorobenzene			89.7		%		50-130	14-NOV-18
1,3-Dichlorobenzene			88.7		%		50-140	14-NOV-18
1,4-Dichlorobenzene			88.3		%		40-130	14-NOV-18
2-Chlorophenol			89.8		%		65-130	14-NOV-18
2-Methylnaphthalene			92.6		%		50-140	14-NOV-18
2,3,4,5-Tetrachlorophenol			113.9		%		50-130	14-NOV-18
2,3,4,6-Tetrachlorophenol			116.4		%		65-130	14-NOV-18
2,4-Dichlorophenol			102.5		%		65-130	14-NOV-18
2,4-Dimethylphenol			81.7		%		30-130	14-NOV-18
2,4-Dinitrophenol			129.9		%		40-140	14-NOV-18
2,4-Dinitrotoluene			108.2		%		50-140	14-NOV-18
2,4,5-Trichlorophenol			112.4		%		65-130	14-NOV-18
2,4,6-Trichlorophenol			108.5		%		65-130	14-NOV-18
2,6-Dinitrotoluene			100.0		%		50-140	14-NOV-18
3,3'-Dichlorobenzidine			72.6		%		50-140	14-NOV-18
4-Chloroaniline			78.5		%		30-140	14-NOV-18
Acenaphthene			99.9		%		50-140	14-NOV-18
Acenaphthylene			102.8		%		50-140	14-NOV-18
Anthracene			102.6		%		50-140	14-NOV-18
Benzo(a)anthracene			103.8		%		50-140	14-NOV-18
Benzo(a)pyrene			101.9		%		60-130	14-NOV-18
Benzo(b)fluoranthene			104.0		%		50-140	14-NOV-18
Benzo(ghi)perylene			98.5		%		50-140	14-NOV-18



Quality Control Report

Workorder: L2193905

Report Date: 21-NOV-18

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Client: GHD Limited (Waterloo)
455 PHILLIP STREET
WATERLOO ON N2L 3X2

Contact: LAURA ERMETA

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
625-WT	Water							
Batch	R4332230							
WG2928712-2 LCS								
Benzo(k)fluoranthene			103.1		%		50-140	14-NOV-18
Bis(2-chloroethyl)ether			94.2		%		50-140	14-NOV-18
Bis(2-ethylhexyl)phthalate			106.8		%		50-140	14-NOV-18
Chrysene			104.6		%		50-140	14-NOV-18
Dibenzo(a,h)anthracene			102.1		%		50-140	14-NOV-18
Diethylphthalate			100.8		%		50-140	14-NOV-18
Dimethylphthalate			102.3		%		50-140	14-NOV-18
Fluoranthene			112.5		%		50-140	14-NOV-18
Fluorene			102.0		%		50-140	14-NOV-18
Hexachlorobenzene			93.4		%		40-130	14-NOV-18
Hexachlorobutadiene			89.7		%		40-130	14-NOV-18
Indeno(1,2,3-cd)pyrene			99.1		%		50-140	14-NOV-18
Naphthalene			99.8		%		50-140	14-NOV-18
Pentachlorophenol			127.0		%		65-130	14-NOV-18
Perylene			96.3		%		50-140	14-NOV-18
Phenanthrene			100.1		%		50-140	14-NOV-18
Pyrene			108.2		%		50-140	14-NOV-18
WG2928712-3 LCSD		WG2928712-2						
1-Methylnaphthalene		89.8	90.6		%	0.9	50	14-NOV-18
1,2-Dichlorobenzene		89.8	88.6		%	1.4	50	14-NOV-18
1,2,4-Trichlorobenzene		89.7	87.5		%	2.5	50	14-NOV-18
1,3-Dichlorobenzene		88.7	86.7		%	2.3	50	14-NOV-18
1,4-Dichlorobenzene		88.3	86.9		%	1.5	50	14-NOV-18
2-Chlorophenol		89.8	88.7		%	1.2	50	14-NOV-18
2-Methylnaphthalene		92.6	91.9		%	0.7	50	14-NOV-18
2,3,4,5-Tetrachlorophenol		113.9	111.5		%	2.1	50	14-NOV-18
2,3,4,6-Tetrachlorophenol		116.4	117.5		%	1.0	50	14-NOV-18
2,4-Dichlorophenol		102.5	100.9		%	1.6	50	14-NOV-18
2,4-Dimethylphenol		81.7	93.5		%	13	50	14-NOV-18
2,4-Dinitrophenol		129.9	131.0		%	0.8	50	14-NOV-18
2,4-Dinitrotoluene		108.2	102.6		%	5.3	50	14-NOV-18
2,4,5-Trichlorophenol		112.4	109.7		%	2.4	50	14-NOV-18
2,4,6-Trichlorophenol		108.5	107.1		%	1.4	50	14-NOV-18



Quality Control Report

Workorder: L2193905

Report Date: 21-NOV-18

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Client: GHD Limited (Waterloo)
455 PHILLIP STREET
WATERLOO ON N2L 3X2

Contact: LAURA ERMETA

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
625-WT	Water							
Batch	R4332230							
WG2928712-3	LCSD	WG2928712-2						
2,6-Dinitrotoluene		100.0	98.6		%	1.5	50	14-NOV-18
3,3'-Dichlorobenzidine		72.6	61.3		%	17	50	14-NOV-18
4-Chloroaniline		78.5	70.6		%	11	50	14-NOV-18
Acenaphthene		99.9	96.8		%	3.2	50	14-NOV-18
Acenaphthylene		102.8	100.1		%	2.7	50	14-NOV-18
Anthracene		102.6	101.4		%	1.1	50	14-NOV-18
Benzo(a)anthracene		103.8	101.7		%	2.1	50	14-NOV-18
Benzo(a)pyrene		101.9	99.98		%	2.0	50	14-NOV-18
Benzo(b)fluoranthene		104.0	108.0		%	3.7	50	14-NOV-18
Benzo(ghi)perylene		98.5	89.0		%	10	50	14-NOV-18
Benzo(k)fluoranthene		103.1	103.9		%	0.8	50	14-NOV-18
Bis(2-chloroethyl)ether		94.2	93.4		%	0.9	50	14-NOV-18
Bis(2-ethylhexyl)phthalate		106.8	104.4		%	2.2	50	14-NOV-18
Chrysene		104.6	102.3		%	2.2	50	14-NOV-18
Dibenzo(a,h)anthracene		102.1	94.9		%	7.4	50	14-NOV-18
Diethylphthalate		100.8	99.6		%	1.3	50	14-NOV-18
Dimethylphthalate		102.3	100.0		%	2.3	50	14-NOV-18
Fluoranthene		112.5	114.8		%	2.0	50	14-NOV-18
Fluorene		102.0	99.7		%	2.3	50	14-NOV-18
Hexachlorobenzene		93.4	92.4		%	1.1	50	14-NOV-18
Hexachlorobutadiene		89.7	84.3		%	6.2	50	14-NOV-18
Indeno(1,2,3-cd)pyrene		99.1	91.2		%	8.3	50	14-NOV-18
Naphthalene		99.8	98.6		%	1.2	50	14-NOV-18
Pentachlorophenol		127.0	127.9		%	0.7	50	14-NOV-18
Perylene		96.3	94.2		%	2.3	50	14-NOV-18
Phenanthrene		100.1	99.1		%	1.0	50	14-NOV-18
Pyrene		108.2	112.8		%	4.1	50	14-NOV-18
WG2928712-1	MB							
1-Methylnaphthalene			<0.40		ug/L		0.4	14-NOV-18
1,2-Dichlorobenzene			<0.40		ug/L		0.4	14-NOV-18
1,2,4-Trichlorobenzene			<0.40		ug/L		0.4	14-NOV-18
1,3-Dichlorobenzene			<0.40		ug/L		0.4	14-NOV-18
1,4-Dichlorobenzene			<0.40		ug/L		0.4	14-NOV-18



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455 PHILLIP STREET
WATERLOO ON N2L 3X2

Contact: LAURA ERMETA

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
625-WT	Water							
Batch	R4332230							
WG2928712-1 MB								
2-Chlorophenol			<0.30		ug/L		0.3	14-NOV-18
2-Methylnaphthalene			<0.40		ug/L		0.4	14-NOV-18
2,3,4,5-Tetrachlorophenol			<0.50		ug/L		0.5	14-NOV-18
2,3,4,6-Tetrachlorophenol			<0.50		ug/L		0.5	14-NOV-18
2,4-Dichlorophenol			<0.30		ug/L		0.3	14-NOV-18
2,4-Dimethylphenol			<0.50		ug/L		0.5	14-NOV-18
2,4-Dinitrophenol			<1.0		ug/L		1	14-NOV-18
2,4-Dinitrotoluene			<0.40		ug/L		0.4	14-NOV-18
2,4,5-Trichlorophenol			<0.50		ug/L		0.5	14-NOV-18
2,4,6-Trichlorophenol			<0.50		ug/L		0.5	14-NOV-18
2,6-Dinitrotoluene			<0.40		ug/L		0.4	14-NOV-18
3,3'-Dichlorobenzidine			<0.40		ug/L		0.4	14-NOV-18
4-Chloroaniline			<0.40		ug/L		0.4	14-NOV-18
Acenaphthene			<0.20		ug/L		0.2	14-NOV-18
Acenaphthylene			<0.20		ug/L		0.2	14-NOV-18
Anthracene			<0.20		ug/L		0.2	14-NOV-18
Benzo(a)anthracene			<0.20		ug/L		0.2	14-NOV-18
Benzo(a)pyrene			<0.050		ug/L		0.05	14-NOV-18
Benzo(b)fluoranthene			<0.20		ug/L		0.2	14-NOV-18
Benzo(ghi)perylene			<0.20		ug/L		0.2	14-NOV-18
Benzo(k)fluoranthene			<0.20		ug/L		0.2	14-NOV-18
Bis(2-chloroethyl)ether			<0.40		ug/L		0.4	14-NOV-18
Bis(2-ethylhexyl)phthalate			<1.0		ug/L		1	14-NOV-18
Chrysene			<0.20		ug/L		0.2	14-NOV-18
Dibenzo(a,h)anthracene			<0.20		ug/L		0.2	14-NOV-18
Diethylphthalate			<0.20		ug/L		0.2	14-NOV-18
Dimethylphthalate			<0.20		ug/L		0.2	14-NOV-18
Fluoranthene			<0.20		ug/L		0.2	14-NOV-18
Fluorene			<0.20		ug/L		0.2	14-NOV-18
Hexachlorobenzene			<0.040		ug/L		0.04	14-NOV-18
Hexachlorobutadiene			<0.20		ug/L		0.2	14-NOV-18
Indeno(1,2,3-cd)pyrene			<0.20		ug/L		0.2	14-NOV-18
Naphthalene			<0.20		ug/L		0.2	14-NOV-18



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 455 PHILLIP STREET
 WATERLOO ON N2L 3X2
 Contact: LAURA ERMETA

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
625-WT Water								
Batch R4332230								
WG2928712-1 MB								
			<0.50		ug/L		0.5	14-NOV-18
			<0.20		ug/L		0.2	14-NOV-18
			<0.20		ug/L		0.2	14-NOV-18
			<0.20		ug/L		0.2	14-NOV-18
			85.2		%		40-130	14-NOV-18
			88.3		%		40-130	14-NOV-18
			111.0		%		40-130	14-NOV-18
ALK-WT Water								
Batch R4329212								
WG2928596-3 CRM WT-ALK-CRM								
			92.7		%		80-120	12-NOV-18
WG2928596-4 DUP L2194280-4								
		165	163		mg/L	1.0	20	12-NOV-18
WG2928596-2 LCS								
			97.2		%		85-115	12-NOV-18
WG2928596-1 MB								
			<10		mg/L		10	12-NOV-18
BR-IC-N-WT Water								
Batch R4329247								
WG2928543-4 DUP WG2928543-3								
		<0.10	<0.10	RPD-NA	mg/L	N/A	20	12-NOV-18
WG2928543-2 LCS								
			102.4		%		85-115	12-NOV-18
WG2928543-1 MB								
			<0.10		mg/L		0.1	12-NOV-18
WG2928543-5 MS WG2928543-3								
			91.2		%		75-125	12-NOV-18
CL-IC-N-WT Water								
Batch R4329247								
WG2928543-4 DUP WG2928543-3								
		101	101		mg/L	0.2	20	12-NOV-18
WG2928543-2 LCS								
			101.9		%		90-110	12-NOV-18
WG2928543-1 MB								
			<0.50		mg/L		0.5	12-NOV-18
WG2928543-5 MS WG2928543-3								



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 WATERLOO ON N2L 3X2
 Contact: LAURA ERMETA

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
CL-IC-N-WT	Water							
Batch R4329247								
WG2928543-5 MS		WG2928543-3						
Chloride (Cl)			N/A	MS-B	%		-	12-NOV-18
CN-TOT-WT	Water							
Batch R4329186								
WG2927107-18 DUP		WG2927107-20						
Cyanide, Total		<0.0020	<0.0020	RPD-NA	mg/L	N/A	20	09-NOV-18
WG2927107-17 LCS			87.9		%		80-120	09-NOV-18
Cyanide, Total								
WG2927107-16 MB			<0.0020		mg/L		0.002	09-NOV-18
Cyanide, Total								
WG2927107-19 MS		WG2927107-20	82.1		%		70-130	09-NOV-18
Cyanide, Total								
COD-T-WT	Water							
Batch R4329389								
WG2928868-3 DUP		L2193271-3						
COD		22	24		mg/L	9.6	20	12-NOV-18
WG2928868-2 LCS			109.6		%		85-115	12-NOV-18
COD								
WG2928868-1 MB			<10		mg/L		10	12-NOV-18
COD								
WG2928868-4 MS		L2193271-3	124.0		%		75-125	12-NOV-18
COD								
CR-CR6-IC-WT	Water							
Batch R4327675								
WG2926439-4 DUP		WG2926439-3						
Chromium, Hexavalent		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	08-NOV-18
WG2926439-2 LCS			99.8		%		80-120	08-NOV-18
Chromium, Hexavalent								
WG2926439-1 MB			<0.00050		mg/L		0.0005	08-NOV-18
Chromium, Hexavalent								
WG2926439-5 MS		WG2926439-3	97.4		%		70-130	08-NOV-18
Chromium, Hexavalent								
DOC-WT	Water							



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 Contact: LAURA ERMETA

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
DOC-WT		Water						
Batch	R4331622							
WG2927299-3	DUP	L2193967-5						
Dissolved Organic Carbon		0.60	0.53		mg/L	13	25	12-NOV-18
WG2927299-2	LCS							
Dissolved Organic Carbon			104.6		%		70-130	12-NOV-18
WG2927299-1	MB							
Dissolved Organic Carbon			<0.50		mg/L		0.5	12-NOV-18
WG2927299-4	MS	L2193967-5						
Dissolved Organic Carbon			107.9		%		70-130	12-NOV-18
EC-WT		Water						
Batch	R4327688							
WG2925933-24	DUP	WG2925933-23						
Conductivity		716	712		umhos/cm	0.6	10	08-NOV-18
WG2925933-22	LCS							
Conductivity			100.4		%		90-110	08-NOV-18
WG2925933-21	MB							
Conductivity			<3.0		umhos/cm		3	08-NOV-18
F-IC-N-WT		Water						
Batch	R4329247							
WG2928543-4	DUP	WG2928543-3						
Fluoride (F)		0.327	0.329		mg/L	0.5	20	12-NOV-18
WG2928543-2	LCS							
Fluoride (F)			101.4		%		90-110	12-NOV-18
WG2928543-1	MB							
Fluoride (F)			<0.020		mg/L		0.02	12-NOV-18
WG2928543-5	MS	WG2928543-3						
Fluoride (F)			101.8		%		75-125	12-NOV-18
HG-T-CVAA-WT		Water						
Batch	R4328123							
WG2927150-3	DUP	L2193905-1						
Mercury (Hg)-Total		<0.000010	<0.000010	RPD-NA	mg/L	N/A	20	09-NOV-18
WG2927150-2	LCS							
Mercury (Hg)-Total			101.0		%		80-120	09-NOV-18
WG2927150-1	MB							
Mercury (Hg)-Total			<0.000010		mg/L		0.00001	09-NOV-18
WG2927150-4	MS	L2193905-2						
Mercury (Hg)-Total			91.1		%		70-130	09-NOV-18
MET-T-CCMS-WT		Water						



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 455 PHILLIP STREET
 WATERLOO ON N2L 3X2
 Contact: LAURA ERMETA

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-WT		Water						
Batch	R4328120							
WG2926890-4	DUP	WG2926890-3						
Aluminum (Al)-Total		0.0085	0.0082		mg/L	3.8	20	09-NOV-18
Antimony (Sb)-Total		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	09-NOV-18
Arsenic (As)-Total		0.00016	0.00015		mg/L	6.8	20	09-NOV-18
Barium (Ba)-Total		0.00740	0.00736		mg/L	0.6	20	09-NOV-18
Beryllium (Be)-Total		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	09-NOV-18
Bismuth (Bi)-Total		<0.000050	<0.000050	RPD-NA	mg/L	N/A	20	09-NOV-18
Boron (B)-Total		<0.010	<0.010	RPD-NA	mg/L	N/A	20	09-NOV-18
Cadmium (Cd)-Total		<0.0000050	<0.0000050	RPD-NA	mg/L	N/A	20	09-NOV-18
Calcium (Ca)-Total		42.6	42.6		mg/L	0.1	20	09-NOV-18
Cobalt (Co)-Total		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	09-NOV-18
Copper (Cu)-Total		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	09-NOV-18
Iron (Fe)-Total		0.065	0.067		mg/L	2.4	20	09-NOV-18
Lead (Pb)-Total		0.000059	<0.000050	RPD-NA	mg/L	N/A	20	09-NOV-18
Magnesium (Mg)-Total		1.63	1.61		mg/L	1.5	20	09-NOV-18
Manganese (Mn)-Total		0.00255	0.00256		mg/L	0.3	20	09-NOV-18
Molybdenum (Mo)-Total		<0.000050	<0.000050	RPD-NA	mg/L	N/A	20	09-NOV-18
Nickel (Ni)-Total		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	09-NOV-18
Potassium (K)-Total		0.778	0.769		mg/L	1.1	20	09-NOV-18
Selenium (Se)-Total		<0.000050	<0.000050	RPD-NA	mg/L	N/A	20	09-NOV-18
Silicon (Si)-Total		2.59	2.56		mg/L	1.0	20	09-NOV-18
Silver (Ag)-Total		<0.000050	<0.000050	RPD-NA	mg/L	N/A	20	09-NOV-18
Sodium (Na)-Total		0.986	0.975		mg/L	1.1	20	09-NOV-18
Strontium (Sr)-Total		0.0927	0.0941		mg/L	1.6	20	09-NOV-18
Thallium (Tl)-Total		<0.000010	<0.000010	RPD-NA	mg/L	N/A	20	09-NOV-18
Tin (Sn)-Total		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	09-NOV-18
Vanadium (V)-Total		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	09-NOV-18
Zinc (Zn)-Total		<0.0030	<0.0030	RPD-NA	mg/L	N/A	20	09-NOV-18
WG2926890-2	LCS							
Aluminum (Al)-Total			102.8		%		80-120	09-NOV-18
Antimony (Sb)-Total			108.4		%		80-120	09-NOV-18
Arsenic (As)-Total			99.7		%		80-120	09-NOV-18
Barium (Ba)-Total			97.4		%		80-120	09-NOV-18
Beryllium (Be)-Total			101.0		%		80-120	09-NOV-18



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 455 PHILLIP STREET
 WATERLOO ON N2L 3X2

Contact: LAURA ERMETA

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-WT								
	Water							
Batch	R4328120							
WG2926890-2	LCS							
Bismuth (Bi)-Total			100.4		%		80-120	09-NOV-18
Boron (B)-Total			100.1		%		80-120	09-NOV-18
Cadmium (Cd)-Total			99.3		%		80-120	09-NOV-18
Calcium (Ca)-Total			97.7		%		80-120	09-NOV-18
Cobalt (Co)-Total			99.8		%		80-120	09-NOV-18
Copper (Cu)-Total			101.3		%		80-120	09-NOV-18
Iron (Fe)-Total			101.7		%		80-120	09-NOV-18
Lead (Pb)-Total			103.6		%		80-120	09-NOV-18
Magnesium (Mg)-Total			107.9		%		80-120	09-NOV-18
Manganese (Mn)-Total			102.9		%		80-120	09-NOV-18
Molybdenum (Mo)-Total			96.7		%		80-120	09-NOV-18
Nickel (Ni)-Total			100.3		%		80-120	09-NOV-18
Potassium (K)-Total			105.9		%		80-120	09-NOV-18
Selenium (Se)-Total			99.8		%		80-120	09-NOV-18
Silicon (Si)-Total			108.5		%		60-140	09-NOV-18
Silver (Ag)-Total			108.0		%		80-120	09-NOV-18
Sodium (Na)-Total			104.8		%		80-120	09-NOV-18
Strontium (Sr)-Total			97.9		%		80-120	09-NOV-18
Thallium (Tl)-Total			97.6		%		80-120	09-NOV-18
Tin (Sn)-Total			102.5		%		80-120	09-NOV-18
Vanadium (V)-Total			103.7		%		80-120	09-NOV-18
Zinc (Zn)-Total			99.7		%		80-120	09-NOV-18
WG2926890-1	MB							
Aluminum (Al)-Total			<0.0050		mg/L		0.005	09-NOV-18
Antimony (Sb)-Total			<0.00010		mg/L		0.0001	09-NOV-18
Arsenic (As)-Total			<0.00010		mg/L		0.0001	09-NOV-18
Barium (Ba)-Total			<0.00010		mg/L		0.0001	09-NOV-18
Beryllium (Be)-Total			<0.00010		mg/L		0.0001	09-NOV-18
Bismuth (Bi)-Total			<0.000050		mg/L		0.00005	09-NOV-18
Boron (B)-Total			<0.010		mg/L		0.01	09-NOV-18
Cadmium (Cd)-Total			<0.0000050		mg/L		0.000005	09-NOV-18
Calcium (Ca)-Total			<0.050		mg/L		0.05	09-NOV-18
Cobalt (Co)-Total			<0.00010		mg/L		0.0001	09-NOV-18
Copper (Cu)-Total			<0.0010		mg/L		0.001	09-NOV-18



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 455 PHILLIP STREET
 WATERLOO ON N2L 3X2
 Contact: LAURA ERMETA

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-WT								
	Water							
Batch	R4328120							
WG2926890-1	MB							
Iron (Fe)-Total			<0.010		mg/L		0.01	09-NOV-18
Lead (Pb)-Total			<0.000050		mg/L		0.00005	09-NOV-18
Magnesium (Mg)-Total			<0.0050		mg/L		0.005	09-NOV-18
Manganese (Mn)-Total			<0.00050		mg/L		0.0005	09-NOV-18
Molybdenum (Mo)-Total			<0.000050		mg/L		0.00005	09-NOV-18
Nickel (Ni)-Total			<0.00050		mg/L		0.0005	09-NOV-18
Potassium (K)-Total			<0.050		mg/L		0.05	09-NOV-18
Selenium (Se)-Total			<0.000050		mg/L		0.00005	09-NOV-18
Silicon (Si)-Total			<0.10		mg/L		0.1	09-NOV-18
Silver (Ag)-Total			<0.000050		mg/L		0.00005	09-NOV-18
Sodium (Na)-Total			<0.050		mg/L		0.05	09-NOV-18
Strontium (Sr)-Total			<0.0010		mg/L		0.001	09-NOV-18
Thallium (Tl)-Total			<0.000010		mg/L		0.00001	09-NOV-18
Tin (Sn)-Total			<0.00010		mg/L		0.0001	09-NOV-18
Vanadium (V)-Total			<0.00050		mg/L		0.0005	09-NOV-18
Zinc (Zn)-Total			<0.0030		mg/L		0.003	09-NOV-18
WG2926890-5	MS	WG2926890-6						
Aluminum (Al)-Total			N/A	MS-B	%		-	09-NOV-18
Antimony (Sb)-Total			110.3		%		70-130	09-NOV-18
Arsenic (As)-Total			103.0		%		70-130	09-NOV-18
Barium (Ba)-Total			N/A	MS-B	%		-	09-NOV-18
Beryllium (Be)-Total			99.7		%		70-130	09-NOV-18
Bismuth (Bi)-Total			94.4		%		70-130	09-NOV-18
Boron (B)-Total			N/A	MS-B	%		-	09-NOV-18
Cadmium (Cd)-Total			97.2		%		70-130	09-NOV-18
Calcium (Ca)-Total			N/A	MS-B	%		-	09-NOV-18
Cobalt (Co)-Total			99.4		%		70-130	09-NOV-18
Copper (Cu)-Total			94.4		%		70-130	09-NOV-18
Iron (Fe)-Total			N/A	MS-B	%		-	09-NOV-18
Lead (Pb)-Total			95.6		%		70-130	09-NOV-18
Magnesium (Mg)-Total			N/A	MS-B	%		-	09-NOV-18
Manganese (Mn)-Total			101.2		%		70-130	09-NOV-18
Molybdenum (Mo)-Total			97.2		%		70-130	09-NOV-18
Nickel (Ni)-Total			97.2		%		70-130	09-NOV-18



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Client: GHD Limited (Waterloo)
 455 PHILLIP STREET
 WATERLOO ON N2L 3X2

Contact: LAURA ERMETA

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-WT								
	Water							
Batch	R4328120							
WG2926890-5	MS	WG2926890-6						
Potassium (K)-Total			N/A	MS-B	%		-	09-NOV-18
Selenium (Se)-Total			99.8		%		70-130	09-NOV-18
Silicon (Si)-Total			N/A	MS-B	%		-	09-NOV-18
Silver (Ag)-Total			105.1		%		70-130	09-NOV-18
Sodium (Na)-Total			N/A	MS-B	%		-	09-NOV-18
Strontium (Sr)-Total			N/A	MS-B	%		-	09-NOV-18
Thallium (Tl)-Total			92.7		%		70-130	09-NOV-18
Tin (Sn)-Total			101.2		%		70-130	09-NOV-18
Vanadium (V)-Total			106.3		%		70-130	09-NOV-18
Zinc (Zn)-Total			91.0		%		70-130	09-NOV-18
NH3-WT								
	Water							
Batch	R4328037							
WG2927127-3	DUP	L2194369-2						
Ammonia, Total (as N)		0.081	0.082		mg/L	1.1	20	09-NOV-18
WG2927127-2	LCS							
Ammonia, Total (as N)			96.3		%		85-115	09-NOV-18
WG2927127-1	MB							
Ammonia, Total (as N)			<0.020		mg/L		0.02	09-NOV-18
WG2927127-4	MS	L2194369-2						
Ammonia, Total (as N)			99.7		%		75-125	09-NOV-18
Batch	R4329228							
WG2928612-3	DUP	L2194610-6						
Ammonia, Total (as N)		<0.020	<0.020	RPD-NA	mg/L	N/A	20	12-NOV-18
WG2928612-2	LCS							
Ammonia, Total (as N)			96.3		%		85-115	12-NOV-18
WG2928612-1	MB							
Ammonia, Total (as N)			<0.020		mg/L		0.02	12-NOV-18
WG2928612-4	MS	L2194610-6						
Ammonia, Total (as N)			98.7		%		75-125	12-NOV-18
Batch	R4339995							
WG2932064-3	DUP	L2195580-1						
Ammonia, Total (as N)		0.114	0.115		mg/L	0.3	20	16-NOV-18
WG2932064-2	LCS							
Ammonia, Total (as N)			96.2		%		85-115	16-NOV-18
WG2932064-1	MB							
Ammonia, Total (as N)			<0.020		mg/L		0.02	16-NOV-18



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Client: GHD Limited (Waterloo)
455 PHILLIP STREET
WATERLOO ON N2L 3X2

Contact: LAURA ERMETA

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
P-T-COL-WT								
	Water							
Batch	R4331656							
WG2929662-2	LCS							
Phosphorus, Total			94.2		%		80-120	14-NOV-18
WG2929662-1	MB							
Phosphorus, Total			<0.0030		mg/L		0.003	14-NOV-18
WG2929662-4	MS	L2195323-1						
Phosphorus, Total			87.6		%		70-130	14-NOV-18
PH-WT								
	Water							
Batch	R4327688							
WG2925933-24	DUP	WG2925933-23						
pH		7.06	7.05	J	pH units	0.01	0.2	08-NOV-18
WG2925933-22	LCS							
pH			7.02		pH units		6.9-7.1	08-NOV-18
PHENOLS-4AAP-WT								
	Water							
Batch	R4336894							
WG2930345-15	DUP	L2193370-1						
Phenols (4AAP)		0.0010	0.0010		mg/L	0.0	20	14-NOV-18
WG2930345-14	LCS							
Phenols (4AAP)			97.1		%		85-115	14-NOV-18
WG2930345-13	MB							
Phenols (4AAP)			<0.0010		mg/L		0.001	14-NOV-18
WG2930345-16	MS	L2193370-1						
Phenols (4AAP)			99.3		%		75-125	14-NOV-18
SO4-IC-N-WT								
	Water							
Batch	R4329247							
WG2928543-4	DUP	WG2928543-3						
Sulfate (SO4)		31.6	31.5		mg/L	0.3	20	12-NOV-18
WG2928543-2	LCS							
Sulfate (SO4)			102.6		%		90-110	12-NOV-18
WG2928543-1	MB							
Sulfate (SO4)			<0.30		mg/L		0.3	12-NOV-18
WG2928543-5	MS	WG2928543-3						
Sulfate (SO4)			103.9		%		75-125	12-NOV-18
SOLIDS-TDS-WT								
	Water							
Batch	R4329178							
WG2928378-3	DUP	L2193368-1						
Total Dissolved Solids		957	937		mg/L	2.1	20	11-NOV-18
WG2928378-2	LCS							



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Client: GHD Limited (Waterloo)
455 PHILLIP STREET
WATERLOO ON N2L 3X2

Contact: LAURA ERMETA

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
SOLIDS-TDS-WT		Water						
Batch	R4329178							
WG2928378-2	LCS							
Total Dissolved Solids			97.1		%		85-115	11-NOV-18
WG2928378-1	MB							
Total Dissolved Solids			<10		mg/L		10	11-NOV-18
SOLIDS-TSS-WT		Water						
Batch	R4329658							
WG2928676-3	DUP	L2194318-2						
Total Suspended Solids		2560	2540		mg/L	0.9	20	13-NOV-18
WG2928676-2	LCS							
Total Suspended Solids			100.3		%		85-115	13-NOV-18
WG2928676-1	MB							
Total Suspended Solids			<2.0		mg/L		2	13-NOV-18
TKN-WT		Water						
Batch	R4334968							
WG2930629-3	DUP	L2193271-3						
Total Kjeldahl Nitrogen		1.19	1.09		mg/L	8.2	20	14-NOV-18
WG2930629-2	LCS							
Total Kjeldahl Nitrogen			102.3		%		75-125	14-NOV-18
WG2930629-1	MB							
Total Kjeldahl Nitrogen			<0.15		mg/L		0.15	14-NOV-18
WG2930629-4	MS	L2193271-3						
Total Kjeldahl Nitrogen			99.7		%		70-130	14-NOV-18
VOC-ROU-HS-WT		Water						
Batch	R4332534							
WG2927607-4	DUP	WG2927607-3						
1,1,1,2-Tetrachloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	14-NOV-18
1,1,2,2-Tetrachloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	14-NOV-18
1,1,1-Trichloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	14-NOV-18
1,1,2-Trichloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	14-NOV-18
1,2-Dibromoethane		<0.20	<0.20	RPD-NA	ug/L	N/A	30	14-NOV-18
1,1-Dichloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	14-NOV-18
1,1-Dichloroethylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	14-NOV-18
1,2-Dichlorobenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	14-NOV-18
1,2-Dichloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	14-NOV-18
1,2-Dichloropropane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	14-NOV-18
1,3-Dichlorobenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	14-NOV-18



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Client: GHD Limited (Waterloo)
 455 PHILLIP STREET
 WATERLOO ON N2L 3X2

Contact: LAURA ERMETA

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-ROU-HS-WT		Water						
Batch	R4332534							
WG2927607-4	DUP	WG2927607-3						
1,4-Dichlorobenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	14-NOV-18
Acetone		26	27		ug/L	6.4	30	14-NOV-18
Benzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	14-NOV-18
Bromodichloromethane		<1.0	<1.0	RPD-NA	ug/L	N/A	30	14-NOV-18
Bromoform		<1.0	<1.0	RPD-NA	ug/L	N/A	30	14-NOV-18
Bromomethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	14-NOV-18
Carbon tetrachloride		<0.50	<0.50	RPD-NA	ug/L	N/A	30	14-NOV-18
Chlorobenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	14-NOV-18
Chloroethane		<1.0	<1.0	RPD-NA	ug/L	N/A	30	14-NOV-18
Chloroform		<1.0	<1.0	RPD-NA	ug/L	N/A	30	14-NOV-18
cis-1,2-Dichloroethylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	14-NOV-18
cis-1,3-Dichloropropene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	14-NOV-18
Dibromochloromethane		<1.0	<1.0	RPD-NA	ug/L	N/A	30	14-NOV-18
Dichlorodifluoromethane		<1.0	<1.0	RPD-NA	ug/L	N/A	30	14-NOV-18
Dichloromethane		<2.0	<2.0	RPD-NA	ug/L	N/A	30	14-NOV-18
Ethylbenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	14-NOV-18
m+p-Xylenes		<1.0	<1.0	RPD-NA	ug/L	N/A	30	14-NOV-18
Methyl Ethyl Ketone		<20	<20	RPD-NA	ug/L	N/A	30	14-NOV-18
Methyl Isobutyl Ketone		<20	<20	RPD-NA	ug/L	N/A	30	14-NOV-18
n-Hexane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	14-NOV-18
MTBE		<0.50	<0.50	RPD-NA	ug/L	N/A	30	14-NOV-18
o-Xylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	14-NOV-18
Styrene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	14-NOV-18
Tetrachloroethylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	14-NOV-18
Toluene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	14-NOV-18
trans-1,2-Dichloroethylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	14-NOV-18
trans-1,3-Dichloropropene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	14-NOV-18
Trichloroethylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	14-NOV-18
Trichlorofluoromethane		<1.0	<1.0	RPD-NA	ug/L	N/A	30	14-NOV-18
Vinyl chloride		<0.50	<0.50	RPD-NA	ug/L	N/A	30	14-NOV-18
WG2927607-1	LCS							
1,1,1,2-Tetrachloroethane			116.4		%		70-130	14-NOV-18
1,1,2,2-Tetrachloroethane			100.7		%		70-130	14-NOV-18



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Client: GHD Limited (Waterloo)
 455 PHILLIP STREET
 WATERLOO ON N2L 3X2

Contact: LAURA ERMETA

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-ROU-HS-WT								
	Water							
Batch	R4332534							
WG2927607-1	LCS							
1,1,1-Trichloroethane			115.3		%		70-130	14-NOV-18
1,1,2-Trichloroethane			103.2		%		70-130	14-NOV-18
1,2-Dibromoethane			100.3		%		70-130	14-NOV-18
1,1-Dichloroethane			112.5		%		70-130	14-NOV-18
1,1-Dichloroethylene			108.9		%		70-130	14-NOV-18
1,2-Dichlorobenzene			119.1		%		70-130	14-NOV-18
1,2-Dichloroethane			106.0		%		70-130	14-NOV-18
1,2-Dichloropropane			109.4		%		70-130	14-NOV-18
1,3-Dichlorobenzene			120.7		%		70-130	14-NOV-18
1,4-Dichlorobenzene			121.1		%		70-130	14-NOV-18
Acetone			98.5		%		60-140	14-NOV-18
Benzene			112.2		%		70-130	14-NOV-18
Bromodichloromethane			107.1		%		70-130	14-NOV-18
Bromoform			106.3		%		70-130	14-NOV-18
Bromomethane			82.6		%		60-140	14-NOV-18
Carbon tetrachloride			113.3		%		70-130	14-NOV-18
Chlorobenzene			119.4		%		70-130	14-NOV-18
Chloroethane			106.7		%		70-130	14-NOV-18
Chloroform			111.1		%		70-130	14-NOV-18
cis-1,2-Dichloroethylene			106.7		%		70-130	14-NOV-18
cis-1,3-Dichloropropene			105.6		%		70-130	14-NOV-18
Dibromochloromethane			111.7		%		70-130	14-NOV-18
Dichlorodifluoromethane			109.4		%		50-140	14-NOV-18
Dichloromethane			109.5		%		70-130	14-NOV-18
Ethylbenzene			122.1		%		70-130	14-NOV-18
m+p-Xylenes			123.6		%		70-130	14-NOV-18
Methyl Ethyl Ketone			88.2		%		60-140	14-NOV-18
Methyl Isobutyl Ketone			88.0		%		50-150	14-NOV-18
n-Hexane			113.5		%		70-130	14-NOV-18
MTBE			121.8		%		70-130	14-NOV-18
o-Xylene			120.5		%		70-130	14-NOV-18
Styrene			116.2		%		70-130	14-NOV-18
Tetrachloroethylene			124.8		%		70-130	14-NOV-18



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Client: GHD Limited (Waterloo)
455 PHILLIP STREET
WATERLOO ON N2L 3X2

Contact: LAURA ERMETA

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-ROU-HS-WT								
	Water							
Batch	R4332534							
WG2927607-1	LCS							
Toluene			121.9		%		70-130	14-NOV-18
trans-1,2-Dichloroethylene			114.3		%		70-130	14-NOV-18
trans-1,3-Dichloropropene			109.0		%		70-130	14-NOV-18
Trichloroethylene			116.1		%		70-130	14-NOV-18
Trichlorofluoromethane			124.6		%		60-140	14-NOV-18
Vinyl chloride			110.2		%		60-140	14-NOV-18
WG2927607-2	MB							
1,1,1,2-Tetrachloroethane			<0.50		ug/L		0.5	14-NOV-18
1,1,2,2-Tetrachloroethane			<0.50		ug/L		0.5	14-NOV-18
1,1,1-Trichloroethane			<0.50		ug/L		0.5	14-NOV-18
1,1,2-Trichloroethane			<0.50		ug/L		0.5	14-NOV-18
1,2-Dibromoethane			<0.20		ug/L		0.2	14-NOV-18
1,1-Dichloroethane			<0.50		ug/L		0.5	14-NOV-18
1,1-Dichloroethylene			<0.50		ug/L		0.5	14-NOV-18
1,2-Dichlorobenzene			<0.50		ug/L		0.5	14-NOV-18
1,2-Dichloroethane			<0.50		ug/L		0.5	14-NOV-18
1,2-Dichloropropane			<0.50		ug/L		0.5	14-NOV-18
1,3-Dichlorobenzene			<0.50		ug/L		0.5	14-NOV-18
1,4-Dichlorobenzene			<0.50		ug/L		0.5	14-NOV-18
Acetone			<20		ug/L		20	14-NOV-18
Benzene			<0.50		ug/L		0.5	14-NOV-18
Bromodichloromethane			<1.0		ug/L		1	14-NOV-18
Bromoform			<1.0		ug/L		1	14-NOV-18
Bromomethane			<0.50		ug/L		0.5	14-NOV-18
Carbon tetrachloride			<0.50		ug/L		0.5	14-NOV-18
Chlorobenzene			<0.50		ug/L		0.5	14-NOV-18
Chloroethane			<1.0		ug/L		1	14-NOV-18
Chloroform			<1.0		ug/L		1	14-NOV-18
cis-1,2-Dichloroethylene			<0.50		ug/L		0.5	14-NOV-18
cis-1,3-Dichloropropene			<0.50		ug/L		0.5	14-NOV-18
Dibromochloromethane			<1.0		ug/L		1	14-NOV-18
Dichlorodifluoromethane			<1.0		ug/L		1	14-NOV-18
Dichloromethane			<2.0		ug/L		2	14-NOV-18
Ethylbenzene			<0.50		ug/L		0.5	14-NOV-18



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Client: GHD Limited (Waterloo)
 455 PHILLIP STREET
 WATERLOO ON N2L 3X2
 Contact: LAURA ERMETA

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-ROU-HS-WT								
	Water							
Batch	R4332534							
WG2927607-2 MB								
m+p-Xylenes			<1.0		ug/L		1	14-NOV-18
Methyl Ethyl Ketone			<20		ug/L		20	14-NOV-18
Methyl Isobutyl Ketone			<20		ug/L		20	14-NOV-18
n-Hexane			<0.50		ug/L		0.5	14-NOV-18
MTBE			<0.50		ug/L		0.5	14-NOV-18
o-Xylene			<0.50		ug/L		0.5	14-NOV-18
Styrene			<0.50		ug/L		0.5	14-NOV-18
Tetrachloroethylene			<0.50		ug/L		0.5	14-NOV-18
Toluene			<0.50		ug/L		0.5	14-NOV-18
trans-1,2-Dichloroethylene			<0.50		ug/L		0.5	14-NOV-18
trans-1,3-Dichloropropene			<0.50		ug/L		0.5	14-NOV-18
Trichloroethylene			<0.50		ug/L		0.5	14-NOV-18
Trichlorofluoromethane			<1.0		ug/L		1	14-NOV-18
Vinyl chloride			<0.50		ug/L		0.5	14-NOV-18
Surrogate: 1,4-Difluorobenzene			104.1		%		70-130	14-NOV-18
Surrogate: 4-Bromofluorobenzene			92.8		%		70-130	14-NOV-18
WG2927607-5 MS		WG2927607-3						
1,1,1,2-Tetrachloroethane			118.0		%		50-150	14-NOV-18
1,1,1,2,2-Tetrachloroethane			106.9		%		50-150	14-NOV-18
1,1,1-Trichloroethane			114.4		%		50-150	14-NOV-18
1,1,1,2-Trichloroethane			108.5		%		50-150	14-NOV-18
1,2-Dibromoethane			106.3		%		50-150	14-NOV-18
1,1-Dichloroethane			112.7		%		50-150	14-NOV-18
1,1-Dichloroethylene			104.3		%		50-150	14-NOV-18
1,2-Dichlorobenzene			116.5		%		50-150	14-NOV-18
1,2-Dichloroethane			112.1		%		50-150	14-NOV-18
1,2-Dichloropropane			112.1		%		50-150	14-NOV-18
1,3-Dichlorobenzene			114.6		%		50-150	14-NOV-18
1,4-Dichlorobenzene			116.4		%		50-150	14-NOV-18
Acetone			109.7		%		50-150	14-NOV-18
Benzene			112.8		%		50-150	14-NOV-18
Bromodichloromethane			111.1		%		50-150	14-NOV-18
Bromoform			111.2		%		50-150	14-NOV-18
Bromomethane			79.9		%		50-150	14-NOV-18



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Client: GHD Limited (Waterloo)
455 PHILLIP STREET
WATERLOO ON N2L 3X2

Contact: LAURA ERMETA

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-ROU-HS-WT								
	Water							
Batch	R4332534							
WG2927607-5 MS		WG2927607-3						
Carbon tetrachloride			111.5		%		50-150	14-NOV-18
Chlorobenzene			118.7		%		50-150	14-NOV-18
Chloroethane			102.2		%		50-150	14-NOV-18
Chloroform			112.8		%		50-150	14-NOV-18
cis-1,2-Dichloroethylene			108.8		%		50-150	14-NOV-18
cis-1,3-Dichloropropene			105.6		%		50-150	14-NOV-18
Dibromochloromethane			115.4		%		50-150	14-NOV-18
Dichlorodifluoromethane			92.6		%		50-150	14-NOV-18
Dichloromethane			111.6		%		50-150	14-NOV-18
Ethylbenzene			117.7		%		50-150	14-NOV-18
m+p-Xylenes			118.9		%		50-150	14-NOV-18
Methyl Ethyl Ketone			92.7		%		50-150	14-NOV-18
Methyl Isobutyl Ketone			95.9		%		50-150	14-NOV-18
n-Hexane			105.8		%		50-150	14-NOV-18
MTBE			122.6		%		50-150	14-NOV-18
o-Xylene			117.1		%		50-150	14-NOV-18
Styrene			113.2		%		50-150	14-NOV-18
Tetrachloroethylene			118.9		%		50-150	14-NOV-18
Toluene			118.9		%		50-150	14-NOV-18
trans-1,2-Dichloroethylene			108.8		%		50-150	14-NOV-18
trans-1,3-Dichloropropene			109.0		%		50-150	14-NOV-18
Trichloroethylene			113.5		%		50-150	14-NOV-18
Trichlorofluoromethane			118.7		%		50-150	14-NOV-18
Vinyl chloride			101.1		%		50-150	14-NOV-18

Quality Control Report

Workorder: L2193905

Report Date: 21-NOV-18

Client: GHD Limited (Waterloo)
455 PHILLIP STREET
WATERLOO ON N2L 3X2
Contact: LAURA ERMETA

Page 20 of 20

Legend:

Limit ALS Control Limit (Data Quality Objectives)
DUP Duplicate
RPD Relative Percent Difference
N/A Not Available
LCS Laboratory Control Sample
SRM Standard Reference Material
MS Matrix Spike
MSD Matrix Spike Duplicate
ADE Average Desorption Efficiency
MB Method Blank
IRM Internal Reference Material
CRM Certified Reference Material
CCV Continuing Calibration Verification
CVS Calibration Verification Standard
LCSD Laboratory Control Sample Duplicate

Sample Parameter Qualifier Definitions:

Qualifier	Description
J	Duplicate results and limits are expressed in terms of absolute difference.
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.
RPD-NA	Relative Percent Difference Not Available due to result(s) being less than detection limit.

Hold Time Exceedances:

All test results reported with this submission were conducted within ALS recommended hold times.

ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where available). For more information, please contact ALS.

The ALS Quality Control Report is provided to ALS clients upon request. ALS includes comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against pre-determined data quality objectives to provide confidence in the accuracy of associated test results.

Please note that this report may contain QC results from anonymous Sample Duplicates and Matrix Spikes that do not originate from this Work Order.



L2193905-COFC

COC Number: 14 -

Page 1 of 1

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Canada Toll Free: 1 800 668 9878

Report To Company: GHD LIMITED Contact: Jennifer Balkwill Address: 651 Colby Drive, Waterloo, Ontario N2V 1C2 Phone: 519-884-0510		Acct#13791 Report Format / Distribution Select Report Format: <input checked="" type="checkbox"/> PDF <input checked="" type="checkbox"/> EXCEL <input checked="" type="checkbox"/> EDD (DIGITAL) Quality Control (QC) Report with Report <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Criteria on Report - provide details below if box checked Select Distribution: <input checked="" type="checkbox"/> EMAIL <input type="checkbox"/> MAIL <input type="checkbox"/> FAX Email 1 or Fax <u>Jennifer.Balkwill@ghd.com</u> Email 2 See PO		Select Service Level Below (Rush Turnaround Time (TAT) is not available for all tests) R <input checked="" type="checkbox"/> Regular (Standard TAT if received by 3 pm - business days) P <input type="checkbox"/> Priority (2-4 bus. days if received by 3pm) 50% surcharge - contact ALS to confirm TAT E <input type="checkbox"/> Emergency (1-2 bus. days if received by 3pm) 100% surcharge - contact ALS to confirm TAT E2 <input type="checkbox"/> Same day or weekend emergency - contact ALS to confirm TAT and surcharge Specify Date Required for E2, E or P:																																																															
Invoice To Same as Report To <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Copy of Invoice with Report <input type="checkbox"/> Yes <input type="checkbox"/> No		Invoice Distribution Select Invoice Distribution: <input checked="" type="checkbox"/> EMAIL <input type="checkbox"/> MAIL <input checked="" type="checkbox"/> FAX Email 1 or Fax <u>Jennifer.Balkwill@ghd.com</u> Email 2		Analysis Request Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below																																																															
Project Information ALS Quote #: 44985 Job #: 44985 PO / AFE: 73506479 LSD:		Oil and Gas Required Fields (client use): Approver ID: Cost Center: GL Account: Routing Code: Activity Code: Location:		<table border="1" style="width:100%; border-collapse: collapse; font-size: 8px;"> <tr> <th>ALK, Conductivity, pH, TDS, TSS, Phenols</th> <th>Br, NO2, NO3, SO4, Cl, F (ANIONS-IC-6-WT)</th> <th>DOC (C-DIS-ORG-WT), COD, TKN, TP</th> <th>Total CN (CN-TOT-WT)</th> <th>Un-ionized NH3 (ETL-NH3-UNION-CLL-WT)</th> <th>Total Metals (MET-T-ME-WT, WT-44985-Metals)</th> <th>Total Mercury (HG-T-CVAA-WT)</th> <th>Total Cr 6+ (CR-CR6-IC-WT), Hardness calc</th> <th>VOCs (VOC-ROU-HS-WT, WT-44985-VOC)</th> <th>SVOCs (SVOC-44985-P-WT)</th> <th>CLIENT SUPPLIED TEMPERATURE **</th> <th>CLIENT SUPPLIED pH **</th> <th>Number of Containers</th> </tr> <tr> <td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>4</td><td>8.3</td><td>11</td> </tr> <tr> <td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>6</td><td>8.3</td><td>11</td> </tr> <tr> <td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>6</td><td>8.3</td><td>11</td> </tr> </table>												ALK, Conductivity, pH, TDS, TSS, Phenols	Br, NO2, NO3, SO4, Cl, F (ANIONS-IC-6-WT)	DOC (C-DIS-ORG-WT), COD, TKN, TP	Total CN (CN-TOT-WT)	Un-ionized NH3 (ETL-NH3-UNION-CLL-WT)	Total Metals (MET-T-ME-WT, WT-44985-Metals)	Total Mercury (HG-T-CVAA-WT)	Total Cr 6+ (CR-CR6-IC-WT), Hardness calc	VOCs (VOC-ROU-HS-WT, WT-44985-VOC)	SVOCs (SVOC-44985-P-WT)	CLIENT SUPPLIED TEMPERATURE **	CLIENT SUPPLIED pH **	Number of Containers	R	R	R	R	R	R	R	R	R	R	4	8.3	11	R	R	R	R	R	R	R	R	R	R	6	8.3	11	R	R	R	R	R	R	R	R	R	R	6	8.3	11
ALK, Conductivity, pH, TDS, TSS, Phenols	Br, NO2, NO3, SO4, Cl, F (ANIONS-IC-6-WT)	DOC (C-DIS-ORG-WT), COD, TKN, TP	Total CN (CN-TOT-WT)	Un-ionized NH3 (ETL-NH3-UNION-CLL-WT)	Total Metals (MET-T-ME-WT, WT-44985-Metals)	Total Mercury (HG-T-CVAA-WT)	Total Cr 6+ (CR-CR6-IC-WT), Hardness calc	VOCs (VOC-ROU-HS-WT, WT-44985-VOC)	SVOCs (SVOC-44985-P-WT)	CLIENT SUPPLIED TEMPERATURE **	CLIENT SUPPLIED pH **	Number of Containers																																																							
R	R	R	R	R	R	R	R	R	R	4	8.3	11																																																							
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R	R	R	R	R	R	R	R	R	R	6	8.3	11																																																							
ALS Lab Work Order # (lab use only) <u>L2193905</u>		ALS Contact: Rick H Sampler:																																																																	
Drinking Water (DW) Samples¹ (client use) Are samples taken from a Regulated DW System? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Are samples for human drinking water use? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		Special Instructions / Specify Criteria to add on report (client Use) **Please fill in Client Supplied temperature and pH for Unionized NH3 calculation**		SAMPLE CONDITION AS RECEIVED (lab use only) Frozen <input type="checkbox"/> SIF Observations Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Ice packs Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Custody seal intact Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Cooling Initiated <input type="checkbox"/> INITIAL COOLER TEMPERATURES °C: FINAL COOLER TEMPERATURES °C: <u>13.4</u>																																																															
SHIPMENT RELEASE (client use) Released by: <u>[Signature]</u> Date: <u>Nov 7/18</u> Time: <u>1300</u>		INITIAL SHIPMENT RECEPTION (lab use only) Received by: Date: Time:		FINAL SHIPMENT RECEPTION (lab use only) Received by: <u>[Signature]</u> Date: <u>11/8/18</u> Time: <u>9:00</u>																																																															

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

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YELLOW - CLIENT COPY

ALS-FRM-00256-v03 Form 04 January 2014

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.



GHD Limited (Waterloo)
ATTN: LAURA ERMETA
455 PHILLIP STREET
WATERLOO ON N2L 3X2

Date Received: 14-NOV-18
Report Date: 19-NOV-18 12:59 (MT)
Version: FINAL REV. 2

Client Phone: 519-884-0510

Certificate of Analysis

Lab Work Order #: L2196113
Project P.O. #: 73506479
Job Reference: 44985
C of C Numbers:
Legal Site Desc:

Suzette Chin
Account Manager

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ADDRESS: 9450 17 Avenue NW, Edmonton, AB T6N 1M9 Canada | Phone: +1 780 413 5227 | Fax: +1 780 437 2311
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ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2196113-1 EQ POND DISCHARGE							
Sampled By: CLIENT on 12-NOV-18 @ 09:30							
Matrix: WATER							
Microtox Physical Tests							
Turbidity	N/A				15-NOV-18	15-NOV-18	R4339630
Colour	Colourless				15-NOV-18	15-NOV-18	R4339630
Clarification	None				15-NOV-18	15-NOV-18	R4339630
Initial pH	8.1		0.10	pH	15-NOV-18	15-NOV-18	R4339630
Final pH	8.1		0.10	pH	15-NOV-18	15-NOV-18	R4339630
Lab Treatment	None				15-NOV-18	15-NOV-18	R4339630
Microtox Original							
EC50 (15min) Original	>100		1.0	%	15-NOV-18	15-NOV-18	R4339630
EC20 (15min) Original	>100		1.0	%	15-NOV-18	15-NOV-18	R4339630
EC50 (5min) Original	>100		1.0	%	15-NOV-18	15-NOV-18	R4339630
EC20 (5min) Original	>100		1.0	%	15-NOV-18	15-NOV-18	R4339630
Interpretation Original	NON TOXIC				15-NOV-18	15-NOV-18	R4339630

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
MICROTOX-ORG-ED	Water	Microtox Original	ERCB Directive 050
Light output of luminescent bacteria is measured after they have been challenged by a sample of unknown toxicity, and compared to the light output of a control reagent blank. The difference in light output is attributed to the effect of the sample on the organisms, and the degree of light loss indicates metabolic inhibition and the degree of toxicity of the sample to the bacteria. EC50(5) and EC50(15) values are reported, and refer to the effective concentration of the sample that caused a 50% decrease in the light output in 5 and 15 minutes.			
MICROTOX-PHYSICAL-ED	Water	Microtox Physical Tests	ERCB Directive 050

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
ED	ALS ENVIRONMENTAL - EDMONTON, ALBERTA, CANADA

Chain of Custody Numbers:

GLOSSARY OF REPORT TERMS

Surrogates are compounds that are similar in behaviour to target analyte(s), but that do not normally occur in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery. In reports that display the D.L. column, laboratory objectives for surrogates are listed there.

mg/kg - milligrams per kilogram based on dry weight of sample

mg/kg wwt - milligrams per kilogram based on wet weight of sample

mg/kg lwt - milligrams per kilogram based on lipid weight of sample

mg/L - unit of concentration based on volume, parts per million.

< - Less than.

D.L. - The reporting limit.

N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.

UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.



Quality Control Report

Workorder: L2196113

Report Date: 19-NOV-18

Page 1 of 2

Client: GHD Limited (Waterloo)
 455 PHILLIP STREET
 WATERLOO ON N2L 3X2

Contact: LAURA ERMETA

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MICROTOX-ORG-ED								
	Water							
Batch	R4339630							
WG2931228-2 CRM		PHENOL_ED						
EC50 (5min) Original			16.8		mg/L		13-26	15-NOV-18
WG2931228-3 CRM		PHENOL_ED						
EC50 (5min) Original			17.2		mg/L		13-26	15-NOV-18
WG2931228-4 DUP		L2196113-1						
EC50 (15min) Original		>100	>100	RPD-NA	%	N/A		15-NOV-18
EC20 (15min) Original		>100	>100	RPD-NA	%	N/A		15-NOV-18
EC50 (5min) Original		>100	>100	RPD-NA	%	N/A		15-NOV-18
EC20 (5min) Original		>100	>100	RPD-NA	%	N/A		15-NOV-18
WG2931228-1 MB								
EC50 (15min) Original			PASS					15-NOV-18
EC20 (15min) Original			PASS					15-NOV-18
EC50 (5min) Original			PASS					15-NOV-18
EC20 (5min) Original			PASS					15-NOV-18

Quality Control Report

Workorder: L2196113

Report Date: 19-NOV-18

Client: GHD Limited (Waterloo)
455 PHILLIP STREET
WATERLOO ON N2L 3X2
Contact: LAURA ERMETA

Page 2 of 2

Legend:

Limit	ALS Control Limit (Data Quality Objectives)
DUP	Duplicate
RPD	Relative Percent Difference
N/A	Not Available
LCS	Laboratory Control Sample
SRM	Standard Reference Material
MS	Matrix Spike
MSD	Matrix Spike Duplicate
ADE	Average Desorption Efficiency
MB	Method Blank
IRM	Internal Reference Material
CRM	Certified Reference Material
CCV	Continuing Calibration Verification
CVS	Calibration Verification Standard
LCSD	Laboratory Control Sample Duplicate

Sample Parameter Qualifier Definitions:

Qualifier	Description
RPD-NA	Relative Percent Difference Not Available due to result(s) being less than detection limit.

Hold Time Exceedances:

All test results reported with this submission were conducted within ALS recommended hold times.

ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where available). For more information, please contact ALS.

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Please note that this report may contain QC results from anonymous Sample Duplicates and Matrix Spikes that do not originate from this Work Order.



L2196113-COFC

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Report To		Acct#13791			Report Format / Distribution		Select Service Level Below (Rush Turnaround Time (TAT) is not available for all tests)																																																																																																																							
Company: GHD LIMITED		Select Report Format: <input checked="" type="checkbox"/> PDF <input checked="" type="checkbox"/> EXCEL <input checked="" type="checkbox"/> EDD (DIGITAL)			Quality Control (QC) Report with Report <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		R <input checked="" type="checkbox"/> Regular (Standard TAT if received by 3 pm - business days)																																																																																																																							
Contact: Jennifer Balkwill		Criteria on Report - provide details below if box checked			Select Distribution: <input checked="" type="checkbox"/> EMAIL <input type="checkbox"/> MAIL <input type="checkbox"/> FAX		P <input type="checkbox"/> Priority (2-4 bus. days if received by 3pm) 50% surcharge - contact ALS to confirm TAT																																																																																																																							
Address: 651 Colby Drive, Waterloo, Ontario N2V 1C2		Email 1 or Fax Jennifer.Balkwill@ghd.com			Email 2 See PO		E <input type="checkbox"/> Emergency (1-2 bus. days if received by 3pm) 100% surcharge - contact ALS to confirm TAT																																																																																																																							
Phone: 519-884-0510		Invoice To Same as Report To <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No			Invoice Distribution		E2 <input type="checkbox"/> Same day or weekend emergency - contact ALS to confirm TAT and surcharge																																																																																																																							
Copy of Invoice with Report <input type="checkbox"/> Yes <input type="checkbox"/> No		Select Invoice Distribution: <input checked="" type="checkbox"/> EMAIL <input type="checkbox"/> MAIL <input checked="" type="checkbox"/> FAX			Email 1 or Fax Jennifer.Balkwill@ghd.com		Specify Date Required for E2, E or P:																																																																																																																							
Company: GHD LIMITED		Email 2			Analysis Request		Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below																																																																																																																							
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ALS Quote #: 44985		Approver ID:			Cost Center:		<table border="1" style="width:100%; height: 100%; text-align: center;"> <tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> </table>																																																																																																																							
Job #: 44985		GL Account:			Routing Code:																																																																																																																									
PO / AFE: 73506479		Activity Code:			Location:																																																																																																																									
LSD:		ALS Lab Work Order # (lab use only) L2196113			ALS Contact: Rick H		Sampler: <i>[Signature]</i>																																																																																																																							
ALS Sample # (lab use only)		Sample Identification and/or Coordinates (This description will appear on the report)			Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	MICROTOX (MICROTOX-ORG-ED)	MICROTOX (MICROTOX-PHYSICAL-ED)						Number of Containers																																																																																																															
		EQ Pond Discharge			12-11-18	0930	Gvab	R								2																																																																																																														
Drinking Water (DW) Samples¹ (client use)				Special Instructions / Specify Criteria to add on report (client Use)				SAMPLE CONDITION AS RECEIVED (lab use only)																																																																																																																						
Are samples taken from a Regulated DW System? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No				Please send to ALS Edmonton ASAP for analysis (short HT)				Frozen <input type="checkbox"/> SIF Observations Yes <input type="checkbox"/> No <input type="checkbox"/>																																																																																																																						
Are samples for human drinking water use? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No								Ice packs Yes <input type="checkbox"/> No <input type="checkbox"/> Custody seal intact Yes <input type="checkbox"/> No <input type="checkbox"/>																																																																																																																						
SHIPMENT RELEASE (client use)				INITIAL SHIPMENT RECEPTION (lab use only)				FINAL SHIPMENT RECEPTION (lab use only)																																																																																																																						
Released by: <i>[Signature]</i>		Date: 12/18/18		Time: 1130		Received by: KT		Date: 11/14/18		Time: 8:55		Received by:		Date:		Time:																																																																																																														

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104-P&C-0226a v08 Form 04 January 2014

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1. If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.



GHD Limited (Waterloo)
ATTN: LAURA ERMETA
455 PHILLIP STREET
WATERLOO ON N2L 3X2

Date Received: 20-NOV-18
Report Date: 27-NOV-18 09:57 (MT)
Version: FINAL

Client Phone: 519-884-0510

Certificate of Analysis

Lab Work Order #: L2198864
Project P.O. #: 73506479
Job Reference: 44985
C of C Numbers:
Legal Site Desc:

Rick Hawthorne
Account Manager

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ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2198864-1 EQ POND DISCHARGE EQP Sampled By: CLIENT on 19-NOV-18 @ 11:00 Matrix: WATER							
Field Tests							
pH, Client Supplied	7.80		0.10	pH		20-NOV-18	R4345924
Temperature, Client	3.0		-50	Deg. C		20-NOV-18	R4345924
Physical Tests							
Conductivity	667		3.0	umhos/cm		20-NOV-18	R4347430
Hardness (as CaCO3)	238	HTC	10	mg/L		22-NOV-18	
pH	7.86		0.10	pH units		20-NOV-18	R4347430
Total Suspended Solids	5.7		2.0	mg/L	21-NOV-18	22-NOV-18	R4350708
Total Dissolved Solids	445	DLDS	20	mg/L		21-NOV-18	R4352372
Anions and Nutrients							
Alkalinity, Total (as CaCO3)	146		10	mg/L		21-NOV-18	R4348749
Unionized ammonia	0.0098		0.0016	mg/L		22-NOV-18	
Ammonia, Total (as N)	1.21	DLHC	0.20	mg/L		22-NOV-18	R4351868
Bromide (Br)	0.72		0.10	mg/L		21-NOV-18	R4352701
Chloride (Cl)	65.5		0.50	mg/L		21-NOV-18	R4352701
Fluoride (F)	0.503		0.020	mg/L		21-NOV-18	R4352701
Nitrate (as N)	0.214		0.020	mg/L		21-NOV-18	R4352701
Nitrite (as N)	<0.010		0.010	mg/L		21-NOV-18	R4352701
Total Kjeldahl Nitrogen	1.85		0.15	mg/L	26-NOV-18	26-NOV-18	R4360028
Phosphorus, Total	0.0272		0.0030	mg/L	22-NOV-18	23-NOV-18	R4353638
Sulfate (SO4)	113		0.30	mg/L		21-NOV-18	R4352701
Cyanides							
Cyanide, Total	<0.0020		0.0020	mg/L		21-NOV-18	R4351069
Organic / Inorganic Carbon							
Dissolved Carbon Filtration Location	LAB					21-NOV-18	R4347761
Dissolved Organic Carbon	4.80		0.50	mg/L	21-NOV-18	25-NOV-18	R4357605
Total Metals							
Aluminum (Al)-Total	0.282		0.010	mg/L	21-NOV-18	21-NOV-18	R4347807
Antimony (Sb)-Total	0.00041		0.00010	mg/L	21-NOV-18	21-NOV-18	R4347807
Arsenic (As)-Total	0.00116		0.00010	mg/L	21-NOV-18	21-NOV-18	R4347807
Barium (Ba)-Total	0.0558		0.00020	mg/L	21-NOV-18	22-NOV-18	R4347807
Beryllium (Be)-Total	<0.00010		0.00010	mg/L	21-NOV-18	21-NOV-18	R4347807
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	21-NOV-18	21-NOV-18	R4347807
Boron (B)-Total	0.129		0.010	mg/L	21-NOV-18	21-NOV-18	R4347807
Cadmium (Cd)-Total	<0.000040	DLM	0.000040	mg/L	21-NOV-18	21-NOV-18	R4347807
Calcium (Ca)-Total	66.3		0.50	mg/L	21-NOV-18	21-NOV-18	R4347807
Cobalt (Co)-Total	0.00035		0.00010	mg/L	21-NOV-18	21-NOV-18	R4347807
Copper (Cu)-Total	0.0016		0.0010	mg/L	21-NOV-18	21-NOV-18	R4347807
Iron (Fe)-Total	0.308		0.050	mg/L	21-NOV-18	21-NOV-18	R4347807
Lead (Pb)-Total	0.00029		0.00010	mg/L	21-NOV-18	21-NOV-18	R4347807
Magnesium (Mg)-Total	17.7		0.050	mg/L	21-NOV-18	22-NOV-18	R4347807
Manganese (Mn)-Total	0.0307		0.00050	mg/L	21-NOV-18	21-NOV-18	R4347807
Mercury (Hg)-Total	<0.000010		0.000010	mg/L		21-NOV-18	R4348801

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2198864-1 EQ POND DISCHARGE EQP Sampled By: CLIENT on 19-NOV-18 @ 11:00 Matrix: WATER							
Total Metals							
Molybdenum (Mo)-Total	0.0460		0.000050	mg/L	21-NOV-18	21-NOV-18	R4347807
Nickel (Ni)-Total	0.00380		0.00050	mg/L	21-NOV-18	21-NOV-18	R4347807
Potassium (K)-Total	9.05		0.050	mg/L	21-NOV-18	21-NOV-18	R4347807
Selenium (Se)-Total	0.000917		0.000050	mg/L	21-NOV-18	21-NOV-18	R4347807
Silicon (Si)-Total	2.73		0.10	mg/L	21-NOV-18	21-NOV-18	R4347807
Silver (Ag)-Total	<0.000050		0.000050	mg/L	21-NOV-18	21-NOV-18	R4347807
Sodium (Na)-Total	35.1		0.50	mg/L	21-NOV-18	21-NOV-18	R4347807
Strontium (Sr)-Total	0.551		0.0010	mg/L	21-NOV-18	21-NOV-18	R4347807
Thallium (Tl)-Total	0.000016		0.000010	mg/L	21-NOV-18	21-NOV-18	R4347807
Tin (Sn)-Total	<0.00010		0.00010	mg/L	21-NOV-18	22-NOV-18	R4347807
Vanadium (V)-Total	0.00093		0.00050	mg/L	21-NOV-18	21-NOV-18	R4347807
Zinc (Zn)-Total	<0.0030		0.0030	mg/L	21-NOV-18	21-NOV-18	R4347807
Speciated Metals							
Chromium, Hexavalent	<0.00050		0.00050	mg/L		22-NOV-18	R4354108
Aggregate Organics							
COD	26		10	mg/L		25-NOV-18	R4357616
Phenols (4AAP)	0.0017		0.0010	mg/L		21-NOV-18	R4351647
Volatile Organic Compounds							
Acetone	<20		20	ug/L		26-NOV-18	R4358457
Benzene	<0.50		0.50	ug/L		26-NOV-18	R4358457
Bromodichloromethane	<1.0		1.0	ug/L		26-NOV-18	R4358457
Bromoform	<1.0		1.0	ug/L		26-NOV-18	R4358457
Bromomethane	<0.50		0.50	ug/L		26-NOV-18	R4358457
Carbon tetrachloride	<0.50		0.50	ug/L		26-NOV-18	R4358457
Chlorobenzene	<0.50		0.50	ug/L		26-NOV-18	R4358457
Dibromochloromethane	<1.0		1.0	ug/L		26-NOV-18	R4358457
Chloroethane	<1.0		1.0	ug/L		26-NOV-18	R4358457
Chloroform	<1.0		1.0	ug/L		26-NOV-18	R4358457
1,2-Dibromoethane	<0.20		0.20	ug/L		26-NOV-18	R4358457
1,2-Dichlorobenzene	<0.50		0.50	ug/L		26-NOV-18	R4358457
1,3-Dichlorobenzene	<0.50		0.50	ug/L		26-NOV-18	R4358457
1,4-Dichlorobenzene	<0.50		0.50	ug/L		26-NOV-18	R4358457
Dichlorodifluoromethane	<1.0		1.0	ug/L		26-NOV-18	R4358457
1,1-Dichloroethane	<0.50		0.50	ug/L		26-NOV-18	R4358457
1,2-Dichloroethane	<0.50		0.50	ug/L		26-NOV-18	R4358457
1,1-Dichloroethylene	<0.50		0.50	ug/L		26-NOV-18	R4358457
cis-1,2-Dichloroethylene	<0.50		0.50	ug/L		26-NOV-18	R4358457
trans-1,2-Dichloroethylene	<0.50		0.50	ug/L		26-NOV-18	R4358457
Dichloromethane	<2.0		2.0	ug/L		26-NOV-18	R4358457
1,2-Dichloropropane	<0.50		0.50	ug/L		26-NOV-18	R4358457
cis-1,3-Dichloropropene	<0.50		0.50	ug/L		26-NOV-18	R4358457
trans-1,3-Dichloropropene	<0.50		0.50	ug/L		26-NOV-18	R4358457

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2198864-1 EQ POND DISCHARGE EQP Sampled By: CLIENT on 19-NOV-18 @ 11:00 Matrix: WATER							
Volatile Organic Compounds							
Ethylbenzene	<0.50		0.50	ug/L		26-NOV-18	R4358457
n-Hexane	<0.50		0.50	ug/L		26-NOV-18	R4358457
Methyl Ethyl Ketone	<20		20	ug/L		26-NOV-18	R4358457
Methyl Isobutyl Ketone	<20		20	ug/L		26-NOV-18	R4358457
MTBE	<0.50		0.50	ug/L		26-NOV-18	R4358457
Styrene	<0.50		0.50	ug/L		26-NOV-18	R4358457
1,1,1,2-Tetrachloroethane	<0.50		0.50	ug/L		26-NOV-18	R4358457
1,1,2,2-Tetrachloroethane	<0.50		0.50	ug/L		26-NOV-18	R4358457
Tetrachloroethylene	<0.50		0.50	ug/L		26-NOV-18	R4358457
Toluene	<0.50		0.50	ug/L		26-NOV-18	R4358457
1,1,1-Trichloroethane	<0.50		0.50	ug/L		26-NOV-18	R4358457
1,1,2-Trichloroethane	<0.50		0.50	ug/L		26-NOV-18	R4358457
Trichloroethylene	<0.50		0.50	ug/L		26-NOV-18	R4358457
Trichlorofluoromethane	<1.0		1.0	ug/L		26-NOV-18	R4358457
Vinyl chloride	<0.50		0.50	ug/L		26-NOV-18	R4358457
o-Xylene	<0.50		0.50	ug/L		26-NOV-18	R4358457
m+p-Xylenes	<1.0		1.0	ug/L		26-NOV-18	R4358457
Xylenes (Total)	<1.1		1.1	ug/L		26-NOV-18	
Surrogate: 4-Bromofluorobenzene	91.5		70-130	%		26-NOV-18	R4358457
Surrogate: 1,4-Difluorobenzene	102.2		70-130	%		26-NOV-18	R4358457
Trihalomethanes							
Total THMs	<2.0		2.0	ug/L		26-NOV-18	
Acid Extractables							
2,3,6-Trichlorophenol	<0.50		0.50	ug/L	22-NOV-18	27-NOV-18	R4360947
Surrogate: 2,4,6-Tribromophenol	126.0		40-150	%	22-NOV-18	27-NOV-18	R4360947
Semi-Volatile Organics							
Acenaphthene	<0.20		0.20	ug/L	22-NOV-18	26-NOV-18	R4359172
Acenaphthylene	<0.20		0.20	ug/L	22-NOV-18	26-NOV-18	R4359172
Anthracene	<0.20		0.20	ug/L	22-NOV-18	26-NOV-18	R4359172
Benzo(a)anthracene	<0.20		0.20	ug/L	22-NOV-18	26-NOV-18	R4359172
Benzo(a)pyrene	<0.050		0.050	ug/L	22-NOV-18	26-NOV-18	R4359172
Benzo(b)fluoranthene	<0.20		0.20	ug/L	22-NOV-18	26-NOV-18	R4359172
Benzo(ghi)perylene	<0.20		0.20	ug/L	22-NOV-18	26-NOV-18	R4359172
Benzo(k)fluoranthene	<0.20		0.20	ug/L	22-NOV-18	26-NOV-18	R4359172
4-Chloroaniline	<0.40		0.40	ug/L	22-NOV-18	26-NOV-18	R4359172
Bis(2-chloroethyl)ether	<0.40		0.40	ug/L	22-NOV-18	26-NOV-18	R4359172
2-Chlorophenol	<0.30		0.30	ug/L	22-NOV-18	26-NOV-18	R4359172
Chrysene	<0.20		0.20	ug/L	22-NOV-18	26-NOV-18	R4359172
Dibenzo(a,h)anthracene	<0.20		0.20	ug/L	22-NOV-18	26-NOV-18	R4359172
1,2-Dichlorobenzene	<0.40		0.40	ug/L	22-NOV-18	26-NOV-18	R4359172
1,3-Dichlorobenzene	<0.40		0.40	ug/L	22-NOV-18	26-NOV-18	R4359172
1,4-Dichlorobenzene	<0.40		0.40	ug/L	22-NOV-18	26-NOV-18	R4359172

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2198864-1 EQ POND DISCHARGE EQP Sampled By: CLIENT on 19-NOV-18 @ 11:00 Matrix: WATER							
Semi-Volatile Organics							
3,3'-Dichlorobenzidine	<0.40		0.40	ug/L	22-NOV-18	26-NOV-18	R4359172
2,4-Dichlorophenol	<0.30		0.30	ug/L	22-NOV-18	26-NOV-18	R4359172
Diethylphthalate	<0.20		0.20	ug/L	22-NOV-18	26-NOV-18	R4359172
Dimethylphthalate	<0.20		0.20	ug/L	22-NOV-18	26-NOV-18	R4359172
2,4-Dimethylphenol	<0.50		0.50	ug/L	22-NOV-18	26-NOV-18	R4359172
2,4-Dinitrophenol	<1.0		1.0	ug/L	22-NOV-18	26-NOV-18	R4359172
2,4-Dinitrotoluene	<0.40		0.40	ug/L	22-NOV-18	26-NOV-18	R4359172
2,6-Dinitrotoluene	<0.40		0.40	ug/L	22-NOV-18	26-NOV-18	R4359172
Bis(2-ethylhexyl)phthalate	<2.0		2.0	ug/L	22-NOV-18	26-NOV-18	R4359172
Fluoranthene	<0.20		0.20	ug/L	22-NOV-18	26-NOV-18	R4359172
Fluorene	<0.20		0.20	ug/L	22-NOV-18	26-NOV-18	R4359172
Hexachlorobenzene	<0.040		0.040	ug/L	22-NOV-18	26-NOV-18	R4359172
Hexachlorobutadiene	<0.20		0.20	ug/L	22-NOV-18	26-NOV-18	R4359172
Indeno(1,2,3-cd)pyrene	<0.20		0.20	ug/L	22-NOV-18	26-NOV-18	R4359172
1-Methylnaphthalene	<0.40		0.40	ug/L	22-NOV-18	26-NOV-18	R4359172
2-Methylnaphthalene	<0.40		0.40	ug/L	22-NOV-18	26-NOV-18	R4359172
Naphthalene	<0.20		0.20	ug/L	22-NOV-18	26-NOV-18	R4359172
Pentachlorophenol	<0.50		0.50	ug/L	22-NOV-18	26-NOV-18	R4359172
Perylene	<0.20		0.20	ug/L	22-NOV-18	26-NOV-18	R4359172
Phenanthrene	<0.20		0.20	ug/L	22-NOV-18	26-NOV-18	R4359172
Pyrene	<0.20		0.20	ug/L	22-NOV-18	26-NOV-18	R4359172
2,3,4,5-Tetrachlorophenol	<0.50		0.50	ug/L	22-NOV-18	26-NOV-18	R4359172
2,3,4,6-Tetrachlorophenol	<0.50		0.50	ug/L	22-NOV-18	26-NOV-18	R4359172
1,2,4-Trichlorobenzene	<0.40		0.40	ug/L	22-NOV-18	26-NOV-18	R4359172
2,4,5-Trichlorophenol	<0.50		0.50	ug/L	22-NOV-18	26-NOV-18	R4359172
2,4,6-Trichlorophenol	<0.50		0.50	ug/L	22-NOV-18	26-NOV-18	R4359172
Surrogate: 2-Fluorobiphenyl	91.8		40-130	%	22-NOV-18	26-NOV-18	R4359172
Surrogate: Nitrobenzene d5	91.2		40-130	%	22-NOV-18	26-NOV-18	R4359172
Surrogate: p-Terphenyl d14	112.5		40-130	%	22-NOV-18	26-NOV-18	R4359172
Report Remarks : DLM-CD LOR INCREASED DUE TO POTENTIAL INTERFERENCE FROM MO							
L2198864-2 WEST STORM WATER POND WRP Sampled By: CLIENT on 19-NOV-18 @ 11:00 Matrix: WATER							
Field Tests							
pH, Client Supplied	7.50		0.10	pH		20-NOV-18	R4345924
Temperature, Client	3.0		-50	Deg. C		20-NOV-18	R4345924
Physical Tests							
Conductivity	669		3.0	umhos/cm		20-NOV-18	R4347430
Hardness (as CaCO3)	246	HTC	10	mg/L		22-NOV-18	
pH	7.85		0.10	pH units		20-NOV-18	R4347430
Total Suspended Solids	7.9		2.0	mg/L	21-NOV-18	22-NOV-18	R4350708
Total Dissolved Solids	452	DLDS	20	mg/L		21-NOV-18	R4352372

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2198864-2 WEST STORM WATER POND WRP Sampled By: CLIENT on 19-NOV-18 @ 11:00 Matrix: WATER							
Physical Tests							
Anions and Nutrients							
Alkalinity, Total (as CaCO ₃)	151		10	mg/L		21-NOV-18	R4348749
Unionized ammonia	0.0163		0.0016	mg/L		22-NOV-18	
Ammonia, Total (as N)	4.01	DLHC	0.40	mg/L		22-NOV-18	R4351868
Bromide (Br)	0.73		0.10	mg/L		21-NOV-18	R4352701
Chloride (Cl)	66.1		0.50	mg/L		21-NOV-18	R4352701
Fluoride (F)	0.506		0.020	mg/L		21-NOV-18	R4352701
Nitrate (as N)	0.173		0.020	mg/L		21-NOV-18	R4352701
Nitrite (as N)	<0.010		0.010	mg/L		21-NOV-18	R4352701
Total Kjeldahl Nitrogen	4.96		0.15	mg/L	26-NOV-18	26-NOV-18	R4360028
Phosphorus, Total	0.0301		0.0030	mg/L	22-NOV-18	23-NOV-18	R4353638
Sulfate (SO ₄)	114		0.30	mg/L		21-NOV-18	R4352701
Cyanides							
Cyanide, Total	<0.0020		0.0020	mg/L		21-NOV-18	R4351069
Organic / Inorganic Carbon							
Dissolved Carbon Filtration Location	LAB					21-NOV-18	R4347761
Dissolved Organic Carbon	5.25		0.50	mg/L	21-NOV-18	25-NOV-18	R4357605
Total Metals							
Aluminum (Al)-Total	0.411		0.010	mg/L	21-NOV-18	21-NOV-18	R4347807
Antimony (Sb)-Total	0.00041		0.00010	mg/L	21-NOV-18	21-NOV-18	R4347807
Arsenic (As)-Total	0.00122		0.00010	mg/L	21-NOV-18	21-NOV-18	R4347807
Barium (Ba)-Total	0.0592		0.00020	mg/L	21-NOV-18	22-NOV-18	R4347807
Beryllium (Be)-Total	<0.00010		0.00010	mg/L	21-NOV-18	21-NOV-18	R4347807
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	21-NOV-18	21-NOV-18	R4347807
Boron (B)-Total	0.139		0.010	mg/L	21-NOV-18	21-NOV-18	R4347807
Cadmium (Cd)-Total	<0.000040	DLM	0.000040	mg/L	21-NOV-18	21-NOV-18	R4347807
Calcium (Ca)-Total	69.0		0.50	mg/L	21-NOV-18	21-NOV-18	R4347807
Cobalt (Co)-Total	0.00044		0.00010	mg/L	21-NOV-18	21-NOV-18	R4347807
Copper (Cu)-Total	0.0019		0.0010	mg/L	21-NOV-18	21-NOV-18	R4347807
Iron (Fe)-Total	0.425		0.050	mg/L	21-NOV-18	21-NOV-18	R4347807
Lead (Pb)-Total	0.00039		0.00010	mg/L	21-NOV-18	21-NOV-18	R4347807
Magnesium (Mg)-Total	17.9		0.050	mg/L	21-NOV-18	22-NOV-18	R4347807
Manganese (Mn)-Total	0.0439		0.00050	mg/L	21-NOV-18	21-NOV-18	R4347807
Mercury (Hg)-Total	<0.000010		0.000010	mg/L		21-NOV-18	R4348801
Molybdenum (Mo)-Total	0.0469		0.000050	mg/L	21-NOV-18	21-NOV-18	R4347807
Nickel (Ni)-Total	0.00405		0.00050	mg/L	21-NOV-18	21-NOV-18	R4347807
Potassium (K)-Total	9.07		0.050	mg/L	21-NOV-18	21-NOV-18	R4347807
Selenium (Se)-Total	0.000946		0.000050	mg/L	21-NOV-18	21-NOV-18	R4347807
Silicon (Si)-Total	3.04		0.10	mg/L	21-NOV-18	21-NOV-18	R4347807
Silver (Ag)-Total	<0.000050		0.000050	mg/L	21-NOV-18	21-NOV-18	R4347807
Sodium (Na)-Total	36.0		0.50	mg/L	21-NOV-18	21-NOV-18	R4347807
Strontium (Sr)-Total	0.538		0.0010	mg/L	21-NOV-18	21-NOV-18	R4347807

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2198864-2 WEST STORM WATER POND WRP Sampled By: CLIENT on 19-NOV-18 @ 11:00 Matrix: WATER							
Total Metals							
Thallium (Tl)-Total	0.000020		0.000010	mg/L	21-NOV-18	21-NOV-18	R4347807
Tin (Sn)-Total	<0.00010		0.00010	mg/L	21-NOV-18	22-NOV-18	R4347807
Vanadium (V)-Total	0.00117		0.00050	mg/L	21-NOV-18	21-NOV-18	R4347807
Zinc (Zn)-Total	<0.0030		0.0030	mg/L	21-NOV-18	21-NOV-18	R4347807
Speciated Metals							
Chromium, Hexavalent	<0.00050		0.00050	mg/L		22-NOV-18	R4354108
Aggregate Organics							
COD	28		10	mg/L		25-NOV-18	R4357616
Phenols (4AAP)	0.0015		0.0010	mg/L		21-NOV-18	R4351647
Volatile Organic Compounds							
Acetone	<20		20	ug/L		26-NOV-18	R4358457
Benzene	<0.50		0.50	ug/L		26-NOV-18	R4358457
Bromodichloromethane	<1.0		1.0	ug/L		26-NOV-18	R4358457
Bromoform	<1.0		1.0	ug/L		26-NOV-18	R4358457
Bromomethane	<0.50		0.50	ug/L		26-NOV-18	R4358457
Carbon tetrachloride	<0.50		0.50	ug/L		26-NOV-18	R4358457
Chlorobenzene	<0.50		0.50	ug/L		26-NOV-18	R4358457
Dibromochloromethane	<1.0		1.0	ug/L		26-NOV-18	R4358457
Chloroethane	<1.0		1.0	ug/L		26-NOV-18	R4358457
Chloroform	<1.0		1.0	ug/L		26-NOV-18	R4358457
1,2-Dibromoethane	<0.20		0.20	ug/L		26-NOV-18	R4358457
1,2-Dichlorobenzene	<0.50		0.50	ug/L		26-NOV-18	R4358457
1,3-Dichlorobenzene	<0.50		0.50	ug/L		26-NOV-18	R4358457
1,4-Dichlorobenzene	<0.50		0.50	ug/L		26-NOV-18	R4358457
Dichlorodifluoromethane	<1.0		1.0	ug/L		26-NOV-18	R4358457
1,1-Dichloroethane	<0.50		0.50	ug/L		26-NOV-18	R4358457
1,2-Dichloroethane	<0.50		0.50	ug/L		26-NOV-18	R4358457
1,1-Dichloroethylene	<0.50		0.50	ug/L		26-NOV-18	R4358457
cis-1,2-Dichloroethylene	<0.50		0.50	ug/L		26-NOV-18	R4358457
trans-1,2-Dichloroethylene	<0.50		0.50	ug/L		26-NOV-18	R4358457
Dichloromethane	<2.0		2.0	ug/L		26-NOV-18	R4358457
1,2-Dichloropropane	<0.50		0.50	ug/L		26-NOV-18	R4358457
cis-1,3-Dichloropropene	<0.50		0.50	ug/L		26-NOV-18	R4358457
trans-1,3-Dichloropropene	<0.50		0.50	ug/L		26-NOV-18	R4358457
Ethylbenzene	<0.50		0.50	ug/L		26-NOV-18	R4358457
n-Hexane	<0.50		0.50	ug/L		26-NOV-18	R4358457
Methyl Ethyl Ketone	<20		20	ug/L		26-NOV-18	R4358457
Methyl Isobutyl Ketone	<20		20	ug/L		26-NOV-18	R4358457
MTBE	<0.50		0.50	ug/L		26-NOV-18	R4358457
Styrene	<0.50		0.50	ug/L		26-NOV-18	R4358457
1,1,1,2-Tetrachloroethane	<0.50		0.50	ug/L		26-NOV-18	R4358457
1,1,2,2-Tetrachloroethane	<0.50		0.50	ug/L		26-NOV-18	R4358457

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2198864-2 WEST STORM WATER POND WRP Sampled By: CLIENT on 19-NOV-18 @ 11:00 Matrix: WATER							
Volatile Organic Compounds							
Tetrachloroethylene	<0.50		0.50	ug/L		26-NOV-18	R4358457
Toluene	<0.50		0.50	ug/L		26-NOV-18	R4358457
1,1,1-Trichloroethane	<0.50		0.50	ug/L		26-NOV-18	R4358457
1,1,2-Trichloroethane	<0.50		0.50	ug/L		26-NOV-18	R4358457
Trichloroethylene	<0.50		0.50	ug/L		26-NOV-18	R4358457
Trichlorofluoromethane	<1.0		1.0	ug/L		26-NOV-18	R4358457
Vinyl chloride	<0.50		0.50	ug/L		26-NOV-18	R4358457
o-Xylene	<0.50		0.50	ug/L		26-NOV-18	R4358457
m+p-Xylenes	<1.0		1.0	ug/L		26-NOV-18	R4358457
Xylenes (Total)	<1.1		1.1	ug/L		26-NOV-18	
Surrogate: 4-Bromofluorobenzene	92.0		70-130	%		26-NOV-18	R4358457
Surrogate: 1,4-Difluorobenzene	102.4		70-130	%		26-NOV-18	R4358457
Trihalomethanes							
Total THMs	<2.0		2.0	ug/L		26-NOV-18	
Acid Extractables							
2,3,6-Trichlorophenol	<0.50		0.50	ug/L	22-NOV-18	27-NOV-18	R4360947
Surrogate: 2,4,6-Tribromophenol	124.3		40-150	%	22-NOV-18	27-NOV-18	R4360947
Semi-Volatile Organics							
Acenaphthene	<0.20		0.20	ug/L	22-NOV-18	26-NOV-18	R4359172
Acenaphthylene	<0.20		0.20	ug/L	22-NOV-18	26-NOV-18	R4359172
Anthracene	<0.20		0.20	ug/L	22-NOV-18	26-NOV-18	R4359172
Benzo(a)anthracene	<0.20		0.20	ug/L	22-NOV-18	26-NOV-18	R4359172
Benzo(a)pyrene	<0.050		0.050	ug/L	22-NOV-18	26-NOV-18	R4359172
Benzo(b)fluoranthene	<0.20		0.20	ug/L	22-NOV-18	26-NOV-18	R4359172
Benzo(ghi)perylene	<0.20		0.20	ug/L	22-NOV-18	26-NOV-18	R4359172
Benzo(k)fluoranthene	<0.20		0.20	ug/L	22-NOV-18	26-NOV-18	R4359172
4-Chloroaniline	<0.40		0.40	ug/L	22-NOV-18	26-NOV-18	R4359172
Bis(2-chloroethyl)ether	<0.40		0.40	ug/L	22-NOV-18	26-NOV-18	R4359172
2-Chlorophenol	<0.30		0.30	ug/L	22-NOV-18	26-NOV-18	R4359172
Chrysene	<0.20		0.20	ug/L	22-NOV-18	26-NOV-18	R4359172
Dibenzo(a,h)anthracene	<0.20		0.20	ug/L	22-NOV-18	26-NOV-18	R4359172
1,2-Dichlorobenzene	<0.40		0.40	ug/L	22-NOV-18	26-NOV-18	R4359172
1,3-Dichlorobenzene	<0.40		0.40	ug/L	22-NOV-18	26-NOV-18	R4359172
1,4-Dichlorobenzene	<0.40		0.40	ug/L	22-NOV-18	26-NOV-18	R4359172
3,3'-Dichlorobenzidine	<0.40		0.40	ug/L	22-NOV-18	26-NOV-18	R4359172
2,4-Dichlorophenol	<0.30		0.30	ug/L	22-NOV-18	26-NOV-18	R4359172
Diethylphthalate	<0.20		0.20	ug/L	22-NOV-18	26-NOV-18	R4359172
Dimethylphthalate	<0.20		0.20	ug/L	22-NOV-18	26-NOV-18	R4359172
2,4-Dimethylphenol	<0.50		0.50	ug/L	22-NOV-18	26-NOV-18	R4359172
2,4-Dinitrophenol	<1.0		1.0	ug/L	22-NOV-18	26-NOV-18	R4359172
2,4-Dinitrotoluene	<0.40		0.40	ug/L	22-NOV-18	26-NOV-18	R4359172
2,6-Dinitrotoluene	<0.40		0.40	ug/L	22-NOV-18	26-NOV-18	R4359172

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ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2198864-2 WEST STORM WATER POND WRP Sampled By: CLIENT on 19-NOV-18 @ 11:00 Matrix: WATER							
Semi-Volatile Organics							
Bis(2-ethylhexyl)phthalate	<2.0		2.0	ug/L	22-NOV-18	26-NOV-18	R4359172
Fluoranthene	<0.20		0.20	ug/L	22-NOV-18	26-NOV-18	R4359172
Fluorene	<0.20		0.20	ug/L	22-NOV-18	26-NOV-18	R4359172
Hexachlorobenzene	<0.040		0.040	ug/L	22-NOV-18	26-NOV-18	R4359172
Hexachlorobutadiene	<0.20		0.20	ug/L	22-NOV-18	26-NOV-18	R4359172
Indeno(1,2,3-cd)pyrene	<0.20		0.20	ug/L	22-NOV-18	26-NOV-18	R4359172
1-Methylnaphthalene	<0.40		0.40	ug/L	22-NOV-18	26-NOV-18	R4359172
2-Methylnaphthalene	<0.40		0.40	ug/L	22-NOV-18	26-NOV-18	R4359172
Naphthalene	<0.20		0.20	ug/L	22-NOV-18	26-NOV-18	R4359172
Pentachlorophenol	<0.50		0.50	ug/L	22-NOV-18	26-NOV-18	R4359172
Perylene	<0.20		0.20	ug/L	22-NOV-18	26-NOV-18	R4359172
Phenanthrene	<0.20		0.20	ug/L	22-NOV-18	26-NOV-18	R4359172
Pyrene	<0.20		0.20	ug/L	22-NOV-18	26-NOV-18	R4359172
2,3,4,5-Tetrachlorophenol	<0.50		0.50	ug/L	22-NOV-18	26-NOV-18	R4359172
2,3,4,6-Tetrachlorophenol	<0.50		0.50	ug/L	22-NOV-18	26-NOV-18	R4359172
1,2,4-Trichlorobenzene	<0.40		0.40	ug/L	22-NOV-18	26-NOV-18	R4359172
2,4,5-Trichlorophenol	<0.50		0.50	ug/L	22-NOV-18	26-NOV-18	R4359172
2,4,6-Trichlorophenol	<0.50		0.50	ug/L	22-NOV-18	26-NOV-18	R4359172
Surrogate: 2-Fluorobiphenyl	86.1		40-130	%	22-NOV-18	26-NOV-18	R4359172
Surrogate: Nitrobenzene d5	89.8		40-130	%	22-NOV-18	26-NOV-18	R4359172
Surrogate: p-Terphenyl d14	103.0		40-130	%	22-NOV-18	26-NOV-18	R4359172
Report Remarks : DLM-CD LOR INCREASED DUE TO POTENTIAL INTERFERENCE FROM MO							
L2198864-3 EAST STORM WATER POND ERP Sampled By: CLIENT on 19-NOV-18 @ 11:00 Matrix: WATER							
Field Tests							
pH, Client Supplied	7.70		0.10	pH		20-NOV-18	R4345924
Temperature, Client	3.0		-50	Deg. C		20-NOV-18	R4345924
Physical Tests							
Conductivity	636		3.0	umhos/cm		20-NOV-18	R4347430
Hardness (as CaCO3)	231	HTC	10	mg/L		22-NOV-18	
pH	7.79		0.10	pH units		20-NOV-18	R4347430
Total Suspended Solids	2.3		2.0	mg/L	21-NOV-18	22-NOV-18	R4350708
Total Dissolved Solids	433	DLDS	20	mg/L		21-NOV-18	R4352372
Anions and Nutrients							
Alkalinity, Total (as CaCO3)	143		10	mg/L		21-NOV-18	R4348749
Unionized ammonia	0.0245		0.0026	mg/L		22-NOV-18	
Ammonia, Total (as N)	3.82	DLHC	0.40	mg/L		22-NOV-18	R4351868
Bromide (Br)	0.64		0.10	mg/L		21-NOV-18	R4352701
Chloride (Cl)	47.2		0.50	mg/L		21-NOV-18	R4352701
Fluoride (F)	0.562		0.020	mg/L		21-NOV-18	R4352701
Nitrate (as N)	0.056		0.020	mg/L		21-NOV-18	R4352701

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ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2198864-3 EAST STORM WATER POND ERP Sampled By: CLIENT on 19-NOV-18 @ 11:00 Matrix: WATER							
Anions and Nutrients							
Nitrite (as N)	<0.010		0.010	mg/L		21-NOV-18	R4352701
Total Kjeldahl Nitrogen	4.73		0.15	mg/L	26-NOV-18	26-NOV-18	R4360028
Phosphorus, Total	0.0440		0.0030	mg/L	22-NOV-18	23-NOV-18	R4353638
Sulfate (SO4)	122		0.30	mg/L		21-NOV-18	R4352701
Cyanides							
Cyanide, Total	<0.0020		0.0020	mg/L		21-NOV-18	R4351069
Organic / Inorganic Carbon							
Dissolved Carbon Filtration Location	LAB					21-NOV-18	R4347761
Dissolved Organic Carbon	5.60		0.50	mg/L	21-NOV-18	25-NOV-18	R4357605
Total Metals							
Aluminum (Al)-Total	0.817		0.010	mg/L	21-NOV-18	21-NOV-18	R4347807
Antimony (Sb)-Total	0.00049		0.00010	mg/L	21-NOV-18	21-NOV-18	R4347807
Arsenic (As)-Total	0.00169		0.00010	mg/L	21-NOV-18	21-NOV-18	R4347807
Barium (Ba)-Total	0.0638		0.00020	mg/L	21-NOV-18	22-NOV-18	R4347807
Beryllium (Be)-Total	<0.00010		0.00010	mg/L	21-NOV-18	21-NOV-18	R4347807
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	21-NOV-18	21-NOV-18	R4347807
Boron (B)-Total	0.085		0.010	mg/L	21-NOV-18	21-NOV-18	R4347807
Cadmium (Cd)-Total	<0.000085	DLM	0.000085	mg/L	21-NOV-18	21-NOV-18	R4347807
Calcium (Ca)-Total	63.6		0.50	mg/L	21-NOV-18	21-NOV-18	R4347807
Cobalt (Co)-Total	0.00080		0.00010	mg/L	21-NOV-18	21-NOV-18	R4347807
Copper (Cu)-Total	0.0051		0.0010	mg/L	21-NOV-18	21-NOV-18	R4347807
Iron (Fe)-Total	2.42		0.050	mg/L	21-NOV-18	21-NOV-18	R4347807
Lead (Pb)-Total	0.00157		0.00010	mg/L	21-NOV-18	21-NOV-18	R4347807
Magnesium (Mg)-Total	17.5		0.050	mg/L	21-NOV-18	22-NOV-18	R4347807
Manganese (Mn)-Total	0.0483		0.00050	mg/L	21-NOV-18	21-NOV-18	R4347807
Mercury (Hg)-Total	0.000022		0.000010	mg/L		21-NOV-18	R4348801
Molybdenum (Mo)-Total	0.0631		0.000050	mg/L	21-NOV-18	21-NOV-18	R4347807
Nickel (Ni)-Total	0.00594		0.00050	mg/L	21-NOV-18	21-NOV-18	R4347807
Potassium (K)-Total	16.1		0.050	mg/L	21-NOV-18	21-NOV-18	R4347807
Selenium (Se)-Total	0.00118		0.000050	mg/L	21-NOV-18	21-NOV-18	R4347807
Silicon (Si)-Total	4.09		0.10	mg/L	21-NOV-18	21-NOV-18	R4347807
Silver (Ag)-Total	<0.000050		0.000050	mg/L	21-NOV-18	21-NOV-18	R4347807
Sodium (Na)-Total	27.2		0.50	mg/L	21-NOV-18	21-NOV-18	R4347807
Strontium (Sr)-Total	0.568		0.0010	mg/L	21-NOV-18	21-NOV-18	R4347807
Thallium (Tl)-Total	0.000037		0.000010	mg/L	21-NOV-18	21-NOV-18	R4347807
Tin (Sn)-Total	<0.00010		0.00010	mg/L	21-NOV-18	22-NOV-18	R4347807
Vanadium (V)-Total	0.00219		0.00050	mg/L	21-NOV-18	21-NOV-18	R4347807
Zinc (Zn)-Total	0.0132		0.0030	mg/L	21-NOV-18	21-NOV-18	R4347807
Speciated Metals							
Chromium, Hexavalent	0.00060		0.00050	mg/L		22-NOV-18	R4354108
Aggregate Organics							
COD	30		10	mg/L		25-NOV-18	R4357616

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Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2198864-3 EAST STORM WATER POND ERP Sampled By: CLIENT on 19-NOV-18 @ 11:00 Matrix: WATER							
Aggregate Organics							
Phenols (4AAP)	0.0015		0.0010	mg/L		21-NOV-18	R4351647
Volatile Organic Compounds							
Acetone	<20		20	ug/L		27-NOV-18	R4360553
Benzene	<0.50		0.50	ug/L		27-NOV-18	R4360553
Bromodichloromethane	<1.0		1.0	ug/L		27-NOV-18	R4360553
Bromoform	<1.0		1.0	ug/L		27-NOV-18	R4360553
Bromomethane	<0.50		0.50	ug/L		27-NOV-18	R4360553
Carbon tetrachloride	<0.50		0.50	ug/L		27-NOV-18	R4360553
Chlorobenzene	<0.50		0.50	ug/L		27-NOV-18	R4360553
Dibromochloromethane	<1.0		1.0	ug/L		27-NOV-18	R4360553
Chloroethane	<1.0		1.0	ug/L		27-NOV-18	R4360553
Chloroform	<1.0		1.0	ug/L		27-NOV-18	R4360553
1,2-Dibromoethane	<0.20		0.20	ug/L		27-NOV-18	R4360553
1,2-Dichlorobenzene	<0.50		0.50	ug/L		27-NOV-18	R4360553
1,3-Dichlorobenzene	<0.50		0.50	ug/L		27-NOV-18	R4360553
1,4-Dichlorobenzene	<0.50		0.50	ug/L		27-NOV-18	R4360553
Dichlorodifluoromethane	<1.0		1.0	ug/L		27-NOV-18	R4360553
1,1-Dichloroethane	<0.50		0.50	ug/L		27-NOV-18	R4360553
1,2-Dichloroethane	<0.50		0.50	ug/L		27-NOV-18	R4360553
1,1-Dichloroethylene	<0.50		0.50	ug/L		27-NOV-18	R4360553
cis-1,2-Dichloroethylene	<0.50		0.50	ug/L		27-NOV-18	R4360553
trans-1,2-Dichloroethylene	<0.50		0.50	ug/L		27-NOV-18	R4360553
Dichloromethane	<2.0		2.0	ug/L		27-NOV-18	R4360553
1,2-Dichloropropane	<0.50		0.50	ug/L		27-NOV-18	R4360553
cis-1,3-Dichloropropene	<0.50		0.50	ug/L		27-NOV-18	R4360553
trans-1,3-Dichloropropene	<0.50		0.50	ug/L		27-NOV-18	R4360553
Ethylbenzene	<0.50		0.50	ug/L		27-NOV-18	R4360553
n-Hexane	<0.50		0.50	ug/L		27-NOV-18	R4360553
Methyl Ethyl Ketone	<20		20	ug/L		27-NOV-18	R4360553
Methyl Isobutyl Ketone	<20		20	ug/L		27-NOV-18	R4360553
MTBE	<0.50		0.50	ug/L		27-NOV-18	R4360553
Styrene	<0.50		0.50	ug/L		27-NOV-18	R4360553
1,1,1,2-Tetrachloroethane	<0.50		0.50	ug/L		27-NOV-18	R4360553
1,1,2,2-Tetrachloroethane	<0.50		0.50	ug/L		27-NOV-18	R4360553
Tetrachloroethylene	<0.50		0.50	ug/L		27-NOV-18	R4360553
Toluene	<0.50		0.50	ug/L		27-NOV-18	R4360553
1,1,1-Trichloroethane	<0.50		0.50	ug/L		27-NOV-18	R4360553
1,1,2-Trichloroethane	<0.50		0.50	ug/L		27-NOV-18	R4360553
Trichloroethylene	<0.50		0.50	ug/L		27-NOV-18	R4360553
Trichlorofluoromethane	<1.0		1.0	ug/L		27-NOV-18	R4360553
Vinyl chloride	<0.50		0.50	ug/L		27-NOV-18	R4360553

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ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2198864-3 EAST STORM WATER POND ERP Sampled By: CLIENT on 19-NOV-18 @ 11:00 Matrix: WATER							
Volatile Organic Compounds							
o-Xylene	<0.50		0.50	ug/L		27-NOV-18	R4360553
m+p-Xylenes	<1.0		1.0	ug/L		27-NOV-18	R4360553
Xylenes (Total)	<1.1		1.1	ug/L		27-NOV-18	
Surrogate: 4-Bromofluorobenzene	95.7		70-130	%		27-NOV-18	R4360553
Surrogate: 1,4-Difluorobenzene	103.2		70-130	%		27-NOV-18	R4360553
Trihalomethanes							
Total THMs	<2.0		2.0	ug/L		27-NOV-18	
Acid Extractables							
2,3,6-Trichlorophenol	<0.50		0.50	ug/L	22-NOV-18	27-NOV-18	R4360947
Surrogate: 2,4,6-Tribromophenol	134.9		40-150	%	22-NOV-18	27-NOV-18	R4360947
Semi-Volatile Organics							
Acenaphthene	<0.20		0.20	ug/L	22-NOV-18	26-NOV-18	R4359172
Acenaphthylene	<0.20		0.20	ug/L	22-NOV-18	26-NOV-18	R4359172
Anthracene	<0.20		0.20	ug/L	22-NOV-18	26-NOV-18	R4359172
Benzo(a)anthracene	<0.20		0.20	ug/L	22-NOV-18	26-NOV-18	R4359172
Benzo(a)pyrene	<0.050		0.050	ug/L	22-NOV-18	26-NOV-18	R4359172
Benzo(b)fluoranthene	<0.20		0.20	ug/L	22-NOV-18	26-NOV-18	R4359172
Benzo(ghi)perylene	<0.20		0.20	ug/L	22-NOV-18	26-NOV-18	R4359172
Benzo(k)fluoranthene	<0.20		0.20	ug/L	22-NOV-18	26-NOV-18	R4359172
4-Chloroaniline	<0.40		0.40	ug/L	22-NOV-18	26-NOV-18	R4359172
Bis(2-chloroethyl)ether	<0.40		0.40	ug/L	22-NOV-18	26-NOV-18	R4359172
2-Chlorophenol	<0.30		0.30	ug/L	22-NOV-18	26-NOV-18	R4359172
Chrysene	<0.20		0.20	ug/L	22-NOV-18	26-NOV-18	R4359172
Dibenzo(a,h)anthracene	<0.20		0.20	ug/L	22-NOV-18	26-NOV-18	R4359172
1,2-Dichlorobenzene	<0.40		0.40	ug/L	22-NOV-18	26-NOV-18	R4359172
1,3-Dichlorobenzene	<0.40		0.40	ug/L	22-NOV-18	26-NOV-18	R4359172
1,4-Dichlorobenzene	<0.40		0.40	ug/L	22-NOV-18	26-NOV-18	R4359172
3,3'-Dichlorobenzidine	<0.40		0.40	ug/L	22-NOV-18	26-NOV-18	R4359172
2,4-Dichlorophenol	<0.30		0.30	ug/L	22-NOV-18	26-NOV-18	R4359172
Diethylphthalate	<0.20		0.20	ug/L	22-NOV-18	26-NOV-18	R4359172
Dimethylphthalate	<0.20		0.20	ug/L	22-NOV-18	26-NOV-18	R4359172
2,4-Dimethylphenol	<0.50		0.50	ug/L	22-NOV-18	26-NOV-18	R4359172
2,4-Dinitrophenol	<1.0		1.0	ug/L	22-NOV-18	26-NOV-18	R4359172
2,4-Dinitrotoluene	<0.40		0.40	ug/L	22-NOV-18	26-NOV-18	R4359172
2,6-Dinitrotoluene	<0.40		0.40	ug/L	22-NOV-18	26-NOV-18	R4359172
Bis(2-ethylhexyl)phthalate	<2.0		2.0	ug/L	22-NOV-18	26-NOV-18	R4359172
Fluoranthene	<0.20		0.20	ug/L	22-NOV-18	26-NOV-18	R4359172
Fluorene	<0.20		0.20	ug/L	22-NOV-18	26-NOV-18	R4359172
Hexachlorobenzene	<0.040		0.040	ug/L	22-NOV-18	26-NOV-18	R4359172
Hexachlorobutadiene	<0.20		0.20	ug/L	22-NOV-18	26-NOV-18	R4359172
Indeno(1,2,3-cd)pyrene	<0.20		0.20	ug/L	22-NOV-18	26-NOV-18	R4359172
1-Methylnaphthalene	<0.40		0.40	ug/L	22-NOV-18	26-NOV-18	R4359172

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2198864-3 EAST STORM WATER POND ERP Sampled By: CLIENT on 19-NOV-18 @ 11:00 Matrix: WATER							
Semi-Volatile Organics							
2-Methylnaphthalene	<0.40		0.40	ug/L	22-NOV-18	26-NOV-18	R4359172
Naphthalene	<0.20		0.20	ug/L	22-NOV-18	26-NOV-18	R4359172
Pentachlorophenol	<0.50		0.50	ug/L	22-NOV-18	26-NOV-18	R4359172
Perylene	<0.20		0.20	ug/L	22-NOV-18	26-NOV-18	R4359172
Phenanthrene	<0.20		0.20	ug/L	22-NOV-18	26-NOV-18	R4359172
Pyrene	<0.20		0.20	ug/L	22-NOV-18	26-NOV-18	R4359172
2,3,4,5-Tetrachlorophenol	<0.50		0.50	ug/L	22-NOV-18	26-NOV-18	R4359172
2,3,4,6-Tetrachlorophenol	<0.50		0.50	ug/L	22-NOV-18	26-NOV-18	R4359172
1,2,4-Trichlorobenzene	<0.40		0.40	ug/L	22-NOV-18	26-NOV-18	R4359172
2,4,5-Trichlorophenol	<0.50		0.50	ug/L	22-NOV-18	26-NOV-18	R4359172
2,4,6-Trichlorophenol	<0.50		0.50	ug/L	22-NOV-18	26-NOV-18	R4359172
Surrogate: 2-Fluorobiphenyl	90.7		40-130	%	22-NOV-18	26-NOV-18	R4359172
Surrogate: Nitrobenzene d5	92.2		40-130	%	22-NOV-18	26-NOV-18	R4359172
Surrogate: p-Terphenyl d14	105.0		40-130	%	22-NOV-18	26-NOV-18	R4359172
Report Remarks : DLM-CD LOR INCREASED DUE TO POTENTIAL INTERFERENCE FROM MO							

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

Reference Information

QC Samples with Qualifiers & Comments:

QC Type Description	Parameter	Qualifier	Applies to Sample Number(s)
Matrix Spike	Bromide (Br)	MS-B	L2198864-1, -2, -3
Matrix Spike	Barium (Ba)-Total	MS-B	L2198864-1, -2, -3
Matrix Spike	Calcium (Ca)-Total	MS-B	L2198864-1, -2, -3
Matrix Spike	Iron (Fe)-Total	MS-B	L2198864-1, -2, -3
Matrix Spike	Magnesium (Mg)-Total	MS-B	L2198864-1, -2, -3
Matrix Spike	Silicon (Si)-Total	MS-B	L2198864-1, -2, -3
Matrix Spike	Sodium (Na)-Total	MS-B	L2198864-1, -2, -3
Matrix Spike	Strontium (Sr)-Total	MS-B	L2198864-1, -2, -3
Matrix Spike	Zinc (Zn)-Total	MS-B	L2198864-1, -2, -3
Matrix Spike	Phosphorus, Total	MS-B	L2198864-1, -2, -3
Matrix Spike	Sulfate (SO ₄)	MS-B	L2198864-1, -2, -3

Sample Parameter Qualifier key listed:

Qualifier	Description
DLDS	Detection Limit Raised: Dilution required due to high Dissolved Solids / Electrical Conductivity.
DLHC	Detection Limit Raised: Dilution required due to high concentration of test analyte(s).
DLM	Detection Limit Adjusted due to sample matrix effects (e.g. chemical interference, colour, turbidity).
HTC	Hardness was calculated from Total Ca and/or Mg concentrations and may be biased high (dissolved Ca/Mg results unavailable).
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
625-ACID-EXTRA-WT	Water	EPA 8270 Acid Extractables Aqueous samples are extracted and extracts are analyzed on GC/MSD.	SW846 8270
625-WT	Water	EPA 8270 Extractables Aqueous samples are extracted and extracts are analyzed on GC/MSD. Depending on the analytical GC/MS column used benzo(j)fluoranthene may chromatographically co-elute with benzo(b)fluoranthene or benzo(k)fluoranthene.	SW846 8270
N-nitrosodiphenylamine is reported as diphenylamine. N-nitrosodiphenylamine decomposes in the gas chromatographic inlet and cannot be separated from diphenylamine. (EPA 8270D)			
ALK-WT	Water	Alkalinity, Total (as CaCO ₃) This analysis is carried out using procedures adapted from EPA Method 310.2 "Alkalinity". Total Alkalinity is determined using the methyl orange colourimetric method.	EPA 310.2
BR-IC-N-WT	Water	Bromide in Water by IC Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.	EPA 300.1 (mod)
CL-IC-N-WT	Water	Chloride by IC Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.	EPA 300.1 (mod)
Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).			
CN-TOT-WT	Water	Cyanide, Total Total cyanide is determined by the combination of UV digestion and distillation. Cyanide is converted to cyanogen chloride by reacting with chloramine-T, the cyanogen chloride then reacts with a combination of barbituric acid and isonicotinic acid to form a highly colored complex.	ISO 14403-2
When using this method, high levels of thiocyanate in samples can cause false positives at ~1-2% of the thiocyanate concentration. For samples with detectable cyanide analyzed by this method, ALS recommends analysis for thiocyanate to check for this potential interference			
COD-T-WT	Water	Chemical Oxygen Demand This analysis is carried out using procedures adapted from APHA Method 5220 "Chemical Oxygen Demand (COD)". Chemical oxygen demand is determined using the closed reflux colourimetric method.	APHA 5220 D
CR-CR6-IC-WT	Water	Chromium +6 This analysis is carried out using procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846, Method 7199, published by the United States Environmental Protection Agency (EPA). The procedure involves analysis for chromium (VI) by ion chromatography using diphenylcarbazide in a sulphuric acid solution. Chromium (III) is calculated as the difference between the total chromium and the chromium (VI) results.	EPA 7199
Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).			
DOC-WT	Water	Dissolved Organic Carbon Sample is filtered through a 0.45um filter, then injected into a heated reaction chamber which is packed with an oxidative catalyst. The water is vaporized and the organic carbon is oxidized to carbon dioxide. The carbon dioxide is transported in a carrier gas and is measured by a non-dispersive	APHA 5310B

Reference Information

infrared detector.

EC-WT Water Conductivity APHA 2510 B
Water samples can be measured directly by immersing the conductivity cell into the sample.

ETL-NH3-UNION-CLI-WT Water Un-ionized ammonia CALCULATION

F-IC-N-WT Water Fluoride in Water by IC EPA 300.1 (mod)
Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

HARDNESS-CALC-WT Water Hardness APHA 2340 B
Hardness (also known as Total Hardness) is calculated from the sum of Calcium and Magnesium concentrations, expressed in CaCO₃ equivalents. Dissolved Calcium and Magnesium concentrations are preferentially used for the hardness calculation.

HG-T-CVAA-WT Water Total Mercury in Water by CVAAS EPA 1631E (mod)

Water samples undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS.

MET-T-CCMS-WT Water Total Metals in Water by CRC EPA 200.2/6020A (mod)
Water samples are digested with nitric and hydrochloric acids, and analyzed by CRC ICPMS.

Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

NH3-WT Water Ammonia, Total as N EPA 350.1
Sample is measured colorimetrically. When sample is turbid a distillation step is required, sample is distilled into a solution of boric acid and measured colorimetrically.

NO2-IC-WT Water Nitrite in Water by IC EPA 300.1 (mod)
Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

NO3-IC-WT Water Nitrate in Water by IC EPA 300.1 (mod)
Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

P-T-COL-WT Water Total P in Water by Colour APHA 4500-P PHOSPHORUS

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Total Phosphorus is determined colourimetrically after persulphate digestion of the sample.

PH,TEMP-CLIENT-WT Water pH & Temperature Results supplied by client

PH-WT Water pH APHA 4500 H-Electrode
Water samples are analyzed directly by a calibrated pH meter.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011). Holdtime for samples under this regulation is 28 days

PHENOLS-4AAP-WT Water Phenol (4AAP) EPA 9066
An automated method is used to distill the sample. The distillate is then buffered to pH 9.4 which reacts with 4AAP and potassium ferricyanide to form a red complex which is measured colorimetrically.

SO4-IC-N-WT Water Sulfate in Water by IC EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

SOLIDS-TDS-WT Water Total Dissolved Solids APHA 2540C
This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total Dissolved Solids (TDS) are determined by filtering a sample through a glass fibre filter, TDS is determined by evaporating the filtrate to dryness at 180 degrees celsius.

SOLIDS-TSS-WT Water Suspended solids APHA 2540 D-Gravimetric
A well-mixed sample is filtered through a weighed standard glass fibre filter and the residue retained is dried in an oven at 104–1°C for a minimum of four hours or until a constant weight is achieved.

THM-SUM-PPB-CALC-WT Water Total Trihalomethanes (THMs) CALCULATION
Total Trihalomethanes (THMs) represents the sum of bromodichloromethane, bromoform, chlorodibromomethane and chloroform. For the purpose of calculation, results less than the detection limit (DL) are treated as zero.

TKN-WT Water Total Kjeldahl Nitrogen APHA 4500-Norg D
This analysis is carried out using procedures adapted from APHA Method 4500-Norg "Nitrogen (Organic)". Total Kjeldahl Nitrogen is determined by sample digestion at 380 Celsius with analysis using an automated colorimetric method.

VOC-ROU-HS-WT Water Volatile Organic Compounds SW846 8260

Reference Information

Aqueous samples are analyzed by headspace-GC/MS.

XYLENES-SUM-CALC- WT	Water	Sum of Xylene Isomer Concentrations	CALCULATION
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Total xylenes represents the sum of o-xylene and m&p-xylene.

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
WT	ALS ENVIRONMENTAL - WATERLOO, ONTARIO, CANADA

Chain of Custody Numbers:

GLOSSARY OF REPORT TERMS

Surrogates are compounds that are similar in behaviour to target analyte(s), but that do not normally occur in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery. In reports that display the D.L. column, laboratory objectives for surrogates are listed there.

mg/kg - milligrams per kilogram based on dry weight of sample

mg/kg wwt - milligrams per kilogram based on wet weight of sample

mg/kg lwt - milligrams per kilogram based on lipid weight of sample

mg/L - unit of concentration based on volume, parts per million.

< - Less than.

D.L. - The reporting limit.

N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.

UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.



Quality Control Report

Workorder: L2198864

Report Date: 27-NOV-18

Page 1 of 22

Client: GHD Limited (Waterloo)
 455 PHILLIP STREET
 WATERLOO ON N2L 3X2

Contact: LAURA ERMETA

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
625-ACID-EXTRA-WT								
	Water							
Batch	R4360947							
WG2936992-2	LCS							
2,3,6-Trichlorophenol			101.6		%		50-130	27-NOV-18
WG2936992-3	LCSD	WG2936992-2						
2,3,6-Trichlorophenol		101.6	99.2		%	2.4	50	27-NOV-18
WG2936992-1	MB							
2,3,6-Trichlorophenol			<0.50		ug/L		0.5	27-NOV-18
Surrogate: 2,4,6-Tribromophenol			106.1		%		40-150	27-NOV-18
625-WT								
	Water							
Batch	R4359172							
WG2936992-2	LCS							
1-Methylnaphthalene			76.6		%		50-140	26-NOV-18
1,2-Dichlorobenzene			60.8		%		40-130	26-NOV-18
1,2,4-Trichlorobenzene			64.8		%		50-130	26-NOV-18
1,3-Dichlorobenzene			58.8		%		50-140	26-NOV-18
1,4-Dichlorobenzene			58.1		%		40-130	26-NOV-18
2-Chlorophenol			89.2		%		65-130	26-NOV-18
2-Methylnaphthalene			77.6		%		50-140	26-NOV-18
2,3,4,5-Tetrachlorophenol			111.5		%		50-130	26-NOV-18
2,3,4,6-Tetrachlorophenol			117.1		%		65-130	26-NOV-18
2,4-Dichlorophenol			102.5		%		65-130	26-NOV-18
2,4-Dimethylphenol			89.7		%		30-130	26-NOV-18
2,4-Dinitrophenol			88.5		%		40-140	26-NOV-18
2,4-Dinitrotoluene			109.8		%		50-140	26-NOV-18
2,4,5-Trichlorophenol			110.1		%		65-130	26-NOV-18
2,4,6-Trichlorophenol			104.0		%		65-130	26-NOV-18
2,6-Dinitrotoluene			99.3		%		50-140	26-NOV-18
3,3'-Dichlorobenzidine			77.8		%		50-140	26-NOV-18
4-Chloroaniline			39.1		%		30-140	26-NOV-18
Acenaphthene			90.4		%		50-140	26-NOV-18
Acenaphthylene			95.5		%		50-140	26-NOV-18
Anthracene			102.6		%		50-140	26-NOV-18
Benzo(a)anthracene			108.3		%		50-140	26-NOV-18
Benzo(a)pyrene			102.2		%		60-130	26-NOV-18
Benzo(b)fluoranthene			112.8		%		50-140	26-NOV-18
Benzo(ghi)perylene			91.4		%		50-140	26-NOV-18



Quality Control Report

Workorder: L2198864

Report Date: 27-NOV-18

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Client: GHD Limited (Waterloo)
 455 PHILLIP STREET
 WATERLOO ON N2L 3X2

Contact: LAURA ERMETA

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
625-WT	Water							
Batch	R4359172							
WG2936992-2 LCS								
Benzo(k)fluoranthene			103.2		%		50-140	26-NOV-18
Bis(2-chloroethyl)ether			95.1		%		50-140	26-NOV-18
Bis(2-ethylhexyl)phthalate			126.9		%		50-140	26-NOV-18
Chrysene			106.7		%		50-140	26-NOV-18
Dibenzo(a,h)anthracene			98.4		%		50-140	26-NOV-18
Diethylphthalate			110.2		%		50-140	26-NOV-18
Dimethylphthalate			103.2		%		50-140	26-NOV-18
Fluoranthene			121.8		%		50-140	26-NOV-18
Fluorene			100.4		%		50-140	26-NOV-18
Hexachlorobenzene			97.0		%		40-130	26-NOV-18
Hexachlorobutadiene			52.8		%		40-130	26-NOV-18
Indeno(1,2,3-cd)pyrene			99.1		%		50-140	26-NOV-18
Naphthalene			80.8		%		50-140	26-NOV-18
Pentachlorophenol			125.5		%		65-130	26-NOV-18
Perylene			100.8		%		50-140	26-NOV-18
Phenanthrene			103.6		%		50-140	26-NOV-18
Pyrene			117.9		%		50-140	26-NOV-18
WG2936992-3 LCSD		WG2936992-2						
1-Methylnaphthalene		76.6	77.8		%	1.5	50	26-NOV-18
1,2-Dichlorobenzene		60.8	64.5		%	5.9	50	26-NOV-18
1,2,4-Trichlorobenzene		64.8	67.7		%	4.4	50	26-NOV-18
1,3-Dichlorobenzene		58.8	61.8		%	4.9	50	26-NOV-18
1,4-Dichlorobenzene		58.1	60.5		%	4.0	50	26-NOV-18
2-Chlorophenol		89.2	87.9		%	1.5	50	26-NOV-18
2-Methylnaphthalene		77.6	78.9		%	1.6	50	26-NOV-18
2,3,4,5-Tetrachlorophenol		111.5	118.7		%	6.2	50	26-NOV-18
2,3,4,6-Tetrachlorophenol		117.1	116.0		%	1.0	50	26-NOV-18
2,4-Dichlorophenol		102.5	102.5		%	0.0	50	26-NOV-18
2,4-Dimethylphenol		89.7	85.1		%	5.3	50	26-NOV-18
2,4-Dinitrophenol		88.5	104.6		%	17	50	26-NOV-18
2,4-Dinitrotoluene		109.8	112.3		%	2.3	50	26-NOV-18
2,4,5-Trichlorophenol		110.1	110.1		%	0.0	50	26-NOV-18
2,4,6-Trichlorophenol		104.0	103.6		%	0.4	50	26-NOV-18



Quality Control Report

Workorder: L2198864

Report Date: 27-NOV-18

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Client: GHD Limited (Waterloo)
 455 PHILLIP STREET
 WATERLOO ON N2L 3X2

Contact: LAURA ERMETA

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
625-WT	Water							
Batch	R4359172							
WG2936992-3	LCSD	WG2936992-2						
2,6-Dinitrotoluene		99.3	101.7		%	2.4	50	26-NOV-18
3,3'-Dichlorobenzidine		77.8	83.0		%	6.5	50	26-NOV-18
4-Chloroaniline		39.1	50.2		%	25	50	26-NOV-18
Acenaphthene		90.4	90.2		%	0.2	50	26-NOV-18
Acenaphthylene		95.5	95.4		%	0.1	50	26-NOV-18
Anthracene		102.6	104.0		%	1.4	50	26-NOV-18
Benzo(a)anthracene		108.3	106.3		%	1.9	50	26-NOV-18
Benzo(a)pyrene		102.2	101.0		%	1.1	50	26-NOV-18
Benzo(b)fluoranthene		112.8	111.7		%	0.9	50	26-NOV-18
Benzo(ghi)perylene		91.4	100.8		%	9.9	50	26-NOV-18
Benzo(k)fluoranthene		103.2	101.4		%	1.8	50	26-NOV-18
Bis(2-chloroethyl)ether		95.1	94.6		%	0.5	50	26-NOV-18
Bis(2-ethylhexyl)phthalate		126.9	117.8		%	7.4	50	26-NOV-18
Chrysene		106.7	102.6		%	3.9	50	26-NOV-18
Dibenzo(a,h)anthracene		98.4	102.4		%	4.0	50	26-NOV-18
Diethylphthalate		110.2	107.7		%	2.3	50	26-NOV-18
Dimethylphthalate		103.2	102.9		%	0.3	50	26-NOV-18
Fluoranthene		121.8	116.9		%	4.1	50	26-NOV-18
Fluorene		100.4	99.8		%	0.6	50	26-NOV-18
Hexachlorobenzene		97.0	94.1		%	3.0	50	26-NOV-18
Hexachlorobutadiene		52.8	57.0		%	7.7	50	26-NOV-18
Indeno(1,2,3-cd)pyrene		99.1	109.7		%	10	50	26-NOV-18
Naphthalene		80.8	83.5		%	3.3	50	26-NOV-18
Pentachlorophenol		125.5	122.8		%	2.2	50	26-NOV-18
Perylene		100.8	100.5		%	0.3	50	26-NOV-18
Phenanthrene		103.6	102.7		%	0.9	50	26-NOV-18
Pyrene		117.9	112.1		%	5.0	50	26-NOV-18
WG2936992-1	MB							
1-Methylnaphthalene			<0.40		ug/L		0.4	26-NOV-18
1,2-Dichlorobenzene			<0.40		ug/L		0.4	26-NOV-18
1,2,4-Trichlorobenzene			<0.40		ug/L		0.4	26-NOV-18
1,3-Dichlorobenzene			<0.40		ug/L		0.4	26-NOV-18
1,4-Dichlorobenzene			<0.40		ug/L		0.4	26-NOV-18



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Client: GHD Limited (Waterloo)
 455 PHILLIP STREET
 WATERLOO ON N2L 3X2

Contact: LAURA ERMETA

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
625-WT	Water							
Batch	R4359172							
WG2936992-1 MB								
2-Chlorophenol			<0.30		ug/L		0.3	26-NOV-18
2-Methylnaphthalene			<0.40		ug/L		0.4	26-NOV-18
2,3,4,5-Tetrachlorophenol			<0.50		ug/L		0.5	26-NOV-18
2,3,4,6-Tetrachlorophenol			<0.50		ug/L		0.5	26-NOV-18
2,4-Dichlorophenol			<0.30		ug/L		0.3	26-NOV-18
2,4-Dimethylphenol			<0.50		ug/L		0.5	26-NOV-18
2,4-Dinitrophenol			<1.0		ug/L		1	26-NOV-18
2,4-Dinitrotoluene			<0.40		ug/L		0.4	26-NOV-18
2,4,5-Trichlorophenol			<0.50		ug/L		0.5	26-NOV-18
2,4,6-Trichlorophenol			<0.50		ug/L		0.5	26-NOV-18
2,6-Dinitrotoluene			<0.40		ug/L		0.4	26-NOV-18
3,3'-Dichlorobenzidine			<0.40		ug/L		0.4	26-NOV-18
4-Chloroaniline			<0.40		ug/L		0.4	26-NOV-18
Acenaphthene			<0.20		ug/L		0.2	26-NOV-18
Acenaphthylene			<0.20		ug/L		0.2	26-NOV-18
Anthracene			<0.20		ug/L		0.2	26-NOV-18
Benzo(a)anthracene			<0.20		ug/L		0.2	26-NOV-18
Benzo(a)pyrene			<0.050		ug/L		0.05	26-NOV-18
Benzo(b)fluoranthene			<0.20		ug/L		0.2	26-NOV-18
Benzo(ghi)perylene			<0.20		ug/L		0.2	26-NOV-18
Benzo(k)fluoranthene			<0.20		ug/L		0.2	26-NOV-18
Bis(2-chloroethyl)ether			<0.40		ug/L		0.4	26-NOV-18
Bis(2-ethylhexyl)phthalate			<1.0		ug/L		1	26-NOV-18
Chrysene			<0.20		ug/L		0.2	26-NOV-18
Dibenzo(a,h)anthracene			<0.20		ug/L		0.2	26-NOV-18
Diethylphthalate			<0.20		ug/L		0.2	26-NOV-18
Dimethylphthalate			<0.20		ug/L		0.2	26-NOV-18
Fluoranthene			<0.20		ug/L		0.2	26-NOV-18
Fluorene			<0.20		ug/L		0.2	26-NOV-18
Hexachlorobenzene			<0.040		ug/L		0.04	26-NOV-18
Hexachlorobutadiene			<0.20		ug/L		0.2	26-NOV-18
Indeno(1,2,3-cd)pyrene			<0.20		ug/L		0.2	26-NOV-18
Naphthalene			<0.20		ug/L		0.2	26-NOV-18



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Client: GHD Limited (Waterloo)
455 PHILLIP STREET
WATERLOO ON N2L 3X2

Contact: LAURA ERMETA

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
625-WT								
Water								
Batch R4359172								
WG2936992-1 MB								
Pentachlorophenol			<0.50		ug/L		0.5	26-NOV-18
Perylene			<0.20		ug/L		0.2	26-NOV-18
Phenanthrene			<0.20		ug/L		0.2	26-NOV-18
Pyrene			<0.20		ug/L		0.2	26-NOV-18
Surrogate: 2-Fluorobiphenyl			85.7		%		40-130	26-NOV-18
Surrogate: Nitrobenzene d5			89.2		%		40-130	26-NOV-18
Surrogate: p-Terphenyl d14			107.9		%		40-130	26-NOV-18
ALK-WT								
Water								
Batch R4348749								
WG2935553-3 CRM								
Alkalinity, Total (as CaCO3)		WT-ALK-CRM	100.8		%		80-120	21-NOV-18
WG2935553-4 DUP								
Alkalinity, Total (as CaCO3)		L2198432-1	99		mg/L	2.9	20	21-NOV-18
WG2935553-2 LCS								
Alkalinity, Total (as CaCO3)			102.3		%		85-115	21-NOV-18
WG2935553-1 MB								
Alkalinity, Total (as CaCO3)			<10		mg/L		10	21-NOV-18
BR-IC-N-WT								
Water								
Batch R4352701								
WG2935867-20 DUP								
Bromide (Br)		L2198864-2	0.73	0.73	mg/L	0.0	20	21-NOV-18
WG2935867-17 LCS								
Bromide (Br)			102.1		%		85-115	21-NOV-18
WG2935867-16 MB								
Bromide (Br)			<0.10		mg/L		0.1	21-NOV-18
WG2935867-19 MS								
Bromide (Br)		L2198864-2	N/A	MS-B	%		-	21-NOV-18
CL-IC-N-WT								
Water								
Batch R4352701								
WG2935867-20 DUP								
Chloride (Cl)		L2198864-2	66.1	66.0	mg/L	0.2	20	21-NOV-18
WG2935867-17 LCS								
Chloride (Cl)			101.4		%		90-110	21-NOV-18
WG2935867-16 MB								
Chloride (Cl)			<0.50		mg/L		0.5	21-NOV-18
WG2935867-19 MS								
		L2198864-2						



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Client: GHD Limited (Waterloo)
 455 PHILLIP STREET
 WATERLOO ON N2L 3X2
 Contact: LAURA ERMETA

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
CL-IC-N-WT	Water							
Batch	R4352701							
WG2935867-19 MS		L2198864-2						
Chloride (Cl)			102.7		%		75-125	21-NOV-18
CN-TOT-WT	Water							
Batch	R4351069							
WG2935419-8 DUP		L2198994-1						
Cyanide, Total		<0.0020	<0.0020	RPD-NA	mg/L	N/A	20	21-NOV-18
WG2935419-6 LCS			86.2		%		80-120	21-NOV-18
Cyanide, Total								
WG2935419-5 MB			<0.0020		mg/L		0.002	21-NOV-18
Cyanide, Total								
WG2935419-7 MS		L2198994-1	80.8		%		70-130	21-NOV-18
Cyanide, Total								
COD-T-WT	Water							
Batch	R4357616							
WG2939085-3 DUP		L2198864-1						
COD		26	27		mg/L	2.3	20	25-NOV-18
WG2939085-2 LCS			109.7		%		85-115	25-NOV-18
COD								
WG2939085-1 MB			<10		mg/L		10	25-NOV-18
COD								
WG2939085-4 MS		L2198864-1	108.3		%		75-125	25-NOV-18
COD								
CR-CR6-IC-WT	Water							
Batch	R4354108							
WG2936990-4 DUP		WG2936990-3						
Chromium, Hexavalent		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	22-NOV-18
WG2936990-2 LCS			99.99		%		80-120	22-NOV-18
Chromium, Hexavalent								
WG2936990-1 MB			<0.00050		mg/L		0.0005	22-NOV-18
Chromium, Hexavalent								
WG2936990-5 MS		WG2936990-3	96.8		%		70-130	22-NOV-18
Chromium, Hexavalent								
DOC-WT	Water							



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455 PHILLIP STREET
WATERLOO ON N2L 3X2

Contact: LAURA ERMETA

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
DOC-WT		Water						
Batch	R4357605							
WG2935597-3	DUP	L2198864-1						
Dissolved Organic Carbon		4.80	5.11		mg/L	6.2	25	25-NOV-18
WG2935597-2	LCS							
Dissolved Organic Carbon			100.5		%		70-130	25-NOV-18
WG2935597-1	MB							
Dissolved Organic Carbon			<0.50		mg/L		0.5	25-NOV-18
WG2935597-4	MS	L2198864-1						
Dissolved Organic Carbon			93.0		%		70-130	25-NOV-18
EC-WT		Water						
Batch	R4347430							
WG2934316-8	DUP	WG2934316-7						
Conductivity		298	302		umhos/cm	1.3	10	20-NOV-18
WG2934316-6	LCS							
Conductivity			96.6		%		90-110	20-NOV-18
WG2934316-5	MB							
Conductivity			<3.0		umhos/cm		3	20-NOV-18
F-IC-N-WT		Water						
Batch	R4352701							
WG2935867-20	DUP	L2198864-2						
Fluoride (F)		0.506	0.502		mg/L	0.7	20	21-NOV-18
WG2935867-17	LCS							
Fluoride (F)			100.8		%		90-110	21-NOV-18
WG2935867-16	MB							
Fluoride (F)			<0.020		mg/L		0.02	21-NOV-18
WG2935867-19	MS	L2198864-2						
Fluoride (F)			99.6		%		75-125	21-NOV-18
HG-T-CVAA-WT		Water						
Batch	R4348801							
WG2934919-8	DUP	WG2934919-10						
Mercury (Hg)-Total		<0.000010	<0.000010	RPD-NA	mg/L	N/A	20	21-NOV-18
WG2934919-7	LCS							
Mercury (Hg)-Total			85.3		%		80-120	21-NOV-18
WG2934919-6	MB							
Mercury (Hg)-Total			<0.000010		mg/L		0.00001	21-NOV-18
WG2934919-9	MS	WG2934919-11						
Mercury (Hg)-Total			97.6		%		70-130	21-NOV-18
MET-T-CCMS-WT		Water						



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 455 PHILLIP STREET
 WATERLOO ON N2L 3X2

Contact: LAURA ERMETA

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-WT		Water						
Batch	R4347807							
WG2935334-4	DUP	WG2935334-3						
Aluminum (Al)-Total		<0.0050	<0.0050	RPD-NA	mg/L	N/A	20	21-NOV-18
Antimony (Sb)-Total		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	21-NOV-18
Arsenic (As)-Total		0.00013	0.00011		mg/L	16	20	21-NOV-18
Barium (Ba)-Total		0.0778	0.0772		mg/L	0.8	20	21-NOV-18
Beryllium (Be)-Total		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	21-NOV-18
Bismuth (Bi)-Total		<0.000050	<0.000050	RPD-NA	mg/L	N/A	20	21-NOV-18
Boron (B)-Total		0.028	0.028		mg/L	0.7	20	21-NOV-18
Cadmium (Cd)-Total		0.0000113	0.0000122		mg/L	7.7	20	21-NOV-18
Calcium (Ca)-Total		45.2	44.8		mg/L	0.9	20	21-NOV-18
Cobalt (Co)-Total		0.00011	0.00011		mg/L	7.4	20	21-NOV-18
Copper (Cu)-Total		0.0040	0.0039		mg/L	2.6	20	21-NOV-18
Iron (Fe)-Total		0.223	0.217		mg/L	2.5	20	21-NOV-18
Lead (Pb)-Total		<0.000050	<0.000050	RPD-NA	mg/L	N/A	20	21-NOV-18
Magnesium (Mg)-Total		15.9	15.7		mg/L	1.2	20	21-NOV-18
Manganese (Mn)-Total		0.00832	0.00800		mg/L	4.0	20	21-NOV-18
Molybdenum (Mo)-Total		0.00109	0.00108		mg/L	1.2	20	21-NOV-18
Nickel (Ni)-Total		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	21-NOV-18
Potassium (K)-Total		1.25	1.24		mg/L	1.2	20	21-NOV-18
Selenium (Se)-Total		<0.000050	<0.000050	RPD-NA	mg/L	N/A	20	21-NOV-18
Silicon (Si)-Total		16.2	16.4		mg/L	1.3	20	21-NOV-18
Silver (Ag)-Total		<0.000050	<0.000050	RPD-NA	mg/L	N/A	20	21-NOV-18
Sodium (Na)-Total		18.6	17.9		mg/L	3.8	20	21-NOV-18
Strontium (Sr)-Total		0.385	0.372		mg/L	3.4	20	21-NOV-18
Thallium (Tl)-Total		<0.000010	<0.000010	RPD-NA	mg/L	N/A	20	21-NOV-18
Tin (Sn)-Total		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	21-NOV-18
Vanadium (V)-Total		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	21-NOV-18
Zinc (Zn)-Total		0.0172	0.0163		mg/L	5.3	20	21-NOV-18
WG2935334-2	LCS							
Aluminum (Al)-Total			100.3		%		80-120	21-NOV-18
Antimony (Sb)-Total			96.1		%		80-120	21-NOV-18
Arsenic (As)-Total			99.99		%		80-120	21-NOV-18
Barium (Ba)-Total			101.1		%		80-120	21-NOV-18
Beryllium (Be)-Total			96.8		%		80-120	21-NOV-18



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 455 PHILLIP STREET
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Contact: LAURA ERMETA

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-WT		Water						
Batch	R4347807							
WG2935334-2	LCS							
Bismuth (Bi)-Total			99.6		%		80-120	21-NOV-18
Boron (B)-Total			96.0		%		80-120	21-NOV-18
Cadmium (Cd)-Total			97.3		%		80-120	21-NOV-18
Calcium (Ca)-Total			97.4		%		80-120	21-NOV-18
Cobalt (Co)-Total			96.3		%		80-120	21-NOV-18
Copper (Cu)-Total			96.9		%		80-120	21-NOV-18
Iron (Fe)-Total			102.2		%		80-120	21-NOV-18
Lead (Pb)-Total			101.8		%		80-120	21-NOV-18
Magnesium (Mg)-Total			94.8		%		80-120	21-NOV-18
Manganese (Mn)-Total			100.0		%		80-120	21-NOV-18
Molybdenum (Mo)-Total			98.5		%		80-120	21-NOV-18
Nickel (Ni)-Total			97.3		%		80-120	21-NOV-18
Potassium (K)-Total			97.2		%		80-120	21-NOV-18
Selenium (Se)-Total			97.6		%		80-120	21-NOV-18
Silicon (Si)-Total			99.3		%		60-140	21-NOV-18
Silver (Ag)-Total			98.1		%		80-120	21-NOV-18
Sodium (Na)-Total			93.4		%		80-120	21-NOV-18
Strontium (Sr)-Total			99.96		%		80-120	21-NOV-18
Thallium (Tl)-Total			97.7		%		80-120	21-NOV-18
Tin (Sn)-Total			94.2		%		80-120	21-NOV-18
Vanadium (V)-Total			100.7		%		80-120	21-NOV-18
Zinc (Zn)-Total			97.5		%		80-120	21-NOV-18
WG2935334-1	MB							
Aluminum (Al)-Total			<0.0050		mg/L		0.005	21-NOV-18
Antimony (Sb)-Total			<0.00010		mg/L		0.0001	21-NOV-18
Arsenic (As)-Total			<0.00010		mg/L		0.0001	21-NOV-18
Barium (Ba)-Total			<0.00010		mg/L		0.0001	22-NOV-18
Beryllium (Be)-Total			<0.00010		mg/L		0.0001	21-NOV-18
Bismuth (Bi)-Total			<0.000050		mg/L		0.00005	21-NOV-18
Boron (B)-Total			<0.010		mg/L		0.01	21-NOV-18
Cadmium (Cd)-Total			<0.0000050		mg/L		0.000005	21-NOV-18
Calcium (Ca)-Total			<0.050		mg/L		0.05	21-NOV-18
Cobalt (Co)-Total			<0.00010		mg/L		0.0001	21-NOV-18
Copper (Cu)-Total			<0.0010		mg/L		0.001	21-NOV-18



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 455 PHILLIP STREET
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 Contact: LAURA ERMETA

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-WT								
	Water							
Batch	R4347807							
WG2935334-1	MB							
Iron (Fe)-Total			<0.010		mg/L		0.01	21-NOV-18
Lead (Pb)-Total			<0.000050		mg/L		0.00005	21-NOV-18
Magnesium (Mg)-Total			<0.0050		mg/L		0.005	22-NOV-18
Manganese (Mn)-Total			<0.00050		mg/L		0.0005	21-NOV-18
Molybdenum (Mo)-Total			<0.000050		mg/L		0.00005	21-NOV-18
Nickel (Ni)-Total			<0.00050		mg/L		0.0005	21-NOV-18
Potassium (K)-Total			<0.050		mg/L		0.05	21-NOV-18
Selenium (Se)-Total			<0.000050		mg/L		0.00005	21-NOV-18
Silicon (Si)-Total			<0.10		mg/L		0.1	21-NOV-18
Silver (Ag)-Total			<0.000050		mg/L		0.00005	21-NOV-18
Sodium (Na)-Total			<0.050		mg/L		0.05	21-NOV-18
Strontium (Sr)-Total			<0.0010		mg/L		0.001	21-NOV-18
Thallium (Tl)-Total			<0.000010		mg/L		0.00001	21-NOV-18
Tin (Sn)-Total			<0.00010		mg/L		0.0001	22-NOV-18
Vanadium (V)-Total			<0.00050		mg/L		0.0005	21-NOV-18
Zinc (Zn)-Total			<0.0030		mg/L		0.003	21-NOV-18
WG2935334-5	MS	WG2935334-6						
Aluminum (Al)-Total			97.1		%		70-130	21-NOV-18
Antimony (Sb)-Total			104.3		%		70-130	21-NOV-18
Arsenic (As)-Total			100.1		%		70-130	21-NOV-18
Barium (Ba)-Total			N/A	MS-B	%		-	21-NOV-18
Beryllium (Be)-Total			94.6		%		70-130	21-NOV-18
Bismuth (Bi)-Total			95.9		%		70-130	21-NOV-18
Boron (B)-Total			91.7		%		70-130	21-NOV-18
Cadmium (Cd)-Total			98.4		%		70-130	21-NOV-18
Calcium (Ca)-Total			N/A	MS-B	%		-	21-NOV-18
Cobalt (Co)-Total			94.8		%		70-130	21-NOV-18
Copper (Cu)-Total			90.8		%		70-130	21-NOV-18
Iron (Fe)-Total			N/A	MS-B	%		-	21-NOV-18
Lead (Pb)-Total			96.1		%		70-130	21-NOV-18
Magnesium (Mg)-Total			N/A	MS-B	%		-	21-NOV-18
Manganese (Mn)-Total			92.8		%		70-130	21-NOV-18
Molybdenum (Mo)-Total			99.2		%		70-130	21-NOV-18
Nickel (Ni)-Total			94.5		%		70-130	21-NOV-18



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455 PHILLIP STREET
WATERLOO ON N2L 3X2

Contact: LAURA ERMETA

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
NO3-IC-WT								
	Water							
Batch	R4352701							
WG2935867-17	LCS							
Nitrate (as N)			100.9		%		70-130	21-NOV-18
WG2935867-16	MB							
Nitrate (as N)			<0.020		mg/L		0.02	21-NOV-18
WG2935867-19	MS	L2198864-2						
Nitrate (as N)			102.1		%		70-130	21-NOV-18
P-T-COL-WT								
	Water							
Batch	R4353638							
WG2937228-3	DUP	L2199240-10						
Phosphorus, Total		0.164	0.172		mg/L	4.5	20	23-NOV-18
WG2937228-2	LCS							
Phosphorus, Total			92.4		%		80-120	23-NOV-18
WG2937228-1	MB							
Phosphorus, Total			<0.0030		mg/L		0.003	23-NOV-18
WG2937228-4	MS	L2199240-10						
Phosphorus, Total			N/A	MS-B	%		-	23-NOV-18
PH-WT								
	Water							
Batch	R4347430							
WG2934316-8	DUP	WG2934316-7						
pH		6.91	6.92	J	pH units	0.01	0.2	20-NOV-18
WG2934316-6	LCS							
pH			6.99		pH units		6.9-7.1	20-NOV-18
PHENOLS-4AAP-WT								
	Water							
Batch	R4351647							
WG2934559-12	DUP	L2199222-1						
Phenols (4AAP)		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	21-NOV-18
WG2934559-10	LCS							
Phenols (4AAP)			108.4		%		85-115	21-NOV-18
WG2934559-9	MB							
Phenols (4AAP)			<0.0010		mg/L		0.001	21-NOV-18
WG2934559-11	MS	L2199222-1						
Phenols (4AAP)			107.5		%		75-125	21-NOV-18
SO4-IC-N-WT								
	Water							
Batch	R4352701							
WG2935867-20	DUP	L2198864-2						
Sulfate (SO4)		114	114		mg/L	0.2	20	21-NOV-18
WG2935867-17	LCS							



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Client: GHD Limited (Waterloo)
 455 PHILLIP STREET
 WATERLOO ON N2L 3X2

Contact: LAURA ERMETA

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
SO4-IC-N-WT								
	Water							
Batch	R4352701							
WG2935867-17	LCS							
Sulfate (SO4)			101.8		%		90-110	21-NOV-18
WG2935867-16	MB							
Sulfate (SO4)			<0.30		mg/L		0.3	21-NOV-18
WG2935867-19	MS	L2198864-2						
Sulfate (SO4)			N/A	MS-B	%		-	21-NOV-18
SOLIDS-TDS-WT								
	Water							
Batch	R4352372							
WG2935408-3	DUP	L2198810-1						
Total Dissolved Solids		184	185		mg/L	0.8	20	21-NOV-18
WG2935408-2	LCS							
Total Dissolved Solids			105.2		%		85-115	21-NOV-18
WG2935408-1	MB							
Total Dissolved Solids			<10		mg/L		10	21-NOV-18
SOLIDS-TSS-WT								
	Water							
Batch	R4350708							
WG2935413-3	DUP	L2198994-1						
Total Suspended Solids		292	296		mg/L	1.4	20	22-NOV-18
WG2935413-2	LCS							
Total Suspended Solids			101.0		%		85-115	22-NOV-18
WG2935413-1	MB							
Total Suspended Solids			<2.0		mg/L		2	22-NOV-18
TKN-WT								
	Water							
Batch	R4360028							
WG2939154-3	DUP	L2198994-1						
Total Kjeldahl Nitrogen		0.34	0.42	J	mg/L	0.08	0.3	26-NOV-18
WG2939154-2	LCS							
Total Kjeldahl Nitrogen			96.2		%		75-125	26-NOV-18
WG2939154-1	MB							
Total Kjeldahl Nitrogen			<0.15		mg/L		0.15	26-NOV-18
WG2939154-4	MS	L2198994-1						
Total Kjeldahl Nitrogen			103.8		%		70-130	26-NOV-18
VOC-ROU-HS-WT								
	Water							
Batch	R4358457							
WG2936079-4	DUP	WG2936079-3						
1,1,1,2-Tetrachloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	26-NOV-18
1,1,2,2-Tetrachloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	26-NOV-18



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Client: GHD Limited (Waterloo)
 455 PHILLIP STREET
 WATERLOO ON N2L 3X2

Contact: LAURA ERMETA

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-ROU-HS-WT								
	Water							
Batch	R4358457							
WG2936079-4	DUP	WG2936079-3						
1,1,1-Trichloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	26-NOV-18
1,1,2-Trichloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	26-NOV-18
1,2-Dibromoethane		<0.20	<0.20	RPD-NA	ug/L	N/A	30	26-NOV-18
1,1-Dichloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	26-NOV-18
1,1-Dichloroethylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	26-NOV-18
1,2-Dichlorobenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	26-NOV-18
1,2-Dichloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	26-NOV-18
1,2-Dichloropropane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	26-NOV-18
1,3-Dichlorobenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	26-NOV-18
1,4-Dichlorobenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	26-NOV-18
Acetone		<20	<20	RPD-NA	ug/L	N/A	30	26-NOV-18
Benzene		0.75	0.68		ug/L	9.8	30	26-NOV-18
Bromodichloromethane		<1.0	<1.0	RPD-NA	ug/L	N/A	30	26-NOV-18
Bromoform		<1.0	<1.0	RPD-NA	ug/L	N/A	30	26-NOV-18
Bromomethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	26-NOV-18
Carbon tetrachloride		<0.50	<0.50	RPD-NA	ug/L	N/A	30	26-NOV-18
Chlorobenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	26-NOV-18
Chloroethane		<1.0	<1.0	RPD-NA	ug/L	N/A	30	26-NOV-18
Chloroform		<1.0	<1.0	RPD-NA	ug/L	N/A	30	26-NOV-18
cis-1,2-Dichloroethylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	26-NOV-18
cis-1,3-Dichloropropene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	26-NOV-18
Dibromochloromethane		<1.0	<1.0	RPD-NA	ug/L	N/A	30	26-NOV-18
Dichlorodifluoromethane		<1.0	<1.0	RPD-NA	ug/L	N/A	30	26-NOV-18
Dichloromethane		<2.0	<2.0	RPD-NA	ug/L	N/A	30	26-NOV-18
Ethylbenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	26-NOV-18
m+p-Xylenes		<1.0	<1.0	RPD-NA	ug/L	N/A	30	26-NOV-18
Methyl Ethyl Ketone		<20	<20	RPD-NA	ug/L	N/A	30	26-NOV-18
Methyl Isobutyl Ketone		<20	<20	RPD-NA	ug/L	N/A	30	26-NOV-18
n-Hexane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	26-NOV-18
MTBE		<0.50	<0.50	RPD-NA	ug/L	N/A	30	26-NOV-18
o-Xylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	26-NOV-18
Styrene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	26-NOV-18
Tetrachloroethylene		<0.50	<0.50		ug/L			26-NOV-18



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455 PHILLIP STREET
WATERLOO ON N2L 3X2

Contact: LAURA ERMETA

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-ROU-HS-WT								
	Water							
Batch	R4358457							
WG2936079-4 DUP		WG2936079-3						
Tetrachloroethylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	26-NOV-18
Toluene		61.8	57.9		ug/L	6.5	30	26-NOV-18
trans-1,2-Dichloroethylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	26-NOV-18
trans-1,3-Dichloropropene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	26-NOV-18
Trichloroethylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	26-NOV-18
Trichlorofluoromethane		<1.0	<1.0	RPD-NA	ug/L	N/A	30	26-NOV-18
Vinyl chloride		<0.50	<0.50	RPD-NA	ug/L	N/A	30	26-NOV-18
WG2936079-1 LCS								
1,1,1,2-Tetrachloroethane			105.6		%		70-130	26-NOV-18
1,1,2,2-Tetrachloroethane			110.3		%		70-130	26-NOV-18
1,1,1-Trichloroethane			111.0		%		70-130	26-NOV-18
1,1,2-Trichloroethane			108.8		%		70-130	26-NOV-18
1,2-Dibromoethane			107.6		%		70-130	26-NOV-18
1,1-Dichloroethane			113.0		%		70-130	26-NOV-18
1,1-Dichloroethylene			106.9		%		70-130	26-NOV-18
1,2-Dichlorobenzene			110.7		%		70-130	26-NOV-18
1,2-Dichloroethane			115.0		%		70-130	26-NOV-18
1,2-Dichloropropane			112.0		%		70-130	26-NOV-18
1,3-Dichlorobenzene			111.3		%		70-130	26-NOV-18
1,4-Dichlorobenzene			112.4		%		70-130	26-NOV-18
Acetone			108.9		%		60-140	26-NOV-18
Benzene			113.3		%		70-130	26-NOV-18
Bromodichloromethane			112.4		%		70-130	26-NOV-18
Bromoform			102.4		%		70-130	26-NOV-18
Bromomethane			95.4		%		60-140	26-NOV-18
Carbon tetrachloride			108.1		%		70-130	26-NOV-18
Chlorobenzene			108.2		%		70-130	26-NOV-18
Chloroethane			97.5		%		70-130	26-NOV-18
Chloroform			110.6		%		70-130	26-NOV-18
cis-1,2-Dichloroethylene			108.9		%		70-130	26-NOV-18
cis-1,3-Dichloropropene			116.2		%		70-130	26-NOV-18
Dibromochloromethane			107.0		%		70-130	26-NOV-18
Dichlorodifluoromethane			95.4		%		50-140	26-NOV-18



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Client: GHD Limited (Waterloo)
455 PHILLIP STREET
WATERLOO ON N2L 3X2

Contact: LAURA ERMETA

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-ROU-HS-WT		Water						
Batch	R4358457							
WG2936079-1	LCS							
Dichloromethane			108.0		%		70-130	26-NOV-18
Ethylbenzene			103.0		%		70-130	26-NOV-18
m+p-Xylenes			105.6		%		70-130	26-NOV-18
Methyl Ethyl Ketone			108.3		%		60-140	26-NOV-18
Methyl Isobutyl Ketone			101.5		%		50-150	26-NOV-18
n-Hexane			100.1		%		70-130	26-NOV-18
MTBE			111.6		%		70-130	26-NOV-18
o-Xylene			101.7		%		70-130	26-NOV-18
Styrene			106.8		%		70-130	26-NOV-18
Tetrachloroethylene			108.1		%		70-130	26-NOV-18
Toluene			105.9		%		70-130	26-NOV-18
trans-1,2-Dichloroethylene			111.7		%		70-130	26-NOV-18
trans-1,3-Dichloropropene			108.7		%		70-130	26-NOV-18
Trichloroethylene			112.1		%		70-130	26-NOV-18
Trichlorofluoromethane			116.4		%		60-140	26-NOV-18
Vinyl chloride			84.8		%		60-140	26-NOV-18
WG2936079-2	MB							
1,1,1,2-Tetrachloroethane			<0.50		ug/L		0.5	26-NOV-18
1,1,2,2-Tetrachloroethane			<0.50		ug/L		0.5	26-NOV-18
1,1,1-Trichloroethane			<0.50		ug/L		0.5	26-NOV-18
1,1,2-Trichloroethane			<0.50		ug/L		0.5	26-NOV-18
1,2-Dibromoethane			<0.20		ug/L		0.2	26-NOV-18
1,1-Dichloroethane			<0.50		ug/L		0.5	26-NOV-18
1,1-Dichloroethylene			<0.50		ug/L		0.5	26-NOV-18
1,2-Dichlorobenzene			<0.50		ug/L		0.5	26-NOV-18
1,2-Dichloroethane			<0.50		ug/L		0.5	26-NOV-18
1,2-Dichloropropane			<0.50		ug/L		0.5	26-NOV-18
1,3-Dichlorobenzene			<0.50		ug/L		0.5	26-NOV-18
1,4-Dichlorobenzene			<0.50		ug/L		0.5	26-NOV-18
Acetone			<20		ug/L		20	26-NOV-18
Benzene			<0.50		ug/L		0.5	26-NOV-18
Bromodichloromethane			<1.0		ug/L		1	26-NOV-18
Bromoform			<1.0		ug/L		1	26-NOV-18
Bromomethane			<0.50		ug/L		0.5	26-NOV-18



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 455 PHILLIP STREET
 WATERLOO ON N2L 3X2
 Contact: LAURA ERMETA

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-ROU-HS-WT								
	Water							
Batch	R4358457							
WG2936079-2 MB								
Carbon tetrachloride			<0.50		ug/L		0.5	26-NOV-18
Chlorobenzene			<0.50		ug/L		0.5	26-NOV-18
Chloroethane			<1.0		ug/L		1	26-NOV-18
Chloroform			<1.0		ug/L		1	26-NOV-18
cis-1,2-Dichloroethylene			<0.50		ug/L		0.5	26-NOV-18
cis-1,3-Dichloropropene			<0.50		ug/L		0.5	26-NOV-18
Dibromochloromethane			<1.0		ug/L		1	26-NOV-18
Dichlorodifluoromethane			<1.0		ug/L		1	26-NOV-18
Dichloromethane			<2.0		ug/L		2	26-NOV-18
Ethylbenzene			<0.50		ug/L		0.5	26-NOV-18
m+p-Xylenes			<1.0		ug/L		1	26-NOV-18
Methyl Ethyl Ketone			<20		ug/L		20	26-NOV-18
Methyl Isobutyl Ketone			<20		ug/L		20	26-NOV-18
n-Hexane			<0.50		ug/L		0.5	26-NOV-18
MTBE			<0.50		ug/L		0.5	26-NOV-18
o-Xylene			<0.50		ug/L		0.5	26-NOV-18
Styrene			<0.50		ug/L		0.5	26-NOV-18
Tetrachloroethylene			<0.50		ug/L		0.5	26-NOV-18
Toluene			<0.50		ug/L		0.5	26-NOV-18
trans-1,2-Dichloroethylene			<0.50		ug/L		0.5	26-NOV-18
trans-1,3-Dichloropropene			<0.50		ug/L		0.5	26-NOV-18
Trichloroethylene			<0.50		ug/L		0.5	26-NOV-18
Trichlorofluoromethane			<1.0		ug/L		1	26-NOV-18
Vinyl chloride			<0.50		ug/L		0.5	26-NOV-18
Surrogate: 1,4-Difluorobenzene			103.2		%		70-130	26-NOV-18
Surrogate: 4-Bromofluorobenzene			92.9		%		70-130	26-NOV-18
WG2936079-5 MS		WG2936079-3						
1,1,1,2-Tetrachloroethane			105.4		%		50-150	26-NOV-18
1,1,2,2-Tetrachloroethane			106.7		%		50-150	26-NOV-18
1,1,1-Trichloroethane			110.6		%		50-150	26-NOV-18
1,1,2-Trichloroethane			106.8		%		50-150	26-NOV-18
1,2-Dibromoethane			105.2		%		50-150	26-NOV-18
1,1-Dichloroethane			116.4		%		50-150	26-NOV-18
1,1-Dichloroethylene			103.3		%		50-150	26-NOV-18

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455 PHILLIP STREET
WATERLOO ON N2L 3X2

Contact: LAURA ERMETA

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-ROU-HS-WT	Water							
Batch	R4358457							
WG2936079-5 MS		WG2936079-3						
1,2-Dichlorobenzene			111.3		%		50-150	26-NOV-18
1,2-Dichloroethane			114.4		%		50-150	26-NOV-18
1,2-Dichloropropane			111.8		%		50-150	26-NOV-18
1,3-Dichlorobenzene			112.8		%		50-150	26-NOV-18
1,4-Dichlorobenzene			113.6		%		50-150	26-NOV-18
Acetone			110.1		%		50-150	26-NOV-18
Benzene			112.8		%		50-150	26-NOV-18
Bromodichloromethane			112.9		%		50-150	26-NOV-18
Bromoform			100.4		%		50-150	26-NOV-18
Bromomethane			89.2		%		50-150	26-NOV-18
Carbon tetrachloride			107.6		%		50-150	26-NOV-18
Chlorobenzene			107.7		%		50-150	26-NOV-18
Chloroethane			92.6		%		50-150	26-NOV-18
Chloroform			110.9		%		50-150	26-NOV-18
cis-1,2-Dichloroethylene			108.6		%		50-150	26-NOV-18
cis-1,3-Dichloropropene			114.6		%		50-150	26-NOV-18
Dibromochloromethane			105.6		%		50-150	26-NOV-18
Dichlorodifluoromethane			77.8		%		50-150	26-NOV-18
Dichloromethane			106.6		%		50-150	26-NOV-18
Ethylbenzene			102.6		%		50-150	26-NOV-18
m+p-Xylenes			105.2		%		50-150	26-NOV-18
Methyl Ethyl Ketone			95.6		%		50-150	26-NOV-18
Methyl Isobutyl Ketone			99.6		%		50-150	26-NOV-18
n-Hexane			93.3		%		50-150	26-NOV-18
MTBE			111.4		%		50-150	26-NOV-18
o-Xylene			101.4		%		50-150	26-NOV-18
Styrene			105.7		%		50-150	26-NOV-18
Tetrachloroethylene			106.7		%		50-150	26-NOV-18
Toluene			100.8		%		50-150	26-NOV-18
trans-1,2-Dichloroethylene			109.2		%		50-150	26-NOV-18
trans-1,3-Dichloropropene			103.2		%		50-150	26-NOV-18
Trichloroethylene			112.3		%		50-150	26-NOV-18
Trichlorofluoromethane			110.1		%		50-150	26-NOV-18



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Client: GHD Limited (Waterloo)
455 PHILLIP STREET
WATERLOO ON N2L 3X2

Contact: LAURA ERMETA

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-ROU-HS-WT								
	Water							
Batch	R4358457							
WG2936079-5	MS	WG2936079-3						
Vinyl chloride			77.4		%		50-150	26-NOV-18
Batch	R4360553							
WG2937837-1	LCS							
1,1,1,2-Tetrachloroethane			107.1		%		70-130	27-NOV-18
1,1,2,2-Tetrachloroethane			111.8		%		70-130	27-NOV-18
1,1,1-Trichloroethane			106.0		%		70-130	27-NOV-18
1,1,2-Trichloroethane			111.3		%		70-130	27-NOV-18
1,2-Dibromoethane			110.9		%		70-130	27-NOV-18
1,1-Dichloroethane			110.0		%		70-130	27-NOV-18
1,1-Dichloroethylene			103.5		%		70-130	27-NOV-18
1,2-Dichlorobenzene			108.8		%		70-130	27-NOV-18
1,2-Dichloroethane			116.2		%		70-130	27-NOV-18
1,2-Dichloropropane			108.6		%		70-130	27-NOV-18
1,3-Dichlorobenzene			109.9		%		70-130	27-NOV-18
1,4-Dichlorobenzene			108.3		%		70-130	27-NOV-18
Acetone			112.9		%		60-140	27-NOV-18
Benzene			110.5		%		70-130	27-NOV-18
Bromodichloromethane			108.6		%		70-130	27-NOV-18
Bromoform			101.8		%		70-130	27-NOV-18
Bromomethane			89.0		%		60-140	27-NOV-18
Carbon tetrachloride			104.2		%		70-130	27-NOV-18
Chlorobenzene			109.0		%		70-130	27-NOV-18
Chloroethane			91.6		%		70-130	27-NOV-18
Chloroform			108.0		%		70-130	27-NOV-18
cis-1,2-Dichloroethylene			106.8		%		70-130	27-NOV-18
cis-1,3-Dichloropropene			102.6		%		70-130	27-NOV-18
Dibromochloromethane			105.6		%		70-130	27-NOV-18
Dichlorodifluoromethane			73.6		%		50-140	27-NOV-18
Dichloromethane			109.6		%		70-130	27-NOV-18
Ethylbenzene			106.5		%		70-130	27-NOV-18
m+p-Xylenes			105.7		%		70-130	27-NOV-18
Methyl Ethyl Ketone			113.1		%		60-140	27-NOV-18
Methyl Isobutyl Ketone			119.4		%		50-150	27-NOV-18



Quality Control Report

Workorder: L2198864

Report Date: 27-NOV-18

Page 20 of 22

Client: GHD Limited (Waterloo)
 455 PHILLIP STREET
 WATERLOO ON N2L 3X2

Contact: LAURA ERMETA

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-ROU-HS-WT		Water						
Batch	R4360553							
WG2937837-1	LCS							
n-Hexane			94.8		%		70-130	27-NOV-18
MTBE			111.9		%		70-130	27-NOV-18
o-Xylene			103.3		%		70-130	27-NOV-18
Styrene			107.5		%		70-130	27-NOV-18
Tetrachloroethylene			106.0		%		70-130	27-NOV-18
Toluene			107.9		%		70-130	27-NOV-18
trans-1,2-Dichloroethylene			105.5		%		70-130	27-NOV-18
trans-1,3-Dichloropropene			101.6		%		70-130	27-NOV-18
Trichloroethylene			109.3		%		70-130	27-NOV-18
Trichlorofluoromethane			104.5		%		60-140	27-NOV-18
Vinyl chloride			73.3		%		60-140	27-NOV-18
WG2937837-2	MB							
1,1,1,2-Tetrachloroethane			<0.50		ug/L		0.5	27-NOV-18
1,1,2,2-Tetrachloroethane			<0.50		ug/L		0.5	27-NOV-18
1,1,1-Trichloroethane			<0.50		ug/L		0.5	27-NOV-18
1,1,2-Trichloroethane			<0.50		ug/L		0.5	27-NOV-18
1,2-Dibromoethane			<0.20		ug/L		0.2	27-NOV-18
1,1-Dichloroethane			<0.50		ug/L		0.5	27-NOV-18
1,1-Dichloroethylene			<0.50		ug/L		0.5	27-NOV-18
1,2-Dichlorobenzene			<0.50		ug/L		0.5	27-NOV-18
1,2-Dichloroethane			<0.50		ug/L		0.5	27-NOV-18
1,2-Dichloropropane			<0.50		ug/L		0.5	27-NOV-18
1,3-Dichlorobenzene			<0.50		ug/L		0.5	27-NOV-18
1,4-Dichlorobenzene			<0.50		ug/L		0.5	27-NOV-18
Acetone			<20		ug/L		20	27-NOV-18
Benzene			<0.50		ug/L		0.5	27-NOV-18
Bromodichloromethane			<1.0		ug/L		1	27-NOV-18
Bromoform			<1.0		ug/L		1	27-NOV-18
Bromomethane			<0.50		ug/L		0.5	27-NOV-18
Carbon tetrachloride			<0.50		ug/L		0.5	27-NOV-18
Chlorobenzene			<0.50		ug/L		0.5	27-NOV-18
Chloroethane			<1.0		ug/L		1	27-NOV-18
Chloroform			<1.0		ug/L		1	27-NOV-18
cis-1,2-Dichloroethylene			<0.50		ug/L		0.5	27-NOV-18



Quality Control Report

Workorder: L2198864

Report Date: 27-NOV-18

Page 21 of 22

Client: GHD Limited (Waterloo)
455 PHILLIP STREET
WATERLOO ON N2L 3X2

Contact: LAURA ERMETA

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-ROU-HS-WT								
	Water							
Batch	R4360553							
WG2937837-2 MB								
cis-1,3-Dichloropropene			<0.50		ug/L		0.5	27-NOV-18
Dibromochloromethane			<1.0		ug/L		1	27-NOV-18
Dichlorodifluoromethane			<1.0		ug/L		1	27-NOV-18
Dichloromethane			<2.0		ug/L		2	27-NOV-18
Ethylbenzene			<0.50		ug/L		0.5	27-NOV-18
m+p-Xylenes			<1.0		ug/L		1	27-NOV-18
Methyl Ethyl Ketone			<20		ug/L		20	27-NOV-18
Methyl Isobutyl Ketone			<20		ug/L		20	27-NOV-18
n-Hexane			<0.50		ug/L		0.5	27-NOV-18
MTBE			<0.50		ug/L		0.5	27-NOV-18
o-Xylene			<0.50		ug/L		0.5	27-NOV-18
Styrene			<0.50		ug/L		0.5	27-NOV-18
Tetrachloroethylene			<0.50		ug/L		0.5	27-NOV-18
Toluene			<0.50		ug/L		0.5	27-NOV-18
trans-1,2-Dichloroethylene			<0.50		ug/L		0.5	27-NOV-18
trans-1,3-Dichloropropene			<0.50		ug/L		0.5	27-NOV-18
Trichloroethylene			<0.50		ug/L		0.5	27-NOV-18
Trichlorofluoromethane			<1.0		ug/L		1	27-NOV-18
Vinyl chloride			<0.50		ug/L		0.5	27-NOV-18
Surrogate: 1,4-Difluorobenzene			102.8		%		70-130	27-NOV-18
Surrogate: 4-Bromofluorobenzene			96.0		%		70-130	27-NOV-18

Quality Control Report

Workorder: L2198864

Report Date: 27-NOV-18

Client: GHD Limited (Waterloo)
455 PHILLIP STREET
WATERLOO ON N2L 3X2
Contact: LAURA ERMETA

Page 22 of 22

Legend:

Limit ALS Control Limit (Data Quality Objectives)
DUP Duplicate
RPD Relative Percent Difference
N/A Not Available
LCS Laboratory Control Sample
SRM Standard Reference Material
MS Matrix Spike
MSD Matrix Spike Duplicate
ADE Average Desorption Efficiency
MB Method Blank
IRM Internal Reference Material
CRM Certified Reference Material
CCV Continuing Calibration Verification
CVS Calibration Verification Standard
LCSD Laboratory Control Sample Duplicate

Sample Parameter Qualifier Definitions:

Qualifier	Description
J	Duplicate results and limits are expressed in terms of absolute difference.
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.
RPD-NA	Relative Percent Difference Not Available due to result(s) being less than detection limit.

Hold Time Exceedances:

All test results reported with this submission were conducted within ALS recommended hold times.

ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where available). For more information, please contact ALS.

The ALS Quality Control Report is provided to ALS clients upon request. ALS includes comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against pre-determined data quality objectives to provide confidence in the accuracy of associated test results.

Please note that this report may contain QC results from anonymous Sample Duplicates and Matrix Spikes that do not originate from this Work Order.



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Report To		Acct#13791		Report Format / D.		(Rush Turnaround Time (TAT) is not available for all tests)													
Company: GHD LIMITED		Select Report Format: <input checked="" type="checkbox"/> PDF <input checked="" type="checkbox"/> EXCEL <input checked="" type="checkbox"/> EDD (DIGITAL)		Quality Control (QC) Report with Report <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		R <input checked="" type="checkbox"/> Regular (Standard TAT if received by 3 pm - business days) P <input type="checkbox"/> Priority (2-4 bus. days if received by 3pm) 50% surcharge - contact ALS to confirm TAT E <input type="checkbox"/> Emergency (1-2 bus. days if received by 3pm) 100% surcharge - contact ALS to confirm TAT E2 <input type="checkbox"/> Same day or weekend emergency - contact ALS to confirm TAT and surcharge													
Contact: Jennifer Balkwill		Criteria on Report - provide details below if box checked		Select Distribution: <input checked="" type="checkbox"/> EMAIL <input type="checkbox"/> MAIL <input type="checkbox"/> FAX		Specify Date Required for E2, E or P:													
Address: 651 Colby Drive, Waterloo, Ontario N2V 1C2		Email 1 or Fax Jennifer.Balkwill@ghd.com		Email 2 See PO		Analysis Request													
Phone: 519-884-0510		Invoice To Same as Report To <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Invoice Distribution		Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below													
Copy of Invoice with Report <input type="checkbox"/> Yes <input type="checkbox"/> No		Select Invoice Distribution: <input checked="" type="checkbox"/> EMAIL <input type="checkbox"/> MAIL <input checked="" type="checkbox"/> FAX		Email 1 or Fax Jennifer.Balkwill@ghd.com															
Company: GHD LIMITED		Project Information		Oil and Gas Required Fields (client use)															
Contact: Jennifer Balkwill		ALS Quote #: 44985		Approver ID:															
		Job #: 73506479		GL Account:															
		PO / AFE: 73506479		Activity Code:															
		LSD:		Location:															
ALS Lab Work Order # (lab use only)		ALS Contact: Rick H		Sampler:															
L2198864 20A																			
ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)			Date (dd-mm-yy)	Time (hh:mm)	Sample Type	ALK, Conductivity, pH, TDS, TSS, Phenols	Br, NO2, NO3, SO4, Cl F (ANIONS-IC-6-WT)	DOC (C-DIS-ORG-WT), COD, TKN, TP	Total CN (CN-TOT-WT)	Un-ionized NH3 (ETL-NH3-UNION-CL-WT)	Total Metals (MET-T-M5-WT, WT-44865-Metals)	Total Mercury (HG-T-CVAA-WT)	Total Cr 6+ (CR-CR6-IC-WT), Hardness calc	VOCs (VOC-ROU-HS-WT, WT-44885-VOC)	SVOCs (SVOC-44985-P-WT)	CLIENT SUPPLIED TEMPERATURE **	CLIENT SUPPLIED pH **	Number of Containers
1	EQ Pond Discharge EQP			19-11-19	11:00	6 vab	R	R	R	R	R	R	R	R	R	R	3	7.8	11
2	West Storm Water Pond WRP			"	"	"	R	R	R	R	R	R	R	R	R	R	3	7.5	11
3	East Storm Water Pond ERP			"	"	"	R	R	R	R	R	R	R	R	R	R	3	7.7	11
Drinking Water (DW) Samples¹ (client use)		Special Instructions / Specify Criteria to add on report (client Use)				SAMPLE CONDITION AS RECEIVED (lab use only)													
Are samples taken from a Regulated DW System? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		**Please fill in Client Supplied temperature and pH for Unionized NH3 calculation**				Frozen <input type="checkbox"/> SIF Observations Yes <input type="checkbox"/> No <input type="checkbox"/> Ice packs Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Custody seal intact Yes <input type="checkbox"/> No <input type="checkbox"/> Cooling Initiated <input type="checkbox"/>													
Are samples for human drinking water use? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No						INITIAL COOLER TEMPERATURES °C: _____ FINAL COOLER TEMPERATURES °C: _____ 9.7													
SHIPMENT RELEASE (client use)				INITIAL SHIPMENT RECEPTION (lab use only)				FINAL SHIPMENT RECEPTION (lab use only)											
Released by: <i>[Signature]</i>	Date: 20/11/19	Time: 14:00	Received by: <i>[Signature]</i>	Date: 20/11/19	Time: 10:00														

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

ALS Form 3000-001 Rev 04 January 2014

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.



GHD Limited (Waterloo)
ATTN: LAURA ERMETA
455 PHILLIP STREET
WATERLOO ON N2L 3X2

Date Received: 21-NOV-18
Report Date: 26-NOV-18 07:09 (MT)
Version: FINAL

Client Phone: 519-884-0510

Certificate of Analysis

Lab Work Order #: L2199445
Project P.O. #: 73506479
Job Reference: 44985
C of C Numbers:
Legal Site Desc:

Rick Hawthorne
Account Manager

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ADDRESS: 60 Northland Road, Unit 1, Waterloo, ON N2V 2B8 Canada | Phone: +1 519 886 6910 | Fax: +1 519 886 9047
ALS CANADA LTD Part of the ALS Group An ALS Limited Company

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2199445-1 EQ POND DISCHARGE EQP Sampled By: CLIENT on 19-NOV-18 @ 11:00 Matrix: WATER							
Microtox Physical Tests							
Turbidity	N/A				22-NOV-18	22-NOV-18	R4354649
Colour	Colourless				22-NOV-18	22-NOV-18	R4354649
Clarification	None				22-NOV-18	22-NOV-18	R4354649
Initial pH	7.9		0.10	pH	22-NOV-18	22-NOV-18	R4354649
Final pH	7.9		0.10	pH	22-NOV-18	22-NOV-18	R4354649
Lab Treatment	None				22-NOV-18	22-NOV-18	R4354649
Microtox Original							
EC50 (15min) Original	>100		1.0	%	22-NOV-18	22-NOV-18	R4354649
EC20 (15min) Original	>100		1.0	%	22-NOV-18	22-NOV-18	R4354649
EC50 (5min) Original	>100		1.0	%	22-NOV-18	22-NOV-18	R4354649
EC20 (5min) Original	86.2		1.0	%	22-NOV-18	22-NOV-18	R4354649
Interpretation Original	NON TOXIC				22-NOV-18	22-NOV-18	R4354649

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
MICROTOX-ORG-ED	Water	Microtox Original	ERCB Directive 050
<p>Light output of luminescent bacteria is measured after they have been challenged by a sample of unknown toxicity, and compared to the light output of a control reagent blank. The difference in light output is attributed to the effect of the sample on the organisms, and the degree of light loss indicates metabolic inhibition and the degree of toxicity of the sample to the bacteria. EC50(5) and EC50(15) values are reported, and refer to the effective concentration of the sample that caused a 50% decrease in the light output in 5 and 15 minutes.</p>			
MICROTOX-PHYSICAL-ED	Water	Microtox Physical Tests	ERCB Directive 050

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
ED	ALS ENVIRONMENTAL - EDMONTON, ALBERTA, CANADA

Chain of Custody Numbers:

GLOSSARY OF REPORT TERMS

Surrogates are compounds that are similar in behaviour to target analyte(s), but that do not normally occur in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery. In reports that display the D.L. column, laboratory objectives for surrogates are listed there.

mg/kg - milligrams per kilogram based on dry weight of sample

mg/kg wwt - milligrams per kilogram based on wet weight of sample

mg/kg lwt - milligrams per kilogram based on lipid weight of sample

mg/L - unit of concentration based on volume, parts per million.

< - Less than.

D.L. - The reporting limit.

N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.

UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.



Quality Control Report

Workorder: L2199445

Report Date: 26-NOV-18

Page 1 of 2

Client: GHD Limited (Waterloo)
455 PHILLIP STREET
WATERLOO ON N2L 3X2

Contact: LAURA ERMETA

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MICROTOX-ORG-ED								
	Water							
Batch	R4354649							
WG2936777-2 CRM		PHENOL_ED						
EC50 (5min) Original			20.4		mg/L		13-26	22-NOV-18
WG2936777-3 CRM		PHENOL_ED						
EC50 (5min) Original			17.3		mg/L		13-26	22-NOV-18
WG2936777-4 DUP		L2199445-1						
EC50 (15min) Original		>100	>100	RPD-NA	%	N/A		22-NOV-18
EC20 (15min) Original		>100	>100	RPD-NA	%	N/A		22-NOV-18
EC50 (5min) Original		>100	>100	RPD-NA	%	N/A		22-NOV-18
EC20 (5min) Original		86.2	66.7		%	26	50	22-NOV-18
WG2936777-1 MB								
EC50 (15min) Original			PASS					22-NOV-18
EC20 (15min) Original			PASS					22-NOV-18
EC50 (5min) Original			PASS					22-NOV-18
EC20 (5min) Original			PASS					22-NOV-18

Quality Control Report

Workorder: L2199445

Report Date: 26-NOV-18

Client: GHD Limited (Waterloo)
455 PHILLIP STREET
WATERLOO ON N2L 3X2
Contact: LAURA ERMETA

Page 2 of 2

Legend:

Limit	ALS Control Limit (Data Quality Objectives)
DUP	Duplicate
RPD	Relative Percent Difference
N/A	Not Available
LCS	Laboratory Control Sample
SRM	Standard Reference Material
MS	Matrix Spike
MSD	Matrix Spike Duplicate
ADE	Average Desorption Efficiency
MB	Method Blank
IRM	Internal Reference Material
CRM	Certified Reference Material
CCV	Continuing Calibration Verification
CVS	Calibration Verification Standard
LCSD	Laboratory Control Sample Duplicate

Sample Parameter Qualifier Definitions:

Qualifier	Description
RPD-NA	Relative Percent Difference Not Available due to result(s) being less than detection limit.

Hold Time Exceedances:

All test results reported with this submission were conducted within ALS recommended hold times.

ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where available). For more information, please contact ALS.

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Please note that this report may contain QC results from anonymous Sample Duplicates and Matrix Spikes that do not originate from this Work Order.




GHD Limited (Waterloo)
ATTN: LAURA ERMETA
455 PHILLIP STREET
WATERLOO ON N2L 3X2

Date Received: 21-NOV-18
Report Date: 30-NOV-18 15:17 (MT)
Version: FINAL

Client Phone: 519-884-0510

Certificate of Analysis

Lab Work Order #: L2199505
Project P.O. #: 73506479
Job Reference: 44985
C of C Numbers:
Legal Site Desc:



Rick Hawthorne
Account Manager

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ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2199505-1 STN6							
Sampled By: DD on 20-NOV-18 @ 13:00							
Matrix: WATER							
Field Tests							
pH, Client Supplied	7.46		0.10	pH		23-NOV-18	R4353767
Temperature, Client	3.3		-50	Deg. C		23-NOV-18	R4353767
Physical Tests							
Conductivity	739		3.0	umhos/cm		22-NOV-18	R4351312
Hardness (as CaCO3)	382	HTC	10	mg/L		22-NOV-18	
pH	8.16		0.10	pH units		22-NOV-18	R4351312
Total Suspended Solids	3.8		2.0	mg/L	23-NOV-18	24-NOV-18	R4356948
Total Dissolved Solids	498	DLDS	20	mg/L		22-NOV-18	R4357207
Anions and Nutrients							
Alkalinity, Total (as CaCO3)	279		10	mg/L		23-NOV-18	R4355215
Unionized ammonia	0.00198		0.000076	mg/L		30-NOV-18	
Ammonia, Total (as N)	0.520		0.020	mg/L		30-NOV-18	R4366744
Bromide (Br)	<0.10		0.10	mg/L		23-NOV-18	R4359648
Chloride (Cl)	30.1		0.50	mg/L		23-NOV-18	R4359648
Fluoride (F)	0.230		0.020	mg/L		23-NOV-18	R4359648
Nitrate (as N)	4.50		0.020	mg/L		23-NOV-18	R4359648
Nitrite (as N)	<0.010		0.010	mg/L		23-NOV-18	R4359648
Total Kjeldahl Nitrogen	1.01		0.15	mg/L	27-NOV-18	27-NOV-18	R4362813
Phosphorus, Total	0.0902		0.0030	mg/L	22-NOV-18	23-NOV-18	R4353638
Sulfate (SO4)	99.1		0.30	mg/L		23-NOV-18	R4359648
Cyanides							
Cyanide, Total	<0.0020		0.0020	mg/L		22-NOV-18	R4354248
Organic / Inorganic Carbon							
Dissolved Carbon Filtration Location	LAB					22-NOV-18	R4342129
Dissolved Organic Carbon	8.47		0.50	mg/L	22-NOV-18	22-NOV-18	R4353631
Total Metals							
Aluminum (Al)-Total	0.804		0.010	mg/L	21-NOV-18	22-NOV-18	R4350608
Antimony (Sb)-Total	0.00014		0.00010	mg/L	21-NOV-18	22-NOV-18	R4350608
Arsenic (As)-Total	0.00064		0.00010	mg/L	21-NOV-18	22-NOV-18	R4350608
Barium (Ba)-Total	0.0339		0.00020	mg/L	21-NOV-18	22-NOV-18	R4350608
Beryllium (Be)-Total	<0.00010		0.00010	mg/L	21-NOV-18	22-NOV-18	R4350608
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	21-NOV-18	22-NOV-18	R4350608
Boron (B)-Total	0.038		0.010	mg/L	21-NOV-18	22-NOV-18	R4350608
Cadmium (Cd)-Total	0.000028		0.000010	mg/L	21-NOV-18	22-NOV-18	R4350608
Calcium (Ca)-Total	83.5		0.50	mg/L	21-NOV-18	22-NOV-18	R4350608
Cobalt (Co)-Total	0.00033		0.00010	mg/L	21-NOV-18	22-NOV-18	R4350608
Copper (Cu)-Total	0.0021		0.0010	mg/L	21-NOV-18	22-NOV-18	R4350608
Iron (Fe)-Total	0.710		0.050	mg/L	21-NOV-18	22-NOV-18	R4350608
Lead (Pb)-Total	0.00042		0.00010	mg/L	21-NOV-18	22-NOV-18	R4350608
Magnesium (Mg)-Total	42.2		0.050	mg/L	21-NOV-18	22-NOV-18	R4350608
Manganese (Mn)-Total	0.0147		0.00050	mg/L	21-NOV-18	22-NOV-18	R4350608
Mercury (Hg)-Total	<0.000010		0.000010	mg/L		21-NOV-18	R4349408

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2199505-1 STN6 Sampled By: DD on 20-NOV-18 @ 13:00 Matrix: WATER							
Total Metals							
Molybdenum (Mo)-Total	0.00362		0.000050	mg/L	21-NOV-18	22-NOV-18	R4350608
Nickel (Ni)-Total	0.00155		0.00050	mg/L	21-NOV-18	22-NOV-18	R4350608
Potassium (K)-Total	2.55		0.050	mg/L	21-NOV-18	22-NOV-18	R4350608
Selenium (Se)-Total	0.00141		0.000050	mg/L	21-NOV-18	22-NOV-18	R4350608
Silicon (Si)-Total	5.11		0.10	mg/L	21-NOV-18	22-NOV-18	R4350608
Silver (Ag)-Total	<0.000050		0.000050	mg/L	21-NOV-18	22-NOV-18	R4350608
Sodium (Na)-Total	18.1		0.50	mg/L	21-NOV-18	22-NOV-18	R4350608
Strontium (Sr)-Total	0.383		0.0010	mg/L	21-NOV-18	22-NOV-18	R4350608
Thallium (Tl)-Total	0.000018		0.000010	mg/L	21-NOV-18	22-NOV-18	R4350608
Tin (Sn)-Total	<0.00010		0.00010	mg/L	21-NOV-18	22-NOV-18	R4350608
Vanadium (V)-Total	0.00218		0.00050	mg/L	21-NOV-18	22-NOV-18	R4350608
Zinc (Zn)-Total	0.0032		0.0030	mg/L	21-NOV-18	22-NOV-18	R4350608
Speciated Metals							
Chromium, Hexavalent	<0.00050		0.00050	mg/L		23-NOV-18	R4358017
Aggregate Organics							
COD	26		10	mg/L		25-NOV-18	R4357616
Phenols (4AAP)	0.0047		0.0010	mg/L		21-NOV-18	R4351647
L2199505-2 STN6A Sampled By: DD on 20-NOV-18 @ 13:00 Matrix: WATER							
Field Tests							
pH, Client Supplied	7.33		0.10	pH		23-NOV-18	R4353767
Temperature, Client	3.0		-50	Deg. C		23-NOV-18	R4353767
Physical Tests							
Conductivity	757		3.0	umhos/cm		22-NOV-18	R4351312
Hardness (as CaCO3)	372	HTC	10	mg/L		22-NOV-18	
pH	8.16		0.10	pH units		22-NOV-18	R4351312
Total Suspended Solids	4.1		2.0	mg/L	23-NOV-18	24-NOV-18	R4356948
Total Dissolved Solids	491	DLDS	20	mg/L		22-NOV-18	R4357207
Anions and Nutrients							
Alkalinity, Total (as CaCO3)	269		10	mg/L		23-NOV-18	R4355215
Unionized ammonia	0.00344		0.00055	mg/L		30-NOV-18	
Ammonia, Total (as N)	1.26	DLHC	0.20	mg/L		22-NOV-18	R4351868
Bromide (Br)	<0.10		0.10	mg/L		23-NOV-18	R4359648
Chloride (Cl)	35.4		0.50	mg/L		23-NOV-18	R4359648
Fluoride (F)	0.271		0.020	mg/L		23-NOV-18	R4359648
Nitrate (as N)	4.27		0.020	mg/L		23-NOV-18	R4359648
Nitrite (as N)	<0.010		0.010	mg/L		23-NOV-18	R4359648
Total Kjeldahl Nitrogen	2.08		0.15	mg/L	27-NOV-18	27-NOV-18	R4362813
Phosphorus, Total	0.101		0.0030	mg/L	22-NOV-18	23-NOV-18	R4353638
Sulfate (SO4)	97.8		0.30	mg/L		23-NOV-18	R4359648
Cyanides							

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2199505-2 STN6A Sampled By: DD on 20-NOV-18 @ 13:00 Matrix: WATER							
Cyanides							
Cyanide, Total	<0.0020		0.0020	mg/L		22-NOV-18	R4354248
Organic / Inorganic Carbon							
Dissolved Carbon Filtration Location	LAB					22-NOV-18	R4342129
Dissolved Organic Carbon	8.21		0.50	mg/L	22-NOV-18	22-NOV-18	R4353631
Total Metals							
Aluminum (Al)-Total	0.668		0.010	mg/L	21-NOV-18	22-NOV-18	R4350608
Antimony (Sb)-Total	0.00014		0.00010	mg/L	21-NOV-18	22-NOV-18	R4350608
Arsenic (As)-Total	0.00067		0.00010	mg/L	21-NOV-18	22-NOV-18	R4350608
Barium (Ba)-Total	0.0348		0.00020	mg/L	21-NOV-18	22-NOV-18	R4350608
Beryllium (Be)-Total	<0.00010		0.00010	mg/L	21-NOV-18	22-NOV-18	R4350608
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	21-NOV-18	22-NOV-18	R4350608
Boron (B)-Total	0.044		0.010	mg/L	21-NOV-18	22-NOV-18	R4350608
Cadmium (Cd)-Total	0.000023		0.000010	mg/L	21-NOV-18	22-NOV-18	R4350608
Calcium (Ca)-Total	83.7		0.50	mg/L	21-NOV-18	22-NOV-18	R4350608
Cobalt (Co)-Total	0.00029		0.00010	mg/L	21-NOV-18	22-NOV-18	R4350608
Copper (Cu)-Total	0.0020		0.0010	mg/L	21-NOV-18	22-NOV-18	R4350608
Iron (Fe)-Total	0.570		0.050	mg/L	21-NOV-18	22-NOV-18	R4350608
Lead (Pb)-Total	0.00036		0.00010	mg/L	21-NOV-18	22-NOV-18	R4350608
Magnesium (Mg)-Total	39.5		0.050	mg/L	21-NOV-18	22-NOV-18	R4350608
Manganese (Mn)-Total	0.0150		0.00050	mg/L	21-NOV-18	22-NOV-18	R4350608
Mercury (Hg)-Total	<0.000010		0.000010	mg/L		21-NOV-18	R4349408
Molybdenum (Mo)-Total	0.00677		0.000050	mg/L	21-NOV-18	22-NOV-18	R4350608
Nickel (Ni)-Total	0.00161		0.00050	mg/L	21-NOV-18	22-NOV-18	R4350608
Potassium (K)-Total	3.11		0.050	mg/L	21-NOV-18	22-NOV-18	R4350608
Selenium (Se)-Total	0.00128		0.000050	mg/L	21-NOV-18	22-NOV-18	R4350608
Silicon (Si)-Total	4.93		0.10	mg/L	21-NOV-18	22-NOV-18	R4350608
Silver (Ag)-Total	<0.000050		0.000050	mg/L	21-NOV-18	22-NOV-18	R4350608
Sodium (Na)-Total	19.5		0.50	mg/L	21-NOV-18	22-NOV-18	R4350608
Strontium (Sr)-Total	0.393		0.0010	mg/L	21-NOV-18	22-NOV-18	R4350608
Thallium (Tl)-Total	0.000014		0.000010	mg/L	21-NOV-18	22-NOV-18	R4350608
Tin (Sn)-Total	<0.00010		0.00010	mg/L	21-NOV-18	22-NOV-18	R4350608
Vanadium (V)-Total	0.00193		0.00050	mg/L	21-NOV-18	22-NOV-18	R4350608
Zinc (Zn)-Total	<0.0030		0.0030	mg/L	21-NOV-18	22-NOV-18	R4350608
Speciated Metals							
Chromium, Hexavalent	<0.00050		0.00050	mg/L		23-NOV-18	R4358017
Aggregate Organics							
COD	25		10	mg/L		25-NOV-18	R4357616
Phenols (4AAP)	0.0032		0.0010	mg/L		21-NOV-18	R4351647

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

Reference Information

QC Samples with Qualifiers & Comments:

QC Type Description	Parameter	Qualifier	Applies to Sample Number(s)
Matrix Spike	Cyanide, Total	MS-B	L2199505-1, -2
Matrix Spike	Barium (Ba)-Total	MS-B	L2199505-1, -2
Matrix Spike	Calcium (Ca)-Total	MS-B	L2199505-1, -2
Matrix Spike	Copper (Cu)-Total	MS-B	L2199505-1, -2
Matrix Spike	Magnesium (Mg)-Total	MS-B	L2199505-1, -2
Matrix Spike	Silicon (Si)-Total	MS-B	L2199505-1, -2
Matrix Spike	Sodium (Na)-Total	MS-B	L2199505-1, -2
Matrix Spike	Strontium (Sr)-Total	MS-B	L2199505-1, -2
Matrix Spike	Nitrate (as N)	MS-B	L2199505-1, -2
Matrix Spike	Phosphorus, Total	MS-B	L2199505-1, -2

Sample Parameter Qualifier key listed:

Qualifier	Description
DLDS	Detection Limit Raised: Dilution required due to high Dissolved Solids / Electrical Conductivity.
DLHC	Detection Limit Raised: Dilution required due to high concentration of test analyte(s).
HTC	Hardness was calculated from Total Ca and/or Mg concentrations and may be biased high (dissolved Ca/Mg results unavailable).
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
ALK-WT	Water	Alkalinity, Total (as CaCO ₃)	EPA 310.2
This analysis is carried out using procedures adapted from EPA Method 310.2 "Alkalinity". Total Alkalinity is determined using the methyl orange colourimetric method.			
BR-IC-N-WT	Water	Bromide in Water by IC	EPA 300.1 (mod)
Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.			
CL-IC-N-WT	Water	Chloride by IC	EPA 300.1 (mod)
Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.			
Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).			
CN-TOT-WT	Water	Cyanide, Total	ISO 14403-2
Total cyanide is determined by the combination of UV digestion and distillation. Cyanide is converted to cyanogen chloride by reacting with chloramine-T, the cyanogen chloride then reacts with a combination of barbituric acid and isonicotinic acid to form a highly colored complex.			
When using this method, high levels of thiocyanate in samples can cause false positives at ~1-2% of the thiocyanate concentration. For samples with detectable cyanide analyzed by this method, ALS recommends analysis for thiocyanate to check for this potential interference			
COD-T-WT	Water	Chemical Oxygen Demand	APHA 5220 D
This analysis is carried out using procedures adapted from APHA Method 5220 "Chemical Oxygen Demand (COD)". Chemical oxygen demand is determined using the closed reflux colourimetric method.			
CR-CR6-IC-WT	Water	Chromium +6	EPA 7199
This analysis is carried out using procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846, Method 7199, published by the United States Environmental Protection Agency (EPA). The procedure involves analysis for chromium (VI) by ion chromatography using diphenylcarbazide in a sulphuric acid solution. Chromium (III) is calculated as the difference between the total chromium and the chromium (VI) results.			
Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).			
DOC-WT	Water	Dissolved Organic Carbon	APHA 5310B
Sample is filtered through a 0.45um filter, then injected into a heated reaction chamber which is packed with an oxidative catalyst. The water is vaporized and the organic carbon is oxidized to carbon dioxide. The carbon dioxide is transported in a carrier gas and is measured by a non-dispersive infrared detector.			
EC-WT	Water	Conductivity	APHA 2510 B
Water samples can be measured directly by immersing the conductivity cell into the sample.			
ETL-NH3-UNION-CLI-WT	Water	Un-ionized ammonia	CALCULATION
F-IC-N-WT	Water	Fluoride in Water by IC	EPA 300.1 (mod)
Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.			
HARDNESS-CALC-WT	Water	Hardness	APHA 2340 B

Reference Information

Hardness (also known as Total Hardness) is calculated from the sum of Calcium and Magnesium concentrations, expressed in CaCO₃ equivalents. Dissolved Calcium and Magnesium concentrations are preferentially used for the hardness calculation.

HG-T-CVAA-WT Water Total Mercury in Water by CVAAS EPA 1631E (mod)

Water samples undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS.

MET-T-CCMS-WT Water Total Metals in Water by CRC EPA 200.2/6020A (mod)

Water samples are digested with nitric and hydrochloric acids, and analyzed by CRC ICPMS.

Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

NH3-WT Water Ammonia, Total as N EPA 350.1

Sample is measured colorimetrically. When sample is turbid a distillation step is required, sample is distilled into a solution of boric acid and measured colorimetrically.

NO2-IC-WT Water Nitrite in Water by IC EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

NO3-IC-WT Water Nitrate in Water by IC EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

P-T-COL-WT Water Total P in Water by Colour APHA 4500-P PHOSPHORUS

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Total Phosphorus is determined colorimetrically after persulfate digestion of the sample.

PH,TEMP-CLIENT-WT Water pH & Temperature Results supplied by client

PH-WT Water pH APHA 4500 H-Electrode

Water samples are analyzed directly by a calibrated pH meter.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011). Holdtime for samples under this regulation is 28 days

PHENOLS-4AAP-WT Water Phenol (4AAP) EPA 9066

An automated method is used to distill the sample. The distillate is then buffered to pH 9.4 which reacts with 4AAP and potassium ferricyanide to form a red complex which is measured colorimetrically.

SO4-IC-N-WT Water Sulfate in Water by IC EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

SOLIDS-TDS-WT Water Total Dissolved Solids APHA 2540C

This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total Dissolved Solids (TDS) are determined by filtering a sample through a glass fibre filter, TDS is determined by evaporating the filtrate to dryness at 180 degrees Celsius.

SOLIDS-TSS-WT Water Suspended solids APHA 2540 D-Gravimetric

A well-mixed sample is filtered through a weighed standard glass fibre filter and the residue retained is dried in an oven at 104–1°C for a minimum of four hours or until a constant weight is achieved.

TKN-WT Water Total Kjeldahl Nitrogen APHA 4500-Norg D

This analysis is carried out using procedures adapted from APHA Method 4500-Norg "Nitrogen (Organic)". Total Kjeldahl Nitrogen is determined by sample digestion at 380 Celsius with analysis using an automated colorimetric method.

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
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WT	ALS ENVIRONMENTAL - WATERLOO, ONTARIO, CANADA
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Chain of Custody Numbers:

Reference Information

GLOSSARY OF REPORT TERMS

Surrogates are compounds that are similar in behaviour to target analyte(s), but that do not normally occur in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery. In reports that display the D.L. column, laboratory objectives for surrogates are listed there.

mg/kg - milligrams per kilogram based on dry weight of sample

mg/kg wwt - milligrams per kilogram based on wet weight of sample

mg/kg lwt - milligrams per kilogram based on lipid weight of sample

mg/L - unit of concentration based on volume, parts per million.

< - Less than.

D.L. - The reporting limit.

N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.

UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.



Quality Control Report

Workorder: L2199505

Report Date: 30-NOV-18

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Client: GHD Limited (Waterloo)
 455 PHILLIP STREET
 WATERLOO ON N2L 3X2

Contact: LAURA ERMETA

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
ALK-WT		Water						
Batch	R4355215							
WG2937727-3	CRM	WT-ALK-CRM						
Alkalinity, Total (as CaCO3)			89.5		%		80-120	23-NOV-18
WG2937727-4	DUP	L2199298-13						
Alkalinity, Total (as CaCO3)		456	460		mg/L	0.9	20	23-NOV-18
WG2937727-2	LCS							
Alkalinity, Total (as CaCO3)			97.6		%		85-115	23-NOV-18
WG2937727-1	MB							
Alkalinity, Total (as CaCO3)			<10		mg/L		10	23-NOV-18
BR-IC-N-WT		Water						
Batch	R4359648							
WG2938288-4	DUP	WG2938288-3						
Bromide (Br)		<0.10	<0.10	RPD-NA	mg/L	N/A	20	23-NOV-18
WG2938288-2	LCS							
Bromide (Br)			101.2		%		85-115	23-NOV-18
WG2938288-1	MB							
Bromide (Br)			<0.10		mg/L		0.1	23-NOV-18
WG2938288-5	MS	WG2938288-3						
Bromide (Br)			89.4		%		75-125	23-NOV-18
CL-IC-N-WT		Water						
Batch	R4359648							
WG2938288-4	DUP	WG2938288-3						
Chloride (Cl)		35.4	35.4		mg/L	0.1	20	23-NOV-18
WG2938288-2	LCS							
Chloride (Cl)			101.3		%		90-110	23-NOV-18
WG2938288-1	MB							
Chloride (Cl)			<0.50		mg/L		0.5	23-NOV-18
WG2938288-5	MS	WG2938288-3						
Chloride (Cl)			106.4		%		75-125	23-NOV-18
CN-TOT-WT		Water						
Batch	R4354248							
WG2936882-3	DUP	L2198442-1						
Cyanide, Total		0.60	0.56		mg/L	7.3	20	22-NOV-18
WG2936882-2	LCS							
Cyanide, Total			90.5		%		80-120	22-NOV-18
WG2936882-1	MB							
Cyanide, Total			<0.0020		mg/L		0.002	22-NOV-18
WG2936882-4	MS	L2198442-1						



Quality Control Report

Workorder: L2199505

Report Date: 30-NOV-18

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Client: GHD Limited (Waterloo)
455 PHILLIP STREET
WATERLOO ON N2L 3X2

Contact: LAURA ERMETA

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
CN-TOT-WT	Water							
Batch	R4354248							
WG2936882-4 MS		L2198442-1						
Cyanide, Total			N/A	MS-B	%		-	22-NOV-18
COD-T-WT	Water							
Batch	R4357616							
WG2939085-3 DUP		L2198864-1						
COD		26	27		mg/L	2.3	20	25-NOV-18
WG2939085-2 LCS								
COD			109.7		%		85-115	25-NOV-18
WG2939085-1 MB								
COD			<10		mg/L		10	25-NOV-18
WG2939085-4 MS		L2198864-1						
COD			108.3		%		75-125	25-NOV-18
CR-CR6-IC-WT	Water							
Batch	R4358017							
WG2938093-4 DUP		WG2938093-3						
Chromium, Hexavalent		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	23-NOV-18
WG2938093-2 LCS								
Chromium, Hexavalent			103.7		%		80-120	23-NOV-18
WG2938093-1 MB								
Chromium, Hexavalent			<0.00050		mg/L		0.0005	23-NOV-18
WG2938093-5 MS		WG2938093-3						
Chromium, Hexavalent			99.7		%		70-130	23-NOV-18
DOC-WT	Water							
Batch	R4353631							
WG2933645-3 DUP		L2197611-1						
Dissolved Organic Carbon		2.37	2.54		mg/L	7.0	25	22-NOV-18
WG2933645-2 LCS								
Dissolved Organic Carbon			117.6		%		70-130	22-NOV-18
WG2933645-1 MB								
Dissolved Organic Carbon			<0.50		mg/L		0.5	22-NOV-18
WG2933645-4 MS		L2197611-1						
Dissolved Organic Carbon			107.4		%		70-130	22-NOV-18
EC-WT	Water							



Quality Control Report

Workorder: L2199505

Report Date: 30-NOV-18

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Client: GHD Limited (Waterloo)
 455 PHILLIP STREET
 WATERLOO ON N2L 3X2

Contact: LAURA ERMETA

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
EC-WT		Water						
Batch	R4351312							
WG2936532-8	DUP	WG2936532-7						
Conductivity		856	882		umhos/cm	3.0	10	22-NOV-18
WG2936532-6	LCS							
Conductivity			97.4		%		90-110	22-NOV-18
WG2936532-5	MB							
Conductivity			<3.0		umhos/cm		3	22-NOV-18
F-IC-N-WT		Water						
Batch	R4359648							
WG2938288-4	DUP	WG2938288-3						
Fluoride (F)		0.275	0.275		mg/L	0.2	20	23-NOV-18
WG2938288-2	LCS							
Fluoride (F)			101.2		%		90-110	23-NOV-18
WG2938288-1	MB							
Fluoride (F)			<0.020		mg/L		0.02	23-NOV-18
WG2938288-5	MS	WG2938288-3						
Fluoride (F)			100.1		%		75-125	23-NOV-18
HG-T-CVAA-WT		Water						
Batch	R4349408							
WG2935900-3	DUP	L2199481-1						
Mercury (Hg)-Total		<0.000010	<0.000010	RPD-NA	mg/L	N/A	20	21-NOV-18
WG2935900-2	LCS							
Mercury (Hg)-Total			103.0		%		80-120	21-NOV-18
WG2935900-1	MB							
Mercury (Hg)-Total			<0.000010		mg/L		0.00001	21-NOV-18
WG2935900-4	MS	L2199505-1						
Mercury (Hg)-Total			95.8		%		70-130	21-NOV-18
MET-T-CCMS-WT		Water						
Batch	R4350608							
WG2936160-4	DUP	WG2936160-3						
Aluminum (Al)-Total		0.0215	0.0207		mg/L	3.6	20	21-NOV-18
Antimony (Sb)-Total		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	21-NOV-18
Arsenic (As)-Total		0.00025	0.00026		mg/L	5.9	20	21-NOV-18
Barium (Ba)-Total		0.0280	0.0282		mg/L	0.9	20	21-NOV-18
Beryllium (Be)-Total		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	21-NOV-18
Bismuth (Bi)-Total		<0.000050	<0.000050	RPD-NA	mg/L	N/A	20	21-NOV-18
Boron (B)-Total		<0.010	0.010	RPD-NA	mg/L	N/A	20	21-NOV-18



Quality Control Report

Workorder: L2199505

Report Date: 30-NOV-18

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Client: GHD Limited (Waterloo)
455 PHILLIP STREET
WATERLOO ON N2L 3X2

Contact: LAURA ERMETA

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-WT								
	Water							
Batch	R4350608							
WG2936160-4	DUP	WG2936160-3						
Cadmium (Cd)-Total		<0.000050	<0.000050	RPD-NA	mg/L	N/A	20	21-NOV-18
Calcium (Ca)-Total		38.4	39.3		mg/L	2.2	20	21-NOV-18
Cobalt (Co)-Total		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	21-NOV-18
Copper (Cu)-Total		0.0245	0.0245		mg/L	0.0	20	21-NOV-18
Iron (Fe)-Total		0.011	0.010		mg/L	7.7	20	21-NOV-18
Lead (Pb)-Total		0.000619	0.000630		mg/L	1.7	20	21-NOV-18
Magnesium (Mg)-Total		4.42	4.43		mg/L	0.2	20	21-NOV-18
Manganese (Mn)-Total		0.00085	0.00085		mg/L	0.2	20	21-NOV-18
Molybdenum (Mo)-Total		0.000251	0.000257		mg/L	2.4	20	21-NOV-18
Nickel (Ni)-Total		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	21-NOV-18
Potassium (K)-Total		1.19	1.20		mg/L	0.9	20	21-NOV-18
Selenium (Se)-Total		0.000059	<0.000050	RPD-NA	mg/L	N/A	20	21-NOV-18
Silicon (Si)-Total		1.65	1.66		mg/L	0.7	20	21-NOV-18
Silver (Ag)-Total		<0.000050	<0.000050	RPD-NA	mg/L	N/A	20	21-NOV-18
Sodium (Na)-Total		12.3	12.0		mg/L	2.5	20	21-NOV-18
Strontium (Sr)-Total		0.120	0.124		mg/L	3.1	20	21-NOV-18
Thallium (Tl)-Total		<0.000010	<0.000010	RPD-NA	mg/L	N/A	20	21-NOV-18
Tin (Sn)-Total		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	21-NOV-18
Vanadium (V)-Total		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	21-NOV-18
Zinc (Zn)-Total		0.0241	0.0222		mg/L	8.3	20	21-NOV-18
WG2936160-2	LCS							
Aluminum (Al)-Total			98.4		%		80-120	21-NOV-18
Antimony (Sb)-Total			100.5		%		80-120	21-NOV-18
Arsenic (As)-Total			99.1		%		80-120	21-NOV-18
Barium (Ba)-Total			97.6		%		80-120	21-NOV-18
Beryllium (Be)-Total			100.9		%		80-120	21-NOV-18
Bismuth (Bi)-Total			95.6		%		80-120	21-NOV-18
Boron (B)-Total			99.6		%		80-120	21-NOV-18
Cadmium (Cd)-Total			97.2		%		80-120	21-NOV-18
Calcium (Ca)-Total			99.3		%		80-120	21-NOV-18
Cobalt (Co)-Total			96.2		%		80-120	21-NOV-18
Copper (Cu)-Total			96.5		%		80-120	21-NOV-18
Iron (Fe)-Total			99.3		%		80-120	21-NOV-18



Quality Control Report

Workorder: L2199505

Report Date: 30-NOV-18

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Client: GHD Limited (Waterloo)
 455 PHILLIP STREET
 WATERLOO ON N2L 3X2

Contact: LAURA ERMETA

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-WT								
	Water							
Batch	R4350608							
WG2936160-2	LCS							
Lead (Pb)-Total			98.3		%		80-120	21-NOV-18
Magnesium (Mg)-Total			101.4		%		80-120	21-NOV-18
Manganese (Mn)-Total			99.3		%		80-120	21-NOV-18
Molybdenum (Mo)-Total			99.9		%		80-120	21-NOV-18
Nickel (Ni)-Total			96.8		%		80-120	21-NOV-18
Potassium (K)-Total			99.1		%		80-120	21-NOV-18
Selenium (Se)-Total			98.3		%		80-120	21-NOV-18
Silicon (Si)-Total			98.9		%		60-140	21-NOV-18
Silver (Ag)-Total			96.8		%		80-120	21-NOV-18
Sodium (Na)-Total			100.6		%		80-120	21-NOV-18
Strontium (Sr)-Total			96.4		%		80-120	21-NOV-18
Thallium (Tl)-Total			96.4		%		80-120	21-NOV-18
Tin (Sn)-Total			97.0		%		80-120	21-NOV-18
Vanadium (V)-Total			99.1		%		80-120	21-NOV-18
Zinc (Zn)-Total			98.6		%		80-120	21-NOV-18
WG2936160-1	MB							
Aluminum (Al)-Total			<0.0050		mg/L		0.005	21-NOV-18
Antimony (Sb)-Total			<0.00010		mg/L		0.0001	21-NOV-18
Arsenic (As)-Total			<0.00010		mg/L		0.0001	21-NOV-18
Barium (Ba)-Total			<0.00010		mg/L		0.0001	21-NOV-18
Beryllium (Be)-Total			<0.00010		mg/L		0.0001	21-NOV-18
Bismuth (Bi)-Total			<0.000050		mg/L		0.00005	21-NOV-18
Boron (B)-Total			<0.010		mg/L		0.01	21-NOV-18
Cadmium (Cd)-Total			<0.0000050		mg/L		0.000005	21-NOV-18
Calcium (Ca)-Total			<0.050		mg/L		0.05	21-NOV-18
Cobalt (Co)-Total			<0.00010		mg/L		0.0001	21-NOV-18
Copper (Cu)-Total			<0.0010		mg/L		0.001	21-NOV-18
Iron (Fe)-Total			<0.010		mg/L		0.01	21-NOV-18
Lead (Pb)-Total			<0.000050		mg/L		0.00005	21-NOV-18
Magnesium (Mg)-Total			<0.0050		mg/L		0.005	21-NOV-18
Manganese (Mn)-Total			<0.00050		mg/L		0.0005	21-NOV-18
Molybdenum (Mo)-Total			<0.000050		mg/L		0.00005	21-NOV-18
Nickel (Ni)-Total			<0.00050		mg/L		0.0005	21-NOV-18
Potassium (K)-Total			<0.050		mg/L		0.05	21-NOV-18



Quality Control Report

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Client: GHD Limited (Waterloo)
 455 PHILLIP STREET
 WATERLOO ON N2L 3X2
 Contact: LAURA ERMETA

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-WT								
	Water							
Batch	R4350608							
WG2936160-1 MB								
Selenium (Se)-Total			<0.000050		mg/L		0.00005	21-NOV-18
Silicon (Si)-Total			<0.10		mg/L		0.1	21-NOV-18
Silver (Ag)-Total			<0.000050		mg/L		0.00005	21-NOV-18
Sodium (Na)-Total			<0.050		mg/L		0.05	21-NOV-18
Strontium (Sr)-Total			<0.0010		mg/L		0.001	21-NOV-18
Thallium (Tl)-Total			<0.000010		mg/L		0.00001	21-NOV-18
Tin (Sn)-Total			<0.00010		mg/L		0.0001	21-NOV-18
Vanadium (V)-Total			<0.00050		mg/L		0.0005	21-NOV-18
Zinc (Zn)-Total			<0.0030		mg/L		0.003	21-NOV-18
WG2936160-5 MS		WG2936160-3						
Aluminum (Al)-Total			92.2		%		70-130	21-NOV-18
Antimony (Sb)-Total			101.1		%		70-130	21-NOV-18
Arsenic (As)-Total			96.5		%		70-130	21-NOV-18
Barium (Ba)-Total			N/A	MS-B	%		-	21-NOV-18
Beryllium (Be)-Total			96.2		%		70-130	21-NOV-18
Bismuth (Bi)-Total			93.7		%		70-130	21-NOV-18
Boron (B)-Total			94.2		%		70-130	21-NOV-18
Cadmium (Cd)-Total			94.5		%		70-130	21-NOV-18
Calcium (Ca)-Total			N/A	MS-B	%		-	21-NOV-18
Cobalt (Co)-Total			92.7		%		70-130	21-NOV-18
Copper (Cu)-Total			N/A	MS-B	%		-	21-NOV-18
Iron (Fe)-Total			93.3		%		70-130	21-NOV-18
Lead (Pb)-Total			93.5		%		70-130	21-NOV-18
Magnesium (Mg)-Total			N/A	MS-B	%		-	21-NOV-18
Manganese (Mn)-Total			94.4		%		70-130	21-NOV-18
Molybdenum (Mo)-Total			96.4		%		70-130	21-NOV-18
Nickel (Ni)-Total			92.2		%		70-130	21-NOV-18
Potassium (K)-Total			92.8		%		70-130	21-NOV-18
Selenium (Se)-Total			96.9		%		70-130	21-NOV-18
Silicon (Si)-Total			N/A	MS-B	%		-	21-NOV-18
Silver (Ag)-Total			95.3		%		70-130	21-NOV-18
Sodium (Na)-Total			N/A	MS-B	%		-	21-NOV-18
Strontium (Sr)-Total			N/A	MS-B	%		-	21-NOV-18
Thallium (Tl)-Total			90.7		%		70-130	21-NOV-18



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Client: GHD Limited (Waterloo)
455 PHILLIP STREET
WATERLOO ON N2L 3X2

Contact: LAURA ERMETA

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-WT								
	Water							
Batch	R4350608							
WG2936160-5	MS	WG2936160-3						
Tin (Sn)-Total			94.0		%		70-130	21-NOV-18
Vanadium (V)-Total			96.0		%		70-130	21-NOV-18
Zinc (Zn)-Total			79.3		%		70-130	21-NOV-18
NH3-WT								
	Water							
Batch	R4351868							
WG2936890-3	DUP	L2199468-2						
Ammonia, Total (as N)		0.060	0.059		mg/L	1.4	20	22-NOV-18
WG2936890-2	LCS							
Ammonia, Total (as N)			107.2		%		85-115	22-NOV-18
WG2936890-1	MB							
Ammonia, Total (as N)			<0.020		mg/L		0.02	22-NOV-18
WG2936890-4	MS	L2199468-2						
Ammonia, Total (as N)			85.6		%		75-125	22-NOV-18
Batch	R4366744							
WG2943799-3	DUP	L2202191-4						
Ammonia, Total (as N)		<0.020	<0.020	RPD-NA	mg/L	N/A	20	30-NOV-18
WG2943799-2	LCS							
Ammonia, Total (as N)			98.7		%		85-115	30-NOV-18
WG2943799-1	MB							
Ammonia, Total (as N)			<0.020		mg/L		0.02	30-NOV-18
WG2943799-4	MS	L2202191-4						
Ammonia, Total (as N)			97.3		%		75-125	30-NOV-18
NO2-IC-WT								
	Water							
Batch	R4359648							
WG2938288-4	DUP	WG2938288-3						
Nitrite (as N)		<0.010	<0.010	RPD-NA	mg/L	N/A	25	23-NOV-18
WG2938288-2	LCS							
Nitrite (as N)			101.1		%		70-130	23-NOV-18
WG2938288-1	MB							
Nitrite (as N)			<0.010		mg/L		0.01	23-NOV-18
WG2938288-5	MS	WG2938288-3						
Nitrite (as N)			103.7		%		70-130	23-NOV-18
NO3-IC-WT								
	Water							



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Client: GHD Limited (Waterloo)
455 PHILLIP STREET
WATERLOO ON N2L 3X2

Contact: LAURA ERMETA

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
NO3-IC-WT		Water						
Batch	R4359648							
WG2938288-4	DUP	WG2938288-3						
Nitrate (as N)		4.28	4.27		mg/L	0.1	25	23-NOV-18
WG2938288-2	LCS							
Nitrate (as N)			101.4		%		70-130	23-NOV-18
WG2938288-1	MB							
Nitrate (as N)			<0.020		mg/L		0.02	23-NOV-18
WG2938288-5	MS	WG2938288-3						
Nitrate (as N)			N/A	MS-B	%		-	23-NOV-18
P-T-COL-WT		Water						
Batch	R4353638							
WG2937237-3	DUP	L2199481-1						
Phosphorus, Total		0.101	0.0960		mg/L	5.1	20	23-NOV-18
WG2937237-2	LCS							
Phosphorus, Total			90.3		%		80-120	23-NOV-18
WG2937237-1	MB							
Phosphorus, Total			<0.0030		mg/L		0.003	23-NOV-18
WG2937237-4	MS	L2199481-1						
Phosphorus, Total			N/A	MS-B	%		-	23-NOV-18
PH-WT		Water						
Batch	R4351312							
WG2936532-8	DUP	WG2936532-7						
pH		7.93	7.92	J	pH units	0.01	0.2	22-NOV-18
WG2936532-6	LCS							
pH			7.01		pH units		6.9-7.1	22-NOV-18
PHENOLS-4AAP-WT		Water						
Batch	R4351647							
WG2934559-16	DUP	L2199281-8						
Phenols (4AAP)		0.0017	0.0020		mg/L	17	20	21-NOV-18
WG2934559-20	DUP	L2199060-1						
Phenols (4AAP)		0.0023	0.0026		mg/L	13	20	21-NOV-18
WG2934559-14	LCS							
Phenols (4AAP)			111.2		%		85-115	21-NOV-18
WG2934559-18	LCS							
Phenols (4AAP)			113.0		%		85-115	21-NOV-18
WG2934559-13	MB							
Phenols (4AAP)			<0.0010		mg/L		0.001	21-NOV-18
WG2934559-17	MB							



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Client: GHD Limited (Waterloo)
 455 PHILLIP STREET
 WATERLOO ON N2L 3X2
 Contact: LAURA ERMETA

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PHENOLS-4AAP-WT								
Water								
Batch R4351647								
WG2934559-17	MB							
Phenols (4AAP)			<0.0010		mg/L		0.001	21-NOV-18
WG2934559-15	MS	L2199281-8						
Phenols (4AAP)			110.3		%		75-125	21-NOV-18
WG2934559-19	MS	L2199060-1						
Phenols (4AAP)			108.0		%		75-125	21-NOV-18
SO4-IC-N-WT								
Water								
Batch R4359648								
WG2938288-4	DUP	WG2938288-3						
Sulfate (SO4)			98.0	97.8	mg/L	0.2	20	23-NOV-18
WG2938288-2	LCS							
Sulfate (SO4)			101.6		%		90-110	23-NOV-18
WG2938288-1	MB							
Sulfate (SO4)			<0.30		mg/L		0.3	23-NOV-18
WG2938288-5	MS	WG2938288-3						
Sulfate (SO4)			106.2		%		75-125	23-NOV-18
SOLIDS-TDS-WT								
Water								
Batch R4357207								
WG2936613-3	DUP	L2199092-1						
Total Dissolved Solids			295	290	mg/L	1.7	20	22-NOV-18
WG2936613-2	LCS							
Total Dissolved Solids			102.8		%		85-115	22-NOV-18
WG2936613-1	MB							
Total Dissolved Solids			<10		mg/L		10	22-NOV-18
SOLIDS-TSS-WT								
Water								
Batch R4356948								
WG2937538-3	DUP	WG2937538-5						
Total Suspended Solids			18700	16600	mg/L	11	20	24-NOV-18
WG2937538-2	LCS							
Total Suspended Solids			99.7		%		85-115	24-NOV-18
WG2937538-1	MB							
Total Suspended Solids			<2.0		mg/L		2	24-NOV-18
TKN-WT								
Water								
Batch R4362813								
WG2940190-3	DUP	L2199794-1						
Total Kjeldahl Nitrogen			0.77	0.74	mg/L	4.0	20	27-NOV-18
WG2940190-2	LCS							



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Client: GHD Limited (Waterloo)
455 PHILLIP STREET
WATERLOO ON N2L 3X2

Contact: LAURA ERMETA

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
TKN-WT	Water							
Batch	R4362813							
WG2940190-2 LCS								
Total Kjeldahl Nitrogen			101.0		%		75-125	27-NOV-18
WG2940190-1 MB								
Total Kjeldahl Nitrogen			<0.15		mg/L		0.15	27-NOV-18
WG2940190-4 MS		L2199794-1						
Total Kjeldahl Nitrogen			104.3		%		70-130	27-NOV-18

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Client: GHD Limited (Waterloo)
455 PHILLIP STREET
WATERLOO ON N2L 3X2
Contact: LAURA ERMETA

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Legend:

Limit	ALS Control Limit (Data Quality Objectives)
DUP	Duplicate
RPD	Relative Percent Difference
N/A	Not Available
LCS	Laboratory Control Sample
SRM	Standard Reference Material
MS	Matrix Spike
MSD	Matrix Spike Duplicate
ADE	Average Desorption Efficiency
MB	Method Blank
IRM	Internal Reference Material
CRM	Certified Reference Material
CCV	Continuing Calibration Verification
CVS	Calibration Verification Standard
LCSD	Laboratory Control Sample Duplicate

Sample Parameter Qualifier Definitions:

Qualifier	Description
J	Duplicate results and limits are expressed in terms of absolute difference.
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.
RPD-NA	Relative Percent Difference Not Available due to result(s) being less than detection limit.

Hold Time Exceedances:

All test results reported with this submission were conducted within ALS recommended hold times.

ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where available). For more information, please contact ALS.

The ALS Quality Control Report is provided to ALS clients upon request. ALS includes comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against pre-determined data quality objectives to provide confidence in the accuracy of associated test results.

Please note that this report may contain QC results from anonymous Sample Duplicates and Matrix Spikes that do not originate from this Work Order.



Chain of Custody (COC) / Analytical Request Form

Canada Toll Free: 1 800 668 9878



L2199505-COFC

COC Number: 14 -

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Report To		Acct#13791		Report Format / Distribution		w (Rush Turnaround Time (TAT) is not available for all tests)											
Company: GHD LIMITED		Select Report Format: <input checked="" type="checkbox"/> PDF <input checked="" type="checkbox"/> EXCEL <input checked="" type="checkbox"/> EDD (DIGITAL)		Quality Control (QC) Report with Report <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		R <input checked="" type="checkbox"/> Regular (Standard TAT if received by 3 pm - business days)											
Contact: Laura Ermeta		Criteria on Report - provide details below if box checked		Select Distribution: <input checked="" type="checkbox"/> EMAIL <input type="checkbox"/> MAIL <input type="checkbox"/> FAX		P <input type="checkbox"/> Priority (2-4 bus. days if received by 3pm) 50% surcharge - contact ALS to confirm TAT											
Address: 455 Phillip St N2L 3X2		Email 1 or Fax laura.ermeta@ghd.com		Email 2 See PO		E <input type="checkbox"/> Emergency (1-2 bus. days if received by 3pm) 100% surcharge - contact ALS to confirm TAT											
Phone: 519-884-0510		Specify Date Required for E2,E or P:				E2 <input type="checkbox"/> Same day or weekend emergency - contact ALS to confirm TAT and surcharge											
Invoice To		Same as Report To <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Invoice Distribution		Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below											
Copy of Invoice with Report <input type="checkbox"/> Yes <input type="checkbox"/> No		Select Invoice Distribution: <input checked="" type="checkbox"/> EMAIL <input type="checkbox"/> MAIL <input type="checkbox"/> FAX		Email 1 or Fax laura.ermeta@ghd.com													
Company: GHD LIMITED		Email 2															
Project Information		Oil and Gas Required Fields (client use)															
ALS Quote #: 44985		Approver ID:		Cost Center:													
Job #: 44985		GL Account:		Routing Code:													
PO / AFE: 73506479		Activity Code:		Location:													
LSD:		ALS Lab Work Order # (lab use only) L2199505		ALS Contact: Rick H		Sampler: Dam -											
ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)			Date (dd-mmm-yy)	Time (hr:mm)	Sample Type	ALK, Conductivity, pH, TDS, TSS, Phenole	Br, NO2, NO3, SO4, Cl, F (ANIONS-IC-E-WT)	DOC (DOC-WT), COD, TKN, TP	Total CN (CN-TOT-WT)	Un-ionized NH3 (NH3, ETL-NH3-UNION-CL)	Total Metals (MET-T-CMSS-WT, WT-44985-Met)	Total Mercury (HG-T-CVAA-WT)	Total Cr 6+ (CR-CR6-IC-WT), Hardness calc	CLIENT SUPPLIED TEMPERATURE **	CLIENT SUPPLIED pH **	Number of Containers
	STN6			20/1/18	13:48	Water	R	R	R	R	R	R	R	R	33.4	7.4	
	STN6A			20/1/18	13:00	Water	R	R	R	R	R	R	R	R	29.5	7.3	
Drinking Water (DW) Samples¹ (client use)		Special Instructions / Specify Criteria to add on report (client Use)		SAMPLE CONDITION AS RECEIVED (lab use only)													
Are samples taken from a Regulated DW System? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		**Please fill in Client Supplied temperature and pH for Unionized NH3 calculation**		Frozen <input type="checkbox"/> SIF Observations Yes <input type="checkbox"/> No <input type="checkbox"/>													
Are samples for human drinking water use? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No				Ice packs Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Custody seal intact Yes <input type="checkbox"/> No <input type="checkbox"/>													
				Cooling Initiated <input type="checkbox"/>													
				INITIAL COOLER TEMPERATURES °C: FINAL COOLER TEMPERATURES °C: 8.3													
SHIPMENT RELEASE (client use)		INITIAL SHIPMENT RECEPTION (lab use only)		FINAL SHIPMENT RECEPTION (lab use only)													
Released by: [Signature] Date: 1/24/18 Time: 11:00		Received by: [Signature] Date: 1/24/18 Time: 10:30		Received by: [Signature] Date: 1/24/18 Time: 10:30													

REFER TO BACKPAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

NA-FRM-020e-v08 Form 04 January 2014

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.



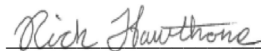
GHD Limited (Waterloo)
ATTN: LAURA ERMETA
455 PHILLIP STREET
WATERLOO ON N2L 3X2

Date Received: 18-DEC-18
Report Date: 24-DEC-18 12:46 (MT)
Version: FINAL

Client Phone: 519-884-0510

Certificate of Analysis

Lab Work Order #: L2211993
Project P.O. #: 73506479
Job Reference: 44985
C of C Numbers:
Legal Site Desc:



Rick Hawthorne
Account Manager

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ADDRESS: 60 Northland Road, Unit 1, Waterloo, ON N2V 2B8 Canada | Phone: +1 519 886 6910 | Fax: +1 519 886 9047
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ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2211993-1 EQ POND DISCHARGE							
Sampled By: R. TOBIN on 17-DEC-18 @ 12:00							
Matrix: WATER							
Field Tests							
pH, Client Supplied	7.80		0.10	pH		19-DEC-18	R4401948
Temperature, Client	3.0		-50	Deg. C		19-DEC-18	R4401948
Physical Tests							
Conductivity	745		3.0	umhos/cm		19-DEC-18	R4405188
Hardness (as CaCO3)	279	HTC	10	mg/L		19-DEC-18	
pH	7.99		0.10	pH units		19-DEC-18	R4405188
Total Suspended Solids	3.3		2.0	mg/L	20-DEC-18	21-DEC-18	R4408292
Total Dissolved Solids	500	DLDS	20	mg/L		20-DEC-18	R4412089
Anions and Nutrients							
Alkalinity, Total (as CaCO3)	169		10	mg/L		19-DEC-18	R4405188
Unionized ammonia	0.00323		0.00016	mg/L		20-DEC-18	
Ammonia, Total (as N)	0.401		0.020	mg/L		19-DEC-18	R4403267
Bromide (Br)	1.01		0.10	mg/L		21-DEC-18	R4412990
Chloride (Cl)	66.4		0.50	mg/L		21-DEC-18	R4412990
Fluoride (F)	0.572		0.020	mg/L		21-DEC-18	R4412990
Nitrate (as N)	0.225		0.020	mg/L		21-DEC-18	R4412990
Nitrite (as N)	<0.010		0.010	mg/L		21-DEC-18	R4412990
Total Kjeldahl Nitrogen	0.93		0.15	mg/L	19-DEC-18	20-DEC-18	R4408827
Phosphorus, Total	0.0267		0.0030	mg/L	20-DEC-18	21-DEC-18	R4408276
Sulfate (SO4)	141		0.30	mg/L		21-DEC-18	R4412990
Cyanides							
Cyanide, Total	<0.0020		0.0020	mg/L		20-DEC-18	R4406888
Organic / Inorganic Carbon							
Dissolved Carbon Filtration Location	LAB					19-DEC-18	R4404789
Dissolved Organic Carbon	5.86		0.50	mg/L	19-DEC-18	20-DEC-18	R4408267
Total Metals							
Aluminum (Al)-Total	0.363		0.010	mg/L	19-DEC-18	19-DEC-18	R4403575
Antimony (Sb)-Total	0.00064		0.00010	mg/L	19-DEC-18	19-DEC-18	R4403575
Arsenic (As)-Total	0.00282		0.00010	mg/L	19-DEC-18	19-DEC-18	R4403575
Barium (Ba)-Total	0.0614		0.00020	mg/L	19-DEC-18	19-DEC-18	R4403575
Beryllium (Be)-Total	<0.00010		0.00010	mg/L	19-DEC-18	19-DEC-18	R4403575
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	19-DEC-18	19-DEC-18	R4403575
Boron (B)-Total	0.112		0.010	mg/L	19-DEC-18	19-DEC-18	R4403575
Cadmium (Cd)-Total	0.000118		0.000010	mg/L	19-DEC-18	19-DEC-18	R4403575
Calcium (Ca)-Total	78.4		0.50	mg/L	19-DEC-18	19-DEC-18	R4403575
Cobalt (Co)-Total	0.00038		0.00010	mg/L	19-DEC-18	19-DEC-18	R4403575
Copper (Cu)-Total	0.0024		0.0010	mg/L	19-DEC-18	19-DEC-18	R4403575
Iron (Fe)-Total	0.377		0.050	mg/L	19-DEC-18	19-DEC-18	R4403575
Lead (Pb)-Total	0.00041		0.00010	mg/L	19-DEC-18	19-DEC-18	R4403575
Magnesium (Mg)-Total	20.3		0.050	mg/L	19-DEC-18	19-DEC-18	R4403575
Manganese (Mn)-Total	0.0204		0.00050	mg/L	19-DEC-18	19-DEC-18	R4403575
Mercury (Hg)-Total	<0.000010		0.000010	mg/L		19-DEC-18	R4402768

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2211993-1 EQ POND DISCHARGE							
Sampled By: R. TOBIN on 17-DEC-18 @ 12:00							
Matrix: WATER							
Total Metals							
Molybdenum (Mo)-Total	0.0739		0.000050	mg/L	19-DEC-18	19-DEC-18	R4403575
Nickel (Ni)-Total	0.00694		0.00050	mg/L	19-DEC-18	19-DEC-18	R4403575
Potassium (K)-Total	16.2		0.050	mg/L	19-DEC-18	19-DEC-18	R4403575
Selenium (Se)-Total	0.00177		0.000050	mg/L	19-DEC-18	19-DEC-18	R4403575
Silicon (Si)-Total	3.22		0.10	mg/L	19-DEC-18	19-DEC-18	R4403575
Silver (Ag)-Total	<0.000050		0.000050	mg/L	19-DEC-18	19-DEC-18	R4403575
Sodium (Na)-Total	40.2		0.50	mg/L	19-DEC-18	19-DEC-18	R4403575
Strontium (Sr)-Total	0.595		0.0010	mg/L	19-DEC-18	19-DEC-18	R4403575
Thallium (Tl)-Total	0.000036		0.000010	mg/L	19-DEC-18	19-DEC-18	R4403575
Tin (Sn)-Total	<0.00010		0.00010	mg/L	19-DEC-18	19-DEC-18	R4403575
Vanadium (V)-Total	0.00119		0.00050	mg/L	19-DEC-18	19-DEC-18	R4403575
Zinc (Zn)-Total	0.0045		0.0030	mg/L	19-DEC-18	19-DEC-18	R4403575
Speciated Metals							
Chromium, Hexavalent	0.00162		0.00050	mg/L		19-DEC-18	R4403350
Aggregate Organics							
COD	17		10	mg/L		23-DEC-18	R4412402
Phenols (4AAP)	0.0012		0.0010	mg/L		19-DEC-18	R4404029
Volatile Organic Compounds							
Acetone	<20		20	ug/L		19-DEC-18	R4402352
Benzene	<0.50		0.50	ug/L		19-DEC-18	R4402352
Bromodichloromethane	<1.0		1.0	ug/L		19-DEC-18	R4402352
Bromoform	<1.0		1.0	ug/L		19-DEC-18	R4402352
Bromomethane	<0.50		0.50	ug/L		19-DEC-18	R4402352
Carbon tetrachloride	<0.50		0.50	ug/L		19-DEC-18	R4402352
Chlorobenzene	<0.50		0.50	ug/L		19-DEC-18	R4402352
Dibromochloromethane	<1.0		1.0	ug/L		19-DEC-18	R4402352
Chloroethane	<1.0		1.0	ug/L		19-DEC-18	R4402352
Chloroform	<1.0		1.0	ug/L		19-DEC-18	R4402352
1,2-Dibromoethane	<0.20		0.20	ug/L		19-DEC-18	R4402352
1,2-Dichlorobenzene	<0.50		0.50	ug/L		19-DEC-18	R4402352
1,3-Dichlorobenzene	<0.50		0.50	ug/L		19-DEC-18	R4402352
1,4-Dichlorobenzene	<0.50		0.50	ug/L		19-DEC-18	R4402352
Dichlorodifluoromethane	<1.0		1.0	ug/L		19-DEC-18	R4402352
1,1-Dichloroethane	<0.50		0.50	ug/L		19-DEC-18	R4402352
1,2-Dichloroethane	<0.50		0.50	ug/L		19-DEC-18	R4402352
1,1-Dichloroethylene	<0.50		0.50	ug/L		19-DEC-18	R4402352
cis-1,2-Dichloroethylene	<0.50		0.50	ug/L		19-DEC-18	R4402352
trans-1,2-Dichloroethylene	<0.50		0.50	ug/L		19-DEC-18	R4402352
Dichloromethane	<2.0		2.0	ug/L		19-DEC-18	R4402352
1,2-Dichloropropane	<0.50		0.50	ug/L		19-DEC-18	R4402352
cis-1,3-Dichloropropene	<0.50		0.50	ug/L		19-DEC-18	R4402352
trans-1,3-Dichloropropene	<0.50		0.50	ug/L		19-DEC-18	R4402352

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2211993-1 EQ POND DISCHARGE							
Sampled By: R. TOBIN on 17-DEC-18 @ 12:00							
Matrix: WATER							
Volatile Organic Compounds							
Ethylbenzene	<0.50		0.50	ug/L		19-DEC-18	R4402352
n-Hexane	<0.50		0.50	ug/L		19-DEC-18	R4402352
Methyl Ethyl Ketone	<20		20	ug/L		19-DEC-18	R4402352
Methyl Isobutyl Ketone	<20		20	ug/L		19-DEC-18	R4402352
MTBE	<0.50		0.50	ug/L		19-DEC-18	R4402352
Styrene	<0.50		0.50	ug/L		19-DEC-18	R4402352
1,1,1,2-Tetrachloroethane	<0.50		0.50	ug/L		19-DEC-18	R4402352
1,1,2,2-Tetrachloroethane	<0.50		0.50	ug/L		19-DEC-18	R4402352
Tetrachloroethylene	<0.50		0.50	ug/L		19-DEC-18	R4402352
Toluene	<0.50		0.50	ug/L		19-DEC-18	R4402352
1,1,1-Trichloroethane	<0.50		0.50	ug/L		19-DEC-18	R4402352
1,1,2-Trichloroethane	<0.50		0.50	ug/L		19-DEC-18	R4402352
Trichloroethylene	<0.50		0.50	ug/L		19-DEC-18	R4402352
Trichlorofluoromethane	<1.0		1.0	ug/L		19-DEC-18	R4402352
Vinyl chloride	<0.50		0.50	ug/L		19-DEC-18	R4402352
o-Xylene	<0.50		0.50	ug/L		19-DEC-18	R4402352
m+p-Xylenes	<1.0		1.0	ug/L		19-DEC-18	R4402352
Xylenes (Total)	<1.1		1.1	ug/L		19-DEC-18	
Surrogate: 4-Bromofluorobenzene	99.6		70-130	%		19-DEC-18	R4402352
Surrogate: 1,4-Difluorobenzene	100.9		70-130	%		19-DEC-18	R4402352
Trihalomethanes							
Total THMs	<2.0		2.0	ug/L		19-DEC-18	
Acid Extractables							
2,3,6-Trichlorophenol	<0.50		0.50	ug/L	19-DEC-18	21-DEC-18	R4406751
Surrogate: 2,4,6-Tribromophenol	142.7		40-150	%	19-DEC-18	21-DEC-18	R4406751
Semi-Volatile Organics							
Acenaphthene	<0.20		0.20	ug/L	19-DEC-18	21-DEC-18	R4406508
Acenaphthylene	<0.20		0.20	ug/L	19-DEC-18	21-DEC-18	R4406508
Anthracene	<0.20		0.20	ug/L	19-DEC-18	21-DEC-18	R4406508
Benzo(a)anthracene	<0.20		0.20	ug/L	19-DEC-18	21-DEC-18	R4406508
Benzo(a)pyrene	<0.050		0.050	ug/L	19-DEC-18	21-DEC-18	R4406508
Benzo(b)fluoranthene	<0.20		0.20	ug/L	19-DEC-18	21-DEC-18	R4406508
Benzo(ghi)perylene	<0.20		0.20	ug/L	19-DEC-18	21-DEC-18	R4406508
Benzo(k)fluoranthene	<0.20		0.20	ug/L	19-DEC-18	21-DEC-18	R4406508
4-Chloroaniline	<0.40		0.40	ug/L	19-DEC-18	21-DEC-18	R4406508
Bis(2-chloroethyl)ether	<0.40		0.40	ug/L	19-DEC-18	21-DEC-18	R4406508
2-Chlorophenol	<0.30		0.30	ug/L	19-DEC-18	21-DEC-18	R4406508
Chrysene	<0.20		0.20	ug/L	19-DEC-18	21-DEC-18	R4406508
Dibenzo(a,h)anthracene	<0.20		0.20	ug/L	19-DEC-18	21-DEC-18	R4406508
1,2-Dichlorobenzene	<0.40		0.40	ug/L	19-DEC-18	21-DEC-18	R4406508
1,3-Dichlorobenzene	<0.40		0.40	ug/L	19-DEC-18	21-DEC-18	R4406508
1,4-Dichlorobenzene	<0.40		0.40	ug/L	19-DEC-18	21-DEC-18	R4406508

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2211993-1 EQ POND DISCHARGE Sampled By: R. TOBIN on 17-DEC-18 @ 12:00 Matrix: WATER							
Semi-Volatile Organics							
3,3'-Dichlorobenzidine	<0.40		0.40	ug/L	19-DEC-18	21-DEC-18	R4406508
2,4-Dichlorophenol	<0.30		0.30	ug/L	19-DEC-18	21-DEC-18	R4406508
Diethylphthalate	<0.20		0.20	ug/L	19-DEC-18	21-DEC-18	R4406508
Dimethylphthalate	<0.20		0.20	ug/L	19-DEC-18	21-DEC-18	R4406508
2,4-Dimethylphenol	<0.50		0.50	ug/L	19-DEC-18	21-DEC-18	R4406508
2,4-Dinitrophenol	<1.0		1.0	ug/L	19-DEC-18	21-DEC-18	R4406508
2,4-Dinitrotoluene	<0.40		0.40	ug/L	19-DEC-18	21-DEC-18	R4406508
2,6-Dinitrotoluene	<0.40		0.40	ug/L	19-DEC-18	21-DEC-18	R4406508
Bis(2-ethylhexyl)phthalate	<2.0		2.0	ug/L	19-DEC-18	21-DEC-18	R4406508
Fluoranthene	<0.20		0.20	ug/L	19-DEC-18	21-DEC-18	R4406508
Fluorene	<0.20		0.20	ug/L	19-DEC-18	21-DEC-18	R4406508
Hexachlorobenzene	<0.040		0.040	ug/L	19-DEC-18	21-DEC-18	R4406508
Hexachlorobutadiene	<0.20		0.20	ug/L	19-DEC-18	21-DEC-18	R4406508
Indeno(1,2,3-cd)pyrene	<0.20		0.20	ug/L	19-DEC-18	21-DEC-18	R4406508
1-Methylnaphthalene	<0.40		0.40	ug/L	19-DEC-18	21-DEC-18	R4406508
2-Methylnaphthalene	<0.40		0.40	ug/L	19-DEC-18	21-DEC-18	R4406508
Naphthalene	<0.20		0.20	ug/L	19-DEC-18	21-DEC-18	R4406508
Pentachlorophenol	<0.50		0.50	ug/L	19-DEC-18	21-DEC-18	R4406508
Perylene	<0.20		0.20	ug/L	19-DEC-18	21-DEC-18	R4406508
Phenanthrene	<0.20		0.20	ug/L	19-DEC-18	21-DEC-18	R4406508
Pyrene	<0.20		0.20	ug/L	19-DEC-18	21-DEC-18	R4406508
2,3,4,5-Tetrachlorophenol	<0.50		0.50	ug/L	19-DEC-18	21-DEC-18	R4406508
2,3,4,6-Tetrachlorophenol	<0.50		0.50	ug/L	19-DEC-18	21-DEC-18	R4406508
1,2,4-Trichlorobenzene	<0.40		0.40	ug/L	19-DEC-18	21-DEC-18	R4406508
2,4,5-Trichlorophenol	<0.50		0.50	ug/L	19-DEC-18	21-DEC-18	R4406508
2,4,6-Trichlorophenol	<0.50		0.50	ug/L	19-DEC-18	21-DEC-18	R4406508
Surrogate: 2-Fluorobiphenyl	90.6		40-130	%	19-DEC-18	21-DEC-18	R4406508
Surrogate: Nitrobenzene d5	94.1		40-130	%	19-DEC-18	21-DEC-18	R4406508
Surrogate: p-Terphenyl d14	83.6		40-130	%	19-DEC-18	21-DEC-18	R4406508
L2211993-2 WEST STORM WATER POND Sampled By: R. TOBIN on 17-DEC-18 @ 11:45 Matrix: WATER							
Field Tests							
pH, Client Supplied	7.50		0.10	pH		19-DEC-18	R4401948
Temperature, Client	3.0		-50	Deg. C		19-DEC-18	R4401948
Physical Tests							
Conductivity	741		3.0	umhos/cm		19-DEC-18	R4405188
Hardness (as CaCO3)	278	HTC	10	mg/L		19-DEC-18	
pH	8.04		0.10	pH units		19-DEC-18	R4405188
Total Suspended Solids	4.5		2.0	mg/L	20-DEC-18	21-DEC-18	R4408292
Total Dissolved Solids	480	DLDS	20	mg/L		20-DEC-18	R4412089
Anions and Nutrients							

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2211993-2 WEST STORM WATER POND Sampled By: R. TOBIN on 17-DEC-18 @ 11:45 Matrix: WATER							
Anions and Nutrients							
Alkalinity, Total (as CaCO ₃)	166		10	mg/L		19-DEC-18	R4405188
Unionized ammonia	0.0103		0.00041	mg/L		20-DEC-18	
Ammonia, Total (as N)	2.54	DLHC	0.10	mg/L		20-DEC-18	R4405869
Bromide (Br)	1.11		0.10	mg/L		21-DEC-18	R4412990
Chloride (Cl)	65.6		0.50	mg/L		21-DEC-18	R4412990
Fluoride (F)	0.577		0.020	mg/L		21-DEC-18	R4412990
Nitrate (as N)	0.145		0.020	mg/L		21-DEC-18	R4412990
Nitrite (as N)	<0.010		0.010	mg/L		21-DEC-18	R4412990
Total Kjeldahl Nitrogen	3.68		0.15	mg/L	19-DEC-18	20-DEC-18	R4408827
Phosphorus, Total	0.0458		0.0030	mg/L	20-DEC-18	21-DEC-18	R4408276
Sulfate (SO ₄)	137		0.30	mg/L		21-DEC-18	R4412990
Cyanides							
Cyanide, Total	<0.0020		0.0020	mg/L		20-DEC-18	R4406888
Organic / Inorganic Carbon							
Dissolved Carbon Filtration Location	LAB					19-DEC-18	R4404789
Dissolved Organic Carbon	6.50		0.50	mg/L	19-DEC-18	20-DEC-18	R4408267
Total Metals							
Aluminum (Al)-Total	0.348		0.010	mg/L	19-DEC-18	19-DEC-18	R4403575
Antimony (Sb)-Total	0.00073		0.00010	mg/L	19-DEC-18	19-DEC-18	R4403575
Arsenic (As)-Total	0.00394		0.00010	mg/L	19-DEC-18	19-DEC-18	R4403575
Barium (Ba)-Total	0.0613		0.00020	mg/L	19-DEC-18	19-DEC-18	R4403575
Beryllium (Be)-Total	<0.00010		0.00010	mg/L	19-DEC-18	19-DEC-18	R4403575
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	19-DEC-18	19-DEC-18	R4403575
Boron (B)-Total	0.114		0.010	mg/L	19-DEC-18	19-DEC-18	R4403575
Cadmium (Cd)-Total	0.000190		0.000010	mg/L	19-DEC-18	19-DEC-18	R4403575
Calcium (Ca)-Total	77.0		0.50	mg/L	19-DEC-18	19-DEC-18	R4403575
Cobalt (Co)-Total	0.00043		0.00010	mg/L	19-DEC-18	19-DEC-18	R4403575
Copper (Cu)-Total	0.0028		0.0010	mg/L	19-DEC-18	19-DEC-18	R4403575
Iron (Fe)-Total	0.363		0.050	mg/L	19-DEC-18	19-DEC-18	R4403575
Lead (Pb)-Total	0.00047		0.00010	mg/L	19-DEC-18	19-DEC-18	R4403575
Magnesium (Mg)-Total	20.9		0.050	mg/L	19-DEC-18	19-DEC-18	R4403575
Manganese (Mn)-Total	0.0274		0.00050	mg/L	19-DEC-18	19-DEC-18	R4403575
Mercury (Hg)-Total	<0.000010		0.000010	mg/L		19-DEC-18	R4402768
Molybdenum (Mo)-Total	0.0772		0.000050	mg/L	19-DEC-18	19-DEC-18	R4403575
Nickel (Ni)-Total	0.00863		0.00050	mg/L	19-DEC-18	19-DEC-18	R4403575
Potassium (K)-Total	16.4		0.050	mg/L	19-DEC-18	19-DEC-18	R4403575
Selenium (Se)-Total	0.00196		0.000050	mg/L	19-DEC-18	19-DEC-18	R4403575
Silicon (Si)-Total	3.06		0.10	mg/L	19-DEC-18	19-DEC-18	R4403575
Silver (Ag)-Total	<0.000050		0.000050	mg/L	19-DEC-18	19-DEC-18	R4403575
Sodium (Na)-Total	41.1		0.50	mg/L	19-DEC-18	19-DEC-18	R4403575
Strontium (Sr)-Total	0.581		0.0010	mg/L	19-DEC-18	19-DEC-18	R4403575
Thallium (Tl)-Total	0.000049		0.000010	mg/L	19-DEC-18	19-DEC-18	R4403575

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2211993-2 WEST STORM WATER POND Sampled By: R. TOBIN on 17-DEC-18 @ 11:45 Matrix: WATER							
Total Metals							
Tin (Sn)-Total	<0.00010		0.00010	mg/L	19-DEC-18	19-DEC-18	R4403575
Vanadium (V)-Total	0.00134		0.00050	mg/L	19-DEC-18	19-DEC-18	R4403575
Zinc (Zn)-Total	0.0061		0.0030	mg/L	19-DEC-18	19-DEC-18	R4403575
Speciated Metals							
Chromium, Hexavalent	0.00219		0.00050	mg/L		19-DEC-18	R4403350
Aggregate Organics							
COD	22		10	mg/L		23-DEC-18	R4412402
Phenols (4AAP)	0.0013		0.0010	mg/L		19-DEC-18	R4404029
Volatile Organic Compounds							
Acetone	<20		20	ug/L		19-DEC-18	R4402352
Benzene	<0.50		0.50	ug/L		19-DEC-18	R4402352
Bromodichloromethane	<1.0		1.0	ug/L		19-DEC-18	R4402352
Bromoform	<1.0		1.0	ug/L		19-DEC-18	R4402352
Bromomethane	<0.50		0.50	ug/L		19-DEC-18	R4402352
Carbon tetrachloride	<0.50		0.50	ug/L		19-DEC-18	R4402352
Chlorobenzene	<0.50		0.50	ug/L		19-DEC-18	R4402352
Dibromochloromethane	<1.0		1.0	ug/L		19-DEC-18	R4402352
Chloroethane	<1.0		1.0	ug/L		19-DEC-18	R4402352
Chloroform	<1.0		1.0	ug/L		19-DEC-18	R4402352
1,2-Dibromoethane	<0.20		0.20	ug/L		19-DEC-18	R4402352
1,2-Dichlorobenzene	<0.50		0.50	ug/L		19-DEC-18	R4402352
1,3-Dichlorobenzene	<0.50		0.50	ug/L		19-DEC-18	R4402352
1,4-Dichlorobenzene	<0.50		0.50	ug/L		19-DEC-18	R4402352
Dichlorodifluoromethane	<1.0		1.0	ug/L		19-DEC-18	R4402352
1,1-Dichloroethane	<0.50		0.50	ug/L		19-DEC-18	R4402352
1,2-Dichloroethane	<0.50		0.50	ug/L		19-DEC-18	R4402352
1,1-Dichloroethylene	<0.50		0.50	ug/L		19-DEC-18	R4402352
cis-1,2-Dichloroethylene	<0.50		0.50	ug/L		19-DEC-18	R4402352
trans-1,2-Dichloroethylene	<0.50		0.50	ug/L		19-DEC-18	R4402352
Dichloromethane	<2.0		2.0	ug/L		19-DEC-18	R4402352
1,2-Dichloropropane	<0.50		0.50	ug/L		19-DEC-18	R4402352
cis-1,3-Dichloropropene	<0.50		0.50	ug/L		19-DEC-18	R4402352
trans-1,3-Dichloropropene	<0.50		0.50	ug/L		19-DEC-18	R4402352
Ethylbenzene	<0.50		0.50	ug/L		19-DEC-18	R4402352
n-Hexane	<0.50		0.50	ug/L		19-DEC-18	R4402352
Methyl Ethyl Ketone	<20		20	ug/L		19-DEC-18	R4402352
Methyl Isobutyl Ketone	<20		20	ug/L		19-DEC-18	R4402352
MTBE	<0.50		0.50	ug/L		19-DEC-18	R4402352
Styrene	<0.50		0.50	ug/L		19-DEC-18	R4402352
1,1,1,2-Tetrachloroethane	<0.50		0.50	ug/L		19-DEC-18	R4402352
1,1,2,2-Tetrachloroethane	<0.50		0.50	ug/L		19-DEC-18	R4402352
Tetrachloroethylene	<0.50		0.50	ug/L		19-DEC-18	R4402352

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ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2211993-2 WEST STORM WATER POND Sampled By: R. TOBIN on 17-DEC-18 @ 11:45 Matrix: WATER							
Volatile Organic Compounds							
Toluene	<0.50		0.50	ug/L		19-DEC-18	R4402352
1,1,1-Trichloroethane	<0.50		0.50	ug/L		19-DEC-18	R4402352
1,1,2-Trichloroethane	<0.50		0.50	ug/L		19-DEC-18	R4402352
Trichloroethylene	<0.50		0.50	ug/L		19-DEC-18	R4402352
Trichlorofluoromethane	<1.0		1.0	ug/L		19-DEC-18	R4402352
Vinyl chloride	<0.50		0.50	ug/L		19-DEC-18	R4402352
o-Xylene	<0.50		0.50	ug/L		19-DEC-18	R4402352
m+p-Xylenes	<1.0		1.0	ug/L		19-DEC-18	R4402352
Xylenes (Total)	<1.1		1.1	ug/L		19-DEC-18	
Surrogate: 4-Bromofluorobenzene	99.8		70-130	%		19-DEC-18	R4402352
Surrogate: 1,4-Difluorobenzene	100.6		70-130	%		19-DEC-18	R4402352
Trihalomethanes							
Total THMs	<2.0		2.0	ug/L		19-DEC-18	
Acid Extractables							
2,3,6-Trichlorophenol	<0.50		0.50	ug/L	19-DEC-18	21-DEC-18	R4406751
Surrogate: 2,4,6-Tribromophenol	149.9		40-150	%	19-DEC-18	21-DEC-18	R4406751
Semi-Volatile Organics							
Acenaphthene	<0.20		0.20	ug/L	19-DEC-18	21-DEC-18	R4406508
Acenaphthylene	<0.20		0.20	ug/L	19-DEC-18	21-DEC-18	R4406508
Anthracene	<0.20		0.20	ug/L	19-DEC-18	21-DEC-18	R4406508
Benzo(a)anthracene	<0.20		0.20	ug/L	19-DEC-18	21-DEC-18	R4406508
Benzo(a)pyrene	<0.050		0.050	ug/L	19-DEC-18	21-DEC-18	R4406508
Benzo(b)fluoranthene	<0.20		0.20	ug/L	19-DEC-18	21-DEC-18	R4406508
Benzo(ghi)perylene	<0.20		0.20	ug/L	19-DEC-18	21-DEC-18	R4406508
Benzo(k)fluoranthene	<0.20		0.20	ug/L	19-DEC-18	21-DEC-18	R4406508
4-Chloroaniline	<0.40		0.40	ug/L	19-DEC-18	21-DEC-18	R4406508
Bis(2-chloroethyl)ether	<0.40		0.40	ug/L	19-DEC-18	21-DEC-18	R4406508
2-Chlorophenol	<0.30		0.30	ug/L	19-DEC-18	21-DEC-18	R4406508
Chrysene	<0.20		0.20	ug/L	19-DEC-18	21-DEC-18	R4406508
Dibenzo(a,h)anthracene	<0.20		0.20	ug/L	19-DEC-18	21-DEC-18	R4406508
1,2-Dichlorobenzene	<0.40		0.40	ug/L	19-DEC-18	21-DEC-18	R4406508
1,3-Dichlorobenzene	<0.40		0.40	ug/L	19-DEC-18	21-DEC-18	R4406508
1,4-Dichlorobenzene	<0.40		0.40	ug/L	19-DEC-18	21-DEC-18	R4406508
3,3'-Dichlorobenzidine	<0.40		0.40	ug/L	19-DEC-18	21-DEC-18	R4406508
2,4-Dichlorophenol	<0.30		0.30	ug/L	19-DEC-18	21-DEC-18	R4406508
Diethylphthalate	<0.20		0.20	ug/L	19-DEC-18	21-DEC-18	R4406508
Dimethylphthalate	<0.20		0.20	ug/L	19-DEC-18	21-DEC-18	R4406508
2,4-Dimethylphenol	<0.50		0.50	ug/L	19-DEC-18	21-DEC-18	R4406508
2,4-Dinitrophenol	<1.0		1.0	ug/L	19-DEC-18	21-DEC-18	R4406508
2,4-Dinitrotoluene	<0.40		0.40	ug/L	19-DEC-18	21-DEC-18	R4406508
2,6-Dinitrotoluene	<0.40		0.40	ug/L	19-DEC-18	21-DEC-18	R4406508
Bis(2-ethylhexyl)phthalate	<2.0		2.0	ug/L	19-DEC-18	21-DEC-18	R4406508

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ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2211993-2 WEST STORM WATER POND Sampled By: R. TOBIN on 17-DEC-18 @ 11:45 Matrix: WATER							
Semi-Volatile Organics							
Fluoranthene	<0.20		0.20	ug/L	19-DEC-18	21-DEC-18	R4406508
Fluorene	<0.20		0.20	ug/L	19-DEC-18	21-DEC-18	R4406508
Hexachlorobenzene	<0.040		0.040	ug/L	19-DEC-18	21-DEC-18	R4406508
Hexachlorobutadiene	<0.20		0.20	ug/L	19-DEC-18	21-DEC-18	R4406508
Indeno(1,2,3-cd)pyrene	<0.20		0.20	ug/L	19-DEC-18	21-DEC-18	R4406508
1-Methylnaphthalene	<0.40		0.40	ug/L	19-DEC-18	21-DEC-18	R4406508
2-Methylnaphthalene	<0.40		0.40	ug/L	19-DEC-18	21-DEC-18	R4406508
Naphthalene	<0.20		0.20	ug/L	19-DEC-18	21-DEC-18	R4406508
Pentachlorophenol	<0.50		0.50	ug/L	19-DEC-18	21-DEC-18	R4406508
Perylene	<0.20		0.20	ug/L	19-DEC-18	21-DEC-18	R4406508
Phenanthrene	<0.20		0.20	ug/L	19-DEC-18	21-DEC-18	R4406508
Pyrene	<0.20		0.20	ug/L	19-DEC-18	21-DEC-18	R4406508
2,3,4,5-Tetrachlorophenol	<0.50		0.50	ug/L	19-DEC-18	21-DEC-18	R4406508
2,3,4,6-Tetrachlorophenol	<0.50		0.50	ug/L	19-DEC-18	21-DEC-18	R4406508
1,2,4-Trichlorobenzene	<0.40		0.40	ug/L	19-DEC-18	21-DEC-18	R4406508
2,4,5-Trichlorophenol	<0.50		0.50	ug/L	19-DEC-18	21-DEC-18	R4406508
2,4,6-Trichlorophenol	<0.50		0.50	ug/L	19-DEC-18	21-DEC-18	R4406508
Surrogate: 2-Fluorobiphenyl	91.5		40-130	%	19-DEC-18	21-DEC-18	R4406508
Surrogate: Nitrobenzene d5	97.1		40-130	%	19-DEC-18	21-DEC-18	R4406508
Surrogate: p-Terphenyl d14	91.3		40-130	%	19-DEC-18	21-DEC-18	R4406508
L2211993-3 EAST STORM WATER POND Sampled By: R. TOBIN on 17-DEC-18 @ 11:30 Matrix: WATER							
Field Tests							
pH, Client Supplied	7.42		0.10	pH		19-DEC-18	R4401948
Temperature, Client	3.0		-50	Deg. C		19-DEC-18	R4401948
Physical Tests							
Conductivity	746		3.0	umhos/cm		19-DEC-18	R4405188
Hardness (as CaCO3)	298	HTC	10	mg/L		19-DEC-18	
pH	7.88		0.10	pH units		19-DEC-18	R4405188
Total Suspended Solids	11.7		2.0	mg/L	20-DEC-18	21-DEC-18	R4408292
Total Dissolved Solids	492	DLDS	20	mg/L		20-DEC-18	R4412089
Anions and Nutrients							
Alkalinity, Total (as CaCO3)	169		10	mg/L		19-DEC-18	R4405188
Unionized ammonia	0.00205		0.000067	mg/L		20-DEC-18	
Ammonia, Total (as N)	0.607		0.020	mg/L		20-DEC-18	R4405869
Bromide (Br)	0.61		0.10	mg/L		21-DEC-18	R4412990
Chloride (Cl)	56.1		0.50	mg/L		21-DEC-18	R4412990
Fluoride (F)	0.541		0.020	mg/L		21-DEC-18	R4412990
Nitrate (as N)	0.083		0.020	mg/L		21-DEC-18	R4412990
Nitrite (as N)	<0.010		0.010	mg/L		21-DEC-18	R4412990
Total Kjeldahl Nitrogen	1.18		0.15	mg/L	19-DEC-18	20-DEC-18	R4408827

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ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2211993-3 EAST STORM WATER POND Sampled By: R. TOBIN on 17-DEC-18 @ 11:30 Matrix: WATER							
Anions and Nutrients							
Phosphorus, Total	0.0527		0.0030	mg/L	20-DEC-18	21-DEC-18	R4408276
Sulfate (SO4)	153		0.30	mg/L		21-DEC-18	R4412990
Cyanides							
Cyanide, Total	<0.0020		0.0020	mg/L		20-DEC-18	R4406888
Organic / Inorganic Carbon							
Dissolved Carbon Filtration Location	LAB					19-DEC-18	R4404789
Dissolved Organic Carbon	5.73		0.50	mg/L	19-DEC-18	20-DEC-18	R4408267
Total Metals							
Aluminum (Al)-Total	0.706		0.010	mg/L	19-DEC-18	19-DEC-18	R4403575
Antimony (Sb)-Total	0.00045		0.00010	mg/L	19-DEC-18	19-DEC-18	R4403575
Arsenic (As)-Total	0.00129		0.00010	mg/L	19-DEC-18	19-DEC-18	R4403575
Barium (Ba)-Total	0.0675		0.00020	mg/L	19-DEC-18	19-DEC-18	R4403575
Beryllium (Be)-Total	<0.00010		0.00010	mg/L	19-DEC-18	19-DEC-18	R4403575
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	19-DEC-18	19-DEC-18	R4403575
Boron (B)-Total	0.087		0.010	mg/L	19-DEC-18	19-DEC-18	R4403575
Cadmium (Cd)-Total	0.000106		0.000010	mg/L	19-DEC-18	19-DEC-18	R4403575
Calcium (Ca)-Total	83.2		0.50	mg/L	19-DEC-18	19-DEC-18	R4403575
Cobalt (Co)-Total	0.00065		0.00010	mg/L	19-DEC-18	19-DEC-18	R4403575
Copper (Cu)-Total	0.0026		0.0010	mg/L	19-DEC-18	19-DEC-18	R4403575
Iron (Fe)-Total	0.785		0.050	mg/L	19-DEC-18	19-DEC-18	R4403575
Lead (Pb)-Total	0.00108		0.00010	mg/L	19-DEC-18	19-DEC-18	R4403575
Magnesium (Mg)-Total	21.9		0.050	mg/L	19-DEC-18	19-DEC-18	R4403575
Manganese (Mn)-Total	0.0414		0.00050	mg/L	19-DEC-18	19-DEC-18	R4403575
Mercury (Hg)-Total	0.000019		0.000010	mg/L		19-DEC-18	R4402768
Molybdenum (Mo)-Total	0.0736		0.000050	mg/L	19-DEC-18	19-DEC-18	R4403575
Nickel (Ni)-Total	0.00395		0.00050	mg/L	19-DEC-18	19-DEC-18	R4403575
Potassium (K)-Total	19.3		0.050	mg/L	19-DEC-18	19-DEC-18	R4403575
Selenium (Se)-Total	0.00168		0.000050	mg/L	19-DEC-18	19-DEC-18	R4403575
Silicon (Si)-Total	3.94		0.10	mg/L	19-DEC-18	19-DEC-18	R4403575
Silver (Ag)-Total	<0.000050		0.000050	mg/L	19-DEC-18	19-DEC-18	R4403575
Sodium (Na)-Total	33.5		0.50	mg/L	19-DEC-18	19-DEC-18	R4403575
Strontium (Sr)-Total	0.670		0.0010	mg/L	19-DEC-18	19-DEC-18	R4403575
Thallium (Tl)-Total	0.000043		0.000010	mg/L	19-DEC-18	19-DEC-18	R4403575
Tin (Sn)-Total	<0.00010		0.00010	mg/L	19-DEC-18	19-DEC-18	R4403575
Vanadium (V)-Total	0.00176		0.00050	mg/L	19-DEC-18	19-DEC-18	R4403575
Zinc (Zn)-Total	0.0111		0.0030	mg/L	19-DEC-18	19-DEC-18	R4403575
Speciated Metals							
Chromium, Hexavalent	<0.00050		0.00050	mg/L		20-DEC-18	R4405909
Aggregate Organics							
COD	23		10	mg/L		23-DEC-18	R4412402
Phenols (4AAP)	0.0025		0.0010	mg/L		19-DEC-18	R4404029
Volatile Organic Compounds							

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ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2211993-3 EAST STORM WATER POND Sampled By: R. TOBIN on 17-DEC-18 @ 11:30 Matrix: WATER							
Volatile Organic Compounds							
Acetone	<20		20	ug/L		19-DEC-18	R4402352
Benzene	<0.50		0.50	ug/L		19-DEC-18	R4402352
Bromodichloromethane	<1.0		1.0	ug/L		19-DEC-18	R4402352
Bromoform	<1.0		1.0	ug/L		19-DEC-18	R4402352
Bromomethane	<0.50		0.50	ug/L		19-DEC-18	R4402352
Carbon tetrachloride	<0.50		0.50	ug/L		19-DEC-18	R4402352
Chlorobenzene	<0.50		0.50	ug/L		19-DEC-18	R4402352
Dibromochloromethane	<1.0		1.0	ug/L		19-DEC-18	R4402352
Chloroethane	<1.0		1.0	ug/L		19-DEC-18	R4402352
Chloroform	<1.0		1.0	ug/L		19-DEC-18	R4402352
1,2-Dibromoethane	<0.20		0.20	ug/L		19-DEC-18	R4402352
1,2-Dichlorobenzene	<0.50		0.50	ug/L		19-DEC-18	R4402352
1,3-Dichlorobenzene	<0.50		0.50	ug/L		19-DEC-18	R4402352
1,4-Dichlorobenzene	<0.50		0.50	ug/L		19-DEC-18	R4402352
Dichlorodifluoromethane	<1.0		1.0	ug/L		19-DEC-18	R4402352
1,1-Dichloroethane	<0.50		0.50	ug/L		19-DEC-18	R4402352
1,2-Dichloroethane	<0.50		0.50	ug/L		19-DEC-18	R4402352
1,1-Dichloroethylene	<0.50		0.50	ug/L		19-DEC-18	R4402352
cis-1,2-Dichloroethylene	<0.50		0.50	ug/L		19-DEC-18	R4402352
trans-1,2-Dichloroethylene	<0.50		0.50	ug/L		19-DEC-18	R4402352
Dichloromethane	<2.0		2.0	ug/L		19-DEC-18	R4402352
1,2-Dichloropropane	<0.50		0.50	ug/L		19-DEC-18	R4402352
cis-1,3-Dichloropropene	<0.50		0.50	ug/L		19-DEC-18	R4402352
trans-1,3-Dichloropropene	<0.50		0.50	ug/L		19-DEC-18	R4402352
Ethylbenzene	<0.50		0.50	ug/L		19-DEC-18	R4402352
n-Hexane	<0.50		0.50	ug/L		19-DEC-18	R4402352
Methyl Ethyl Ketone	<20		20	ug/L		19-DEC-18	R4402352
Methyl Isobutyl Ketone	<20		20	ug/L		19-DEC-18	R4402352
MTBE	<0.50		0.50	ug/L		19-DEC-18	R4402352
Styrene	<0.50		0.50	ug/L		19-DEC-18	R4402352
1,1,1,2-Tetrachloroethane	<0.50		0.50	ug/L		19-DEC-18	R4402352
1,1,2,2-Tetrachloroethane	<0.50		0.50	ug/L		19-DEC-18	R4402352
Tetrachloroethylene	<0.50		0.50	ug/L		19-DEC-18	R4402352
Toluene	<0.50		0.50	ug/L		19-DEC-18	R4402352
1,1,1-Trichloroethane	<0.50		0.50	ug/L		19-DEC-18	R4402352
1,1,2-Trichloroethane	<0.50		0.50	ug/L		19-DEC-18	R4402352
Trichloroethylene	<0.50		0.50	ug/L		19-DEC-18	R4402352
Trichlorofluoromethane	<1.0		1.0	ug/L		19-DEC-18	R4402352
Vinyl chloride	<0.50		0.50	ug/L		19-DEC-18	R4402352
o-Xylene	<0.50		0.50	ug/L		19-DEC-18	R4402352
m+p-Xylenes	<1.0		1.0	ug/L		19-DEC-18	R4402352

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ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2211993-3 EAST STORM WATER POND Sampled By: R. TOBIN on 17-DEC-18 @ 11:30 Matrix: WATER							
Volatile Organic Compounds							
Xylenes (Total)	<1.1		1.1	ug/L		19-DEC-18	
Surrogate: 4-Bromofluorobenzene	101.8		70-130	%		19-DEC-18	R4402352
Surrogate: 1,4-Difluorobenzene	100.5		70-130	%		19-DEC-18	R4402352
Trihalomethanes							
Total THMs	<2.0		2.0	ug/L		19-DEC-18	
Acid Extractables							
2,3,6-Trichlorophenol	<0.50		0.50	ug/L	19-DEC-18	21-DEC-18	R4406751
Surrogate: 2,4,6-Tribromophenol	145.6		40-150	%	19-DEC-18	21-DEC-18	R4406751
Semi-Volatile Organics							
Acenaphthene	<0.20		0.20	ug/L	19-DEC-18	21-DEC-18	R4406508
Acenaphthylene	<0.20		0.20	ug/L	19-DEC-18	21-DEC-18	R4406508
Anthracene	<0.20		0.20	ug/L	19-DEC-18	21-DEC-18	R4406508
Benzo(a)anthracene	<0.20		0.20	ug/L	19-DEC-18	21-DEC-18	R4406508
Benzo(a)pyrene	<0.050		0.050	ug/L	19-DEC-18	21-DEC-18	R4406508
Benzo(b)fluoranthene	<0.20		0.20	ug/L	19-DEC-18	21-DEC-18	R4406508
Benzo(ghi)perylene	<0.20		0.20	ug/L	19-DEC-18	21-DEC-18	R4406508
Benzo(k)fluoranthene	<0.20		0.20	ug/L	19-DEC-18	21-DEC-18	R4406508
4-Chloroaniline	<0.40		0.40	ug/L	19-DEC-18	21-DEC-18	R4406508
Bis(2-chloroethyl)ether	<0.40		0.40	ug/L	19-DEC-18	21-DEC-18	R4406508
2-Chlorophenol	<0.30		0.30	ug/L	19-DEC-18	21-DEC-18	R4406508
Chrysene	<0.20		0.20	ug/L	19-DEC-18	21-DEC-18	R4406508
Dibenzo(a,h)anthracene	<0.20		0.20	ug/L	19-DEC-18	21-DEC-18	R4406508
1,2-Dichlorobenzene	<0.40		0.40	ug/L	19-DEC-18	21-DEC-18	R4406508
1,3-Dichlorobenzene	<0.40		0.40	ug/L	19-DEC-18	21-DEC-18	R4406508
1,4-Dichlorobenzene	<0.40		0.40	ug/L	19-DEC-18	21-DEC-18	R4406508
3,3'-Dichlorobenzidine	<0.40		0.40	ug/L	19-DEC-18	21-DEC-18	R4406508
2,4-Dichlorophenol	<0.30		0.30	ug/L	19-DEC-18	21-DEC-18	R4406508
Diethylphthalate	<0.20		0.20	ug/L	19-DEC-18	21-DEC-18	R4406508
Dimethylphthalate	<0.20		0.20	ug/L	19-DEC-18	21-DEC-18	R4406508
2,4-Dimethylphenol	<0.50		0.50	ug/L	19-DEC-18	21-DEC-18	R4406508
2,4-Dinitrophenol	<1.0		1.0	ug/L	19-DEC-18	21-DEC-18	R4406508
2,4-Dinitrotoluene	<0.40		0.40	ug/L	19-DEC-18	21-DEC-18	R4406508
2,6-Dinitrotoluene	<0.40		0.40	ug/L	19-DEC-18	21-DEC-18	R4406508
Bis(2-ethylhexyl)phthalate	<2.0		2.0	ug/L	19-DEC-18	21-DEC-18	R4406508
Fluoranthene	<0.20		0.20	ug/L	19-DEC-18	21-DEC-18	R4406508
Fluorene	<0.20		0.20	ug/L	19-DEC-18	21-DEC-18	R4406508
Hexachlorobenzene	<0.040		0.040	ug/L	19-DEC-18	21-DEC-18	R4406508
Hexachlorobutadiene	<0.20		0.20	ug/L	19-DEC-18	21-DEC-18	R4406508
Indeno(1,2,3-cd)pyrene	<0.20		0.20	ug/L	19-DEC-18	21-DEC-18	R4406508
1-Methylnaphthalene	<0.40		0.40	ug/L	19-DEC-18	21-DEC-18	R4406508
2-Methylnaphthalene	<0.40		0.40	ug/L	19-DEC-18	21-DEC-18	R4406508
Naphthalene	<0.20		0.20	ug/L	19-DEC-18	21-DEC-18	R4406508

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

Reference Information

QC Samples with Qualifiers & Comments:

QC Type Description	Parameter	Qualifier	Applies to Sample Number(s)
Laboratory Control Sample	Pentachlorophenol	MES	L2211993-1, -2, -3
Matrix Spike	Bromide (Br)	MS-B	L2211993-1, -2, -3
Matrix Spike	Aluminum (Al)-Total	MS-B	L2211993-1, -2, -3
Matrix Spike	Barium (Ba)-Total	MS-B	L2211993-1, -2, -3
Matrix Spike	Boron (B)-Total	MS-B	L2211993-1, -2, -3
Matrix Spike	Calcium (Ca)-Total	MS-B	L2211993-1, -2, -3
Matrix Spike	Iron (Fe)-Total	MS-B	L2211993-1, -2, -3
Matrix Spike	Magnesium (Mg)-Total	MS-B	L2211993-1, -2, -3
Matrix Spike	Manganese (Mn)-Total	MS-B	L2211993-1, -2, -3
Matrix Spike	Molybdenum (Mo)-Total	MS-B	L2211993-1, -2, -3
Matrix Spike	Potassium (K)-Total	MS-B	L2211993-1, -2, -3
Matrix Spike	Silicon (Si)-Total	MS-B	L2211993-1, -2, -3
Matrix Spike	Sodium (Na)-Total	MS-B	L2211993-1, -2, -3
Matrix Spike	Strontium (Sr)-Total	MS-B	L2211993-1, -2, -3
Matrix Spike	Sulfate (SO4)	MS-B	L2211993-1, -2, -3
Laboratory Control Sample Duplicate	2,4-Dimethylphenol	RRQC	L2211993-1, -2, -3
Comments:	RRQC: RPD is outside ALS control limits due to lower recoveries in laboratory control sample duplicate. Associated sample results have not been affected.		
Laboratory Control Sample Duplicate	Hexachlorobutadiene	RRQC	L2211993-1, -2, -3
Comments:	RRQC: RPD is outside ALS control limits due to lower recoveries in laboratory control sample duplicate. Associated sample results have not been affected.		

Sample Parameter Qualifier key listed:

Qualifier	Description
DLDS	Detection Limit Raised: Dilution required due to high Dissolved Solids / Electrical Conductivity.
DLHC	Detection Limit Raised: Dilution required due to high concentration of test analyte(s).
HTC	Hardness was calculated from Total Ca and/or Mg concentrations and may be biased high (dissolved Ca/Mg results unavailable).
MES	Data Quality Objective was marginally exceeded (by < 10% absolute) for < 10% of analytes in a Multi-Element Scan / Multi-Parameter Scan (considered acceptable as per OMOE & CCME).
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.
RRQC	Refer to report remarks for information regarding this QC result.

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
625-ACID-EXTRA-WT	Water	EPA 8270 Acid Extractables Aqueous samples are extracted and extracts are analyzed on GC/MSD.	SW846 8270
625-WT	Water	EPA 8270 Extractables Aqueous samples are extracted and extracts are analyzed on GC/MSD. Depending on the analytical GC/MS column used benzo(j)fluoranthene may chromatographically co-elute with benzo(b)fluoranthene or benzo(k)fluoranthene.	SW846 8270
N-nitrosodiphenylamine is reported as diphenylamine. N-nitrosodiphenylamine decomposes in the gas chromatographic inlet and cannot be separated from diphenylamine. (EPA 8270D)			
ALK-WT	Water	Alkalinity, Total (as CaCO3) This analysis is carried out using procedures adapted from EPA Method 310.2 "Alkalinity". Total Alkalinity is determined using the methyl orange colourimetric method.	EPA 310.2
BR-IC-N-WT	Water	Bromide in Water by IC Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.	EPA 300.1 (mod)
CL-IC-N-WT	Water	Chloride by IC Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.	EPA 300.1 (mod)
Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).			
CN-TOT-WT	Water	Cyanide, Total Total cyanide is determined by the combination of UV digestion and distillation. Cyanide is converted to cyanogen chloride by reacting with chloramine-T, the cyanogen chloride then reacts with a combination of barbituric acid and isonicotinic acid to form a highly colored complex.	ISO 14403-2

When using this method, high levels of thiocyanate in samples can cause false positives at ~1-2% of the thiocyanate concentration. For samples with detectable cyanide analyzed by this method, ALS recommends analysis for thiocyanate to check for this potential interference

Reference Information

COD-T-WT	Water	Chemical Oxygen Demand	APHA 5220 D
This analysis is carried out using procedures adapted from APHA Method 5220 "Chemical Oxygen Demand (COD)". Chemical oxygen demand is determined using the closed reflux colourimetric method.			
CR-CR6-IC-WT	Water	Chromium +6	EPA 7199
This analysis is carried out using procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846, Method 7199, published by the United States Environmental Protection Agency (EPA). The procedure involves analysis for chromium (VI) by ion chromatography using diphenylcarbazide in a sulphuric acid solution. Chromium (III) is calculated as the difference between the total chromium and the chromium (VI) results.			
Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).			
DOC-WT	Water	Dissolved Organic Carbon	APHA 5310B
Sample is filtered through a 0.45um filter, then injected into a heated reaction chamber which is packed with an oxidative catalyst. The water is vaporized and the organic carbon is oxidized to carbon dioxide. The carbon dioxide is transported in a carrier gas and is measured by a non-dispersive infrared detector.			
EC-WT	Water	Conductivity	APHA 2510 B
Water samples can be measured directly by immersing the conductivity cell into the sample.			
ETL-NH3-UNION-CLI-WT	Water	Un-ionized ammonia	CALCULATION
F-IC-N-WT	Water	Fluoride in Water by IC	EPA 300.1 (mod)
Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.			
HARDNESS-CALC-WT	Water	Hardness	APHA 2340 B
Hardness (also known as Total Hardness) is calculated from the sum of Calcium and Magnesium concentrations, expressed in CaCO3 equivalents. Dissolved Calcium and Magnesium concentrations are preferentially used for the hardness calculation.			
HG-T-CVAA-WT	Water	Total Mercury in Water by CVAAS	EPA 1631E (mod)
Water samples undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS.			
MET-T-CCMS-WT	Water	Total Metals in Water by CRC	EPA 200.2/6020A (mod)
Water samples are digested with nitric and hydrochloric acids, and analyzed by CRC ICPMS.			
Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.			
Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).			
NH3-WT	Water	Ammonia, Total as N	EPA 350.1
Sample is measured colorimetrically. When sample is turbid a distillation step is required, sample is distilled into a solution of boric acid and measured colorimetrically.			
Total Ammonia (as N), refers to the sum of the un-ionized (NH3) and ionized (NH4+) ammonia species in the sample, expressed in units of milligrams of nitrogen per litre of sample.			
NO2-IC-WT	Water	Nitrite in Water by IC	EPA 300.1 (mod)
Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.			
NO3-IC-WT	Water	Nitrate in Water by IC	EPA 300.1 (mod)
Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.			
P-T-COL-WT	Water	Total P in Water by Colour	APHA 4500-P PHOSPHORUS
This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Total Phosphorus is determined colourimetrically after persulphate digestion of the sample.			
PH,TEMP-CLIENT-WT	Water	pH & Temperature	Results supplied by client
PH-WT	Water	pH	APHA 4500 H-Electrode
Water samples are analyzed directly by a calibrated pH meter.			
Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011). Holdtime for samples under this regulation is 28 days			
PHENOLS-4AAP-WT	Water	Phenol (4AAP)	EPA 9066
An automated method is used to distill the sample. The distillate is then buffered to pH 9.4 which reacts with 4AAP and potassium ferricyanide to form a red complex which is measured colorimetrically.			
SO4-IC-N-WT	Water	Sulfate in Water by IC	EPA 300.1 (mod)
Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.			

Reference Information

SOLIDS-TDS-WT	Water	Total Dissolved Solids	APHA 2540C
This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total Dissolved Solids (TDS) are determined by filtering a sample through a glass fibre filter, TDS is determined by evaporating the filtrate to dryness at 180 degrees celsius.			
SOLIDS-TSS-WT	Water	Suspended solids	APHA 2540 D-Gravimetric
A well-mixed sample is filtered through a weighed standard glass fibre filter and the residue retained is dried in an oven at 104–1°C for a minimum of four hours or until a constant weight is achieved.			
THM-SUM-PPB-CALC-WT	Water	Total Trihalomethanes (THMs)	CALCULATION
Total Trihalomethanes (THMs) represents the sum of bromodichloromethane, bromoform, chlorodibromomethane and chloroform. For the purpose of calculation, results less than the detection limit (DL) are treated as zero.			
TKN-WT	Water	Total Kjeldahl Nitrogen	APHA 4500-Norg D
This analysis is carried out using procedures adapted from APHA Method 4500-Norg "Nitrogen (Organic)". Total Kjeldahl Nitrogen is determined by sample digestion at 380 Celsius with analysis using an automated colorimetric method.			
VOC-ROU-HS-WT	Water	Volatile Organic Compounds	SW846 8260
Aqueous samples are analyzed by headspace-GC/MS.			
XYLENES-SUM-CALC-WT	Water	Sum of Xylene Isomer Concentrations	CALCULATION
Total xylenes represents the sum of o-xylene and m&p-xylene.			

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
WT	ALS ENVIRONMENTAL - WATERLOO, ONTARIO, CANADA

Chain of Custody Numbers:

GLOSSARY OF REPORT TERMS

Surrogates are compounds that are similar in behaviour to target analyte(s), but that do not normally occur in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery. In reports that display the D.L. column, laboratory objectives for surrogates are listed there.

mg/kg - milligrams per kilogram based on dry weight of sample

mg/kg wwt - milligrams per kilogram based on wet weight of sample

mg/kg lwt - milligrams per kilogram based on lipid weight of sample

mg/L - unit of concentration based on volume, parts per million.

< - Less than.

D.L. - The reporting limit.

N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.

UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.



Quality Control Report

Workorder: L2211993

Report Date: 24-DEC-18

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Client: GHD Limited (Waterloo)
455 PHILLIP STREET
WATERLOO ON N2L 3X2

Contact: LAURA ERMETA

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
625-ACID-EXTRA-WT								
	Water							
Batch	R4406751							
WG2956506-2	LCS							
2,3,6-Trichlorophenol			101.5		%		50-130	20-DEC-18
WG2956506-3	LCSD	WG2956506-2						
2,3,6-Trichlorophenol		101.5	103.4		%	1.8	50	20-DEC-18
WG2956506-1	MB							
2,3,6-Trichlorophenol			<0.50		ug/L		0.5	20-DEC-18
Surrogate: 2,4,6-Tribromophenol			107.1		%		40-150	20-DEC-18
625-WT								
	Water							
Batch	R4406508							
WG2956506-2	LCS							
1-Methylnaphthalene			85.1		%		50-140	20-DEC-18
1,2-Dichlorobenzene			68.9		%		40-130	20-DEC-18
1,2,4-Trichlorobenzene			71.5		%		50-130	20-DEC-18
1,3-Dichlorobenzene			67.2		%		50-140	20-DEC-18
1,4-Dichlorobenzene			66.2		%		40-130	20-DEC-18
2-Chlorophenol			92.0		%		65-130	20-DEC-18
2-Methylnaphthalene			89.8		%		50-140	20-DEC-18
2,3,4,5-Tetrachlorophenol			122.9		%		50-130	20-DEC-18
2,3,4,6-Tetrachlorophenol			119.8		%		65-130	20-DEC-18
2,4-Dichlorophenol			98.6		%		65-130	20-DEC-18
2,4-Dimethylphenol			98.2		%		30-130	20-DEC-18
2,4-Dinitrophenol			128.1		%		40-140	20-DEC-18
2,4-Dinitrotoluene			112.6		%		50-140	20-DEC-18
2,4,5-Trichlorophenol			122.2		%		65-130	20-DEC-18
2,4,6-Trichlorophenol			108.6		%		65-130	20-DEC-18
2,6-Dinitrotoluene			109.4		%		50-140	20-DEC-18
3,3'-Dichlorobenzidine			77.8		%		50-140	20-DEC-18
4-Chloroaniline			43.8		%		30-140	20-DEC-18
Acenaphthene			93.2		%		50-140	20-DEC-18
Acenaphthylene			99.5		%		50-140	20-DEC-18
Anthracene			100.2		%		50-140	20-DEC-18
Benzo(a)anthracene			106.9		%		50-140	20-DEC-18
Benzo(a)pyrene			101.2		%		60-130	20-DEC-18
Benzo(b)fluoranthene			104.1		%		50-140	20-DEC-18
Benzo(ghi)perylene			100.0		%		50-140	20-DEC-18



Quality Control Report

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Client: GHD Limited (Waterloo)
455 PHILLIP STREET
WATERLOO ON N2L 3X2

Contact: LAURA ERMETA

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
625-WT	Water							
Batch	R4406508							
WG2956506-2 LCS								
Benzo(k)fluoranthene			102.2		%		50-140	20-DEC-18
Bis(2-chloroethyl)ether			95.1		%		50-140	20-DEC-18
Bis(2-ethylhexyl)phthalate			135.0		%		50-140	20-DEC-18
Chrysene			105.7		%		50-140	20-DEC-18
Dibenzo(a,h)anthracene			103.4		%		50-140	20-DEC-18
Diethylphthalate			106.1		%		50-140	20-DEC-18
Dimethylphthalate			105.9		%		50-140	20-DEC-18
Fluoranthene			119.7		%		50-140	20-DEC-18
Fluorene			96.7		%		50-140	20-DEC-18
Hexachlorobenzene			92.3		%		40-130	20-DEC-18
Hexachlorobutadiene			62.6		%		40-130	20-DEC-18
Indeno(1,2,3-cd)pyrene			111.9		%		50-140	20-DEC-18
Naphthalene			87.6		%		50-140	20-DEC-18
Pentachlorophenol			132.2	MES	%		65-130	20-DEC-18
Perylene			95.9		%		50-140	20-DEC-18
Phenanthrene			97.7		%		50-140	20-DEC-18
Pyrene			117.0		%		50-140	20-DEC-18
WG2956506-3 LCSD		WG2956506-2						
1-Methylnaphthalene		85.1	72.9		%	15	50	20-DEC-18
1,2-Dichlorobenzene		68.9	51.4		%	29	50	20-DEC-18
1,2,4-Trichlorobenzene		71.5	51.9		%	32	50	20-DEC-18
1,3-Dichlorobenzene		67.2	46.7		%	36	50	20-DEC-18
1,4-Dichlorobenzene		66.2	47.0		%	34	50	20-DEC-18
2-Chlorophenol		92.0	97.1		%	5.4	50	20-DEC-18
2-Methylnaphthalene		89.8	71.4		%	23	50	20-DEC-18
2,3,4,5-Tetrachlorophenol		122.9	121.6		%	1.0	50	20-DEC-18
2,3,4,6-Tetrachlorophenol		119.8	116.7		%	2.6	50	20-DEC-18
2,4-Dichlorophenol		98.6	101.8		%	3.2	50	20-DEC-18
2,4-Dimethylphenol		98.2	58.1	RRQC	%	51	50	20-DEC-18
2,4-Dinitrophenol		128.1	116.0		%	9.9	50	20-DEC-18
2,4-Dinitrotoluene		112.6	115.1		%	2.2	50	20-DEC-18
2,4,5-Trichlorophenol		122.2	119.0		%	2.7	50	20-DEC-18
2,4,6-Trichlorophenol		108.6	108.4		%	0.3	50	20-DEC-18



Quality Control Report

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Client: GHD Limited (Waterloo)
 455 PHILLIP STREET
 WATERLOO ON N2L 3X2

Contact: LAURA ERMETA

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
625-WT	Water							
Batch	R4406508							
WG2956506-3	LCSD	WG2956506-2						
2,6-Dinitrotoluene		109.4	112.5		%	2.8	50	20-DEC-18
3,3'-Dichlorobenzidine		77.8	92.5		%	17	50	20-DEC-18
4-Chloroaniline		43.8	68.4		%	44	50	20-DEC-18
Acenaphthene		93.2	91.2		%	2.2	50	20-DEC-18
Acenaphthylene		99.5	98.8		%	0.7	50	20-DEC-18
Anthracene		100.2	100.5		%	0.3	50	20-DEC-18
Benzo(a)anthracene		106.9	106.9		%	0.1	50	20-DEC-18
Benzo(a)pyrene		101.2	104.2		%	2.9	50	20-DEC-18
Benzo(b)fluoranthene		104.1	104.1		%	0.0	50	20-DEC-18
Benzo(ghi)perylene		100.0	99.0		%	1.0	50	20-DEC-18
Benzo(k)fluoranthene		102.2	103.3		%	1.1	50	20-DEC-18
Bis(2-chloroethyl)ether		95.1	100.5		%	5.5	50	20-DEC-18
Bis(2-ethylhexyl)phthalate		135.0	140.5		%	4.0	50	20-DEC-18
Chrysene		105.7	106.5		%	0.8	50	20-DEC-18
Dibenzo(a,h)anthracene		103.4	103.1		%	0.3	50	20-DEC-18
Diethylphthalate		106.1	106.2		%	0.1	50	20-DEC-18
Dimethylphthalate		105.9	107.9		%	1.9	50	20-DEC-18
Fluoranthene		119.7	128.4		%	7.0	50	20-DEC-18
Fluorene		96.7	95.4		%	1.3	50	20-DEC-18
Hexachlorobenzene		92.3	92.8		%	0.6	50	20-DEC-18
Hexachlorobutadiene		62.6	36.1	RRQC	%	54	50	20-DEC-18
Indeno(1,2,3-cd)pyrene		111.9	111.6		%	0.3	50	20-DEC-18
Naphthalene		87.6	77.6		%	12	50	20-DEC-18
Pentachlorophenol		132.2	121.3		%	8.6	50	20-DEC-18
Perylene		95.9	96.4		%	0.5	50	20-DEC-18
Phenanthrene		97.7	99.6		%	2.0	50	20-DEC-18
Pyrene		117.0	121.7		%	4.0	50	20-DEC-18
COMMENTS: RRQC: RPD is outside ALS control limits due to lower recoveries in laboratory control sample duplicate. Associated sample results have not been affected.								
WG2956506-1	MB							
1-Methylnaphthalene			<0.40		ug/L		0.4	20-DEC-18
1,2-Dichlorobenzene			<0.40		ug/L		0.4	20-DEC-18
1,2,4-Trichlorobenzene			<0.40		ug/L		0.4	20-DEC-18
1,3-Dichlorobenzene			<0.40		ug/L		0.4	

Quality Control Report

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Client: GHD Limited (Waterloo)
 455 PHILLIP STREET
 WATERLOO ON N2L 3X2
 Contact: LAURA ERMETA

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
625-WT	Water							
Batch	R4406508							
WG2956506-1 MB								
1,3-Dichlorobenzene			<0.40		ug/L		0.4	20-DEC-18
1,4-Dichlorobenzene			<0.40		ug/L		0.4	20-DEC-18
2-Chlorophenol			<0.30		ug/L		0.3	20-DEC-18
2-Methylnaphthalene			<0.40		ug/L		0.4	20-DEC-18
2,3,4,5-Tetrachlorophenol			<0.50		ug/L		0.5	20-DEC-18
2,3,4,6-Tetrachlorophenol			<0.50		ug/L		0.5	20-DEC-18
2,4-Dichlorophenol			<0.30		ug/L		0.3	20-DEC-18
2,4-Dimethylphenol			<0.50		ug/L		0.5	20-DEC-18
2,4-Dinitrophenol			<1.0		ug/L		1	20-DEC-18
2,4-Dinitrotoluene			<0.40		ug/L		0.4	20-DEC-18
2,4,5-Trichlorophenol			<0.50		ug/L		0.5	20-DEC-18
2,4,6-Trichlorophenol			<0.50		ug/L		0.5	20-DEC-18
2,6-Dinitrotoluene			<0.40		ug/L		0.4	20-DEC-18
3,3'-Dichlorobenzidine			<0.40		ug/L		0.4	20-DEC-18
4-Chloroaniline			<0.40		ug/L		0.4	20-DEC-18
Acenaphthene			<0.20		ug/L		0.2	20-DEC-18
Acenaphthylene			<0.20		ug/L		0.2	20-DEC-18
Anthracene			<0.20		ug/L		0.2	20-DEC-18
Benzo(a)anthracene			<0.20		ug/L		0.2	20-DEC-18
Benzo(a)pyrene			<0.050		ug/L		0.05	20-DEC-18
Benzo(b)fluoranthene			<0.20		ug/L		0.2	20-DEC-18
Benzo(ghi)perylene			<0.20		ug/L		0.2	20-DEC-18
Benzo(k)fluoranthene			<0.20		ug/L		0.2	20-DEC-18
Bis(2-chloroethyl)ether			<0.40		ug/L		0.4	20-DEC-18
Bis(2-ethylhexyl)phthalate			<1.0		ug/L		1	20-DEC-18
Chrysene			<0.20		ug/L		0.2	20-DEC-18
Dibenzo(a,h)anthracene			<0.20		ug/L		0.2	20-DEC-18
Diethylphthalate			<0.20		ug/L		0.2	20-DEC-18
Dimethylphthalate			<0.20		ug/L		0.2	20-DEC-18
Fluoranthene			<0.20		ug/L		0.2	20-DEC-18
Fluorene			<0.20		ug/L		0.2	20-DEC-18
Hexachlorobenzene			<0.040		ug/L		0.04	20-DEC-18
Hexachlorobutadiene			<0.20		ug/L		0.2	20-DEC-18



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Client: GHD Limited (Waterloo)
 455 PHILLIP STREET
 WATERLOO ON N2L 3X2
 Contact: LAURA ERMETA

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
625-WT		Water						
Batch	R4406508							
WG2956506-1	MB							
Indeno(1,2,3-cd)pyrene			<0.20		ug/L		0.2	20-DEC-18
Naphthalene			<0.20		ug/L		0.2	20-DEC-18
Pentachlorophenol			<0.50		ug/L		0.5	20-DEC-18
Perylene			<0.20		ug/L		0.2	20-DEC-18
Phenanthrene			<0.20		ug/L		0.2	20-DEC-18
Pyrene			<0.20		ug/L		0.2	20-DEC-18
Surrogate: 2-Fluorobiphenyl			78.9		%		40-130	20-DEC-18
Surrogate: Nitrobenzene d5			82.3		%		40-130	20-DEC-18
Surrogate: p-Terphenyl d14			118.2		%		40-130	20-DEC-18
ALK-WT		Water						
Batch	R4405188							
WG2956997-6	LCS							
Alkalinity, Total (as CaCO3)			105.0		%		85-115	19-DEC-18
WG2956997-5	MB							
Alkalinity, Total (as CaCO3)			<10		mg/L		10	19-DEC-18
BR-IC-N-WT		Water						
Batch	R4412990							
WG2959277-4	DUP	WG2959277-3						
Bromide (Br)		1.12	1.11		mg/L	1.1	20	21-DEC-18
WG2959277-2	LCS							
Bromide (Br)			104.9		%		85-115	21-DEC-18
WG2959277-5	MS	WG2959277-3						
Bromide (Br)			N/A	MS-B	%		-	21-DEC-18
CL-IC-N-WT		Water						
Batch	R4412990							
WG2959277-4	DUP	WG2959277-3						
Chloride (Cl)		66.5	65.7		mg/L	1.2	20	21-DEC-18
WG2959277-2	LCS							
Chloride (Cl)			100.4		%		90-110	21-DEC-18
WG2959277-1	MB							
Chloride (Cl)			<0.50		mg/L		0.5	21-DEC-18
WG2959277-5	MS	WG2959277-3						
Chloride (Cl)			98.9		%		75-125	21-DEC-18
CN-TOT-WT		Water						



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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
CN-TOT-WT		Water						
Batch	R4406888							
WG2957264-3	DUP	L2211711-1						
Cyanide, Total		<0.0020	<0.0020	RPD-NA	mg/L	N/A	20	20-DEC-18
WG2957264-2	LCS							
Cyanide, Total			94.4		%		80-120	20-DEC-18
WG2957264-1	MB							
Cyanide, Total			<0.0020		mg/L		0.002	20-DEC-18
WG2957264-4	MS	L2211711-1						
Cyanide, Total			87.3		%		70-130	20-DEC-18
COD-T-WT		Water						
Batch	R4412402							
WG2960067-3	DUP	L2211781-1						
COD		18	18		mg/L	3.3	20	23-DEC-18
WG2960067-2	LCS							
COD			94.4		%		85-115	23-DEC-18
WG2960067-1	MB							
COD			<10		mg/L		10	23-DEC-18
WG2960067-4	MS	L2211781-1						
COD			95.5		%		75-125	23-DEC-18
CR-CR6-IC-WT		Water						
Batch	R4403350							
WG2957306-4	DUP	WG2957306-3						
Chromium, Hexavalent		0.0187	0.0183		mg/L	1.9	20	19-DEC-18
WG2957306-2	LCS							
Chromium, Hexavalent			94.4		%		80-120	19-DEC-18
WG2957306-1	MB							
Chromium, Hexavalent			<0.00050		mg/L		0.0005	19-DEC-18
WG2957306-5	MS	WG2957306-3						
Chromium, Hexavalent			91.3		%		70-130	19-DEC-18
Batch	R4405909							
WG2958180-4	DUP	WG2958180-3						
Chromium, Hexavalent		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	20-DEC-18
WG2958180-2	LCS							
Chromium, Hexavalent			93.4		%		80-120	20-DEC-18
WG2958180-1	MB							
Chromium, Hexavalent			<0.00050		mg/L		0.0005	20-DEC-18
WG2958180-5	MS	WG2958180-3						
Chromium, Hexavalent			93.1		%		70-130	20-DEC-18



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 WATERLOO ON N2L 3X2
 Contact: LAURA ERMETA

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
DOC-WT								
	Water							
Batch	R4408267							
WG2957762-3	DUP	L2212017-1						
Dissolved Organic Carbon		6.62	6.89		mg/L	4.0	25	20-DEC-18
WG2957762-2	LCS							
Dissolved Organic Carbon			105.8		%		70-130	20-DEC-18
WG2957762-1	MB							
Dissolved Organic Carbon			<0.50		mg/L		0.5	20-DEC-18
WG2957762-4	MS	L2212017-1						
Dissolved Organic Carbon			98.7		%		70-130	20-DEC-18
EC-WT								
	Water							
Batch	R4405188							
WG2956997-8	DUP	WG2956997-7						
Conductivity		1770	1760		umhos/cm	0.6	10	19-DEC-18
WG2956997-6	LCS							
Conductivity			97.0		%		90-110	19-DEC-18
WG2956997-5	MB							
Conductivity			<3.0		umhos/cm		3	19-DEC-18
F-IC-N-WT								
	Water							
Batch	R4412990							
WG2959277-4	DUP	WG2959277-3						
Fluoride (F)		0.584	0.576		mg/L	1.4	20	21-DEC-18
WG2959277-2	LCS							
Fluoride (F)			101.1		%		90-110	21-DEC-18
WG2959277-1	MB							
Fluoride (F)			<0.020		mg/L		0.02	21-DEC-18
WG2959277-5	MS	WG2959277-3						
Fluoride (F)			100.7		%		75-125	21-DEC-18
HG-T-CVAA-WT								
	Water							
Batch	R4402768							
WG2957102-6	DUP	WG2957102-5						
Mercury (Hg)-Total		<0.000010	<0.000010	RPD-NA	mg/L	N/A	20	19-DEC-18
WG2957102-4	LCS							
Mercury (Hg)-Total			101.0		%		80-120	19-DEC-18
WG2957102-3	MB							
Mercury (Hg)-Total			<0.000010		mg/L		0.00001	19-DEC-18
WG2957102-8	MS	WG2957102-7						
Mercury (Hg)-Total			97.0		%		70-130	19-DEC-18
MET-T-CCMS-WT								
	Water							



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 455 PHILLIP STREET
 WATERLOO ON N2L 3X2
 Contact: LAURA ERMETA

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-WT								
	Water							
Batch	R4403575							
WG2956905-4	DUP	WG2956905-3						
Aluminum (Al)-Total		0.363	0.372		mg/L	2.5	20	19-DEC-18
Antimony (Sb)-Total		0.00064	0.00065		mg/L	1.6	20	19-DEC-18
Arsenic (As)-Total		0.00282	0.00292		mg/L	3.6	20	19-DEC-18
Barium (Ba)-Total		0.0614	0.0618		mg/L	0.5	20	19-DEC-18
Beryllium (Be)-Total		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	19-DEC-18
Bismuth (Bi)-Total		<0.000050	<0.000050	RPD-NA	mg/L	N/A	20	19-DEC-18
Boron (B)-Total		0.112	0.119		mg/L	5.8	20	19-DEC-18
Cadmium (Cd)-Total		0.000118	0.000119		mg/L	0.3	20	19-DEC-18
Calcium (Ca)-Total		78.4	85.6		mg/L	8.8	20	19-DEC-18
Cobalt (Co)-Total		0.00038	0.00040		mg/L	4.0	20	19-DEC-18
Copper (Cu)-Total		0.0024	0.0024		mg/L	1.5	20	19-DEC-18
Iron (Fe)-Total		0.377	0.383		mg/L	1.6	20	19-DEC-18
Lead (Pb)-Total		0.000408	0.000417		mg/L	2.4	20	19-DEC-18
Magnesium (Mg)-Total		20.3	21.1		mg/L	4.0	20	19-DEC-18
Manganese (Mn)-Total		0.0204	0.0208		mg/L	1.8	20	19-DEC-18
Molybdenum (Mo)-Total		0.0739	0.0766		mg/L	3.6	20	19-DEC-18
Nickel (Ni)-Total		0.00694	0.00692		mg/L	0.3	20	19-DEC-18
Potassium (K)-Total		16.2	16.0		mg/L	1.2	20	19-DEC-18
Selenium (Se)-Total		0.00177	0.00184		mg/L	3.5	20	19-DEC-18
Silicon (Si)-Total		3.22	3.24		mg/L	0.5	20	19-DEC-18
Silver (Ag)-Total		<0.000050	<0.000050	RPD-NA	mg/L	N/A	20	19-DEC-18
Sodium (Na)-Total		40.2	42.5		mg/L	5.5	20	19-DEC-18
Strontium (Sr)-Total		0.595	0.608		mg/L	2.0	20	19-DEC-18
Thallium (Tl)-Total		0.000036	0.000032		mg/L	9.1	20	19-DEC-18
Tin (Sn)-Total		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	19-DEC-18
Vanadium (V)-Total		0.00119	0.00122		mg/L	2.8	20	19-DEC-18
Zinc (Zn)-Total		0.0045	0.0045		mg/L	0.2	20	19-DEC-18
WG2956905-2	LCS							
Aluminum (Al)-Total			101.2		%		80-120	19-DEC-18
Antimony (Sb)-Total			103.0		%		80-120	19-DEC-18
Arsenic (As)-Total			98.5		%		80-120	19-DEC-18
Barium (Ba)-Total			103.4		%		80-120	19-DEC-18
Beryllium (Be)-Total			97.9		%		80-120	19-DEC-18



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Contact: LAURA ERMETA

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-WT		Water						
Batch	R4403575							
WG2956905-2	LCS							
Bismuth (Bi)-Total			100.8		%		80-120	19-DEC-18
Boron (B)-Total			105.4		%		80-120	19-DEC-18
Cadmium (Cd)-Total			100.1		%		80-120	19-DEC-18
Calcium (Ca)-Total			104.5		%		80-120	19-DEC-18
Cobalt (Co)-Total			99.2		%		80-120	19-DEC-18
Copper (Cu)-Total			98.3		%		80-120	19-DEC-18
Iron (Fe)-Total			99.5		%		80-120	19-DEC-18
Lead (Pb)-Total			99.4		%		80-120	19-DEC-18
Magnesium (Mg)-Total			97.4		%		80-120	19-DEC-18
Manganese (Mn)-Total			101.3		%		80-120	19-DEC-18
Molybdenum (Mo)-Total			103.8		%		80-120	19-DEC-18
Nickel (Ni)-Total			96.6		%		80-120	19-DEC-18
Potassium (K)-Total			100.1		%		80-120	19-DEC-18
Selenium (Se)-Total			98.9		%		80-120	19-DEC-18
Silicon (Si)-Total			104.8		%		60-140	19-DEC-18
Silver (Ag)-Total			103.9		%		80-120	19-DEC-18
Sodium (Na)-Total			101.1		%		80-120	19-DEC-18
Strontium (Sr)-Total			105.3		%		80-120	19-DEC-18
Thallium (Tl)-Total			99.8		%		80-120	19-DEC-18
Tin (Sn)-Total			100.3		%		80-120	19-DEC-18
Vanadium (V)-Total			100.8		%		80-120	19-DEC-18
Zinc (Zn)-Total			111.0		%		80-120	19-DEC-18
WG2956905-1	MB							
Aluminum (Al)-Total			<0.0050		mg/L		0.005	19-DEC-18
Antimony (Sb)-Total			<0.00010		mg/L		0.0001	19-DEC-18
Arsenic (As)-Total			<0.00010		mg/L		0.0001	19-DEC-18
Barium (Ba)-Total			<0.00010		mg/L		0.0001	19-DEC-18
Beryllium (Be)-Total			<0.00010		mg/L		0.0001	19-DEC-18
Bismuth (Bi)-Total			<0.000050		mg/L		0.00005	19-DEC-18
Boron (B)-Total			<0.010		mg/L		0.01	19-DEC-18
Cadmium (Cd)-Total			<0.0000050		mg/L		0.000005	19-DEC-18
Calcium (Ca)-Total			<0.050		mg/L		0.05	19-DEC-18
Cobalt (Co)-Total			<0.00010		mg/L		0.0001	19-DEC-18
Copper (Cu)-Total			<0.0010		mg/L		0.001	19-DEC-18



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 455 PHILLIP STREET
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Contact: LAURA ERMETA

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-WT								
	Water							
Batch	R4403575							
WG2956905-1	MB							
Iron (Fe)-Total			<0.010		mg/L		0.01	19-DEC-18
Lead (Pb)-Total			<0.000050		mg/L		0.00005	19-DEC-18
Magnesium (Mg)-Total			<0.0050		mg/L		0.005	19-DEC-18
Manganese (Mn)-Total			<0.000050		mg/L		0.0005	19-DEC-18
Molybdenum (Mo)-Total			<0.000050		mg/L		0.00005	19-DEC-18
Nickel (Ni)-Total			<0.000050		mg/L		0.0005	19-DEC-18
Potassium (K)-Total			<0.050		mg/L		0.05	19-DEC-18
Selenium (Se)-Total			<0.000050		mg/L		0.00005	19-DEC-18
Silicon (Si)-Total			<0.10		mg/L		0.1	19-DEC-18
Silver (Ag)-Total			<0.000050		mg/L		0.00005	19-DEC-18
Sodium (Na)-Total			<0.050		mg/L		0.05	19-DEC-18
Strontium (Sr)-Total			<0.0010		mg/L		0.001	19-DEC-18
Thallium (Tl)-Total			<0.000010		mg/L		0.00001	19-DEC-18
Tin (Sn)-Total			<0.00010		mg/L		0.0001	19-DEC-18
Vanadium (V)-Total			<0.000050		mg/L		0.0005	19-DEC-18
Zinc (Zn)-Total			<0.0030		mg/L		0.003	19-DEC-18
WG2956905-5	MS	WG2956905-6						
Aluminum (Al)-Total			N/A	MS-B	%		-	19-DEC-18
Antimony (Sb)-Total			102.1		%		70-130	19-DEC-18
Arsenic (As)-Total			97.4		%		70-130	19-DEC-18
Barium (Ba)-Total			N/A	MS-B	%		-	19-DEC-18
Beryllium (Be)-Total			92.9		%		70-130	19-DEC-18
Bismuth (Bi)-Total			95.4		%		70-130	19-DEC-18
Boron (B)-Total			N/A	MS-B	%		-	19-DEC-18
Cadmium (Cd)-Total			100.2		%		70-130	19-DEC-18
Calcium (Ca)-Total			N/A	MS-B	%		-	19-DEC-18
Cobalt (Co)-Total			95.6		%		70-130	19-DEC-18
Copper (Cu)-Total			90.3		%		70-130	19-DEC-18
Iron (Fe)-Total			N/A	MS-B	%		-	19-DEC-18
Lead (Pb)-Total			92.6		%		70-130	19-DEC-18
Magnesium (Mg)-Total			N/A	MS-B	%		-	19-DEC-18
Manganese (Mn)-Total			N/A	MS-B	%		-	19-DEC-18
Molybdenum (Mo)-Total			N/A	MS-B	%		-	19-DEC-18
Nickel (Ni)-Total			89.2		%		70-130	19-DEC-18



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 WATERLOO ON N2L 3X2
 Contact: LAURA ERMETA

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-WT		Water						
Batch	R4403575							
WG2956905-5 MS		WG2956905-6						
Potassium (K)-Total			N/A	MS-B	%		-	19-DEC-18
Selenium (Se)-Total			98.8		%		70-130	19-DEC-18
Silicon (Si)-Total			N/A	MS-B	%		-	19-DEC-18
Silver (Ag)-Total			97.4		%		70-130	19-DEC-18
Sodium (Na)-Total			N/A	MS-B	%		-	19-DEC-18
Strontium (Sr)-Total			N/A	MS-B	%		-	19-DEC-18
Thallium (Tl)-Total			91.2		%		70-130	19-DEC-18
Tin (Sn)-Total			99.7		%		70-130	19-DEC-18
Vanadium (V)-Total			101.1		%		70-130	19-DEC-18
Zinc (Zn)-Total			87.8		%		70-130	19-DEC-18
NH3-WT		Water						
Batch	R4403267							
WG2957126-15 DUP		L2211755-7						
Ammonia, Total (as N)		0.115	0.122		mg/L	5.4	20	19-DEC-18
WG2957126-14 LCS								
Ammonia, Total (as N)			97.8		%		85-115	19-DEC-18
WG2957126-13 MB								
Ammonia, Total (as N)			<0.020		mg/L		0.02	19-DEC-18
WG2957126-16 MS		L2211755-7						
Ammonia, Total (as N)			102.0		%		75-125	19-DEC-18
Batch	R4405869							
WG2958171-3 DUP		L2211609-9						
Ammonia, Total (as N)		0.025	<0.020	RPD-NA	mg/L	N/A	20	20-DEC-18
WG2958171-2 LCS								
Ammonia, Total (as N)			102.2		%		85-115	20-DEC-18
WG2958171-1 MB								
Ammonia, Total (as N)			<0.020		mg/L		0.02	20-DEC-18
WG2958171-4 MS		L2211609-9						
Ammonia, Total (as N)			94.5		%		75-125	20-DEC-18
NO2-IC-WT		Water						
Batch	R4412990							
WG2959277-4 DUP		WG2959277-3						
Nitrite (as N)		<0.010	<0.010	RPD-NA	mg/L	N/A	25	21-DEC-18
WG2959277-2 LCS								
Nitrite (as N)			98.0		%		70-130	21-DEC-18
WG2959277-1 MB								



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Client: GHD Limited (Waterloo)
 455 PHILLIP STREET
 WATERLOO ON N2L 3X2

Contact: LAURA ERMETA

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
NO2-IC-WT								
	Water							
Batch	R4412990							
WG2959277-1	MB							
Nitrite (as N)			<0.010		mg/L		0.01	21-DEC-18
WG2959277-5	MS	WG2959277-3						
Nitrite (as N)			95.7		%		70-130	21-DEC-18
NO3-IC-WT								
	Water							
Batch	R4412990							
WG2959277-4	DUP	WG2959277-3						
Nitrate (as N)		0.146	0.144		mg/L	1.5	25	21-DEC-18
WG2959277-2	LCS							
Nitrate (as N)			99.3		%		70-130	21-DEC-18
WG2959277-5	MS	WG2959277-3						
Nitrate (as N)			98.6		%		70-130	21-DEC-18
P-T-COL-WT								
	Water							
Batch	R4408276							
WG2958495-3	DUP	L2211755-1						
Phosphorus, Total		0.0416	0.0439		mg/L	5.4	20	21-DEC-18
WG2958495-2	LCS							
Phosphorus, Total			97.1		%		80-120	21-DEC-18
WG2958495-1	MB							
Phosphorus, Total			<0.0030		mg/L		0.003	21-DEC-18
WG2958495-4	MS	L2211755-1						
Phosphorus, Total			80.6		%		70-130	21-DEC-18
PH-WT								
	Water							
Batch	R4405188							
WG2956997-8	DUP	WG2956997-7						
pH		7.18	7.18	J	pH units	0.00	0.2	19-DEC-18
WG2956997-6	LCS							
pH			7.00		pH units		6.9-7.1	19-DEC-18
PHENOLS-4AAP-WT								
	Water							
Batch	R4404029							
WG2957386-8	DUP	L2211993-2						
Phenols (4AAP)		0.0013	0.0013		mg/L	0.5	20	19-DEC-18
WG2957386-6	LCS							
Phenols (4AAP)			105.3		%		85-115	19-DEC-18
WG2957386-5	MB							
Phenols (4AAP)			<0.0010		mg/L		0.001	19-DEC-18
WG2957386-7	MS	L2211993-2						



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Client: GHD Limited (Waterloo)
455 PHILLIP STREET
WATERLOO ON N2L 3X2

Contact: LAURA ERMETA

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PHENOLS-4AAP-WT Water								
Batch	R4404029							
WG2957386-7	MS	L2211993-2						
Phenols (4AAP)			102.9		%		75-125	19-DEC-18
SO4-IC-N-WT Water								
Batch	R4412990							
WG2959277-4	DUP	WG2959277-3						
Sulfate (SO4)		139	137		mg/L	1.2	20	21-DEC-18
WG2959277-2	LCS							
Sulfate (SO4)			100.7		%		90-110	21-DEC-18
WG2959277-1	MB							
Sulfate (SO4)			<0.30		mg/L		0.3	21-DEC-18
WG2959277-5	MS	WG2959277-3						
Sulfate (SO4)			N/A	MS-B	%		-	21-DEC-18
SOLIDS-TDS-WT Water								
Batch	R4412089							
WG2958212-4	DUP	L2211781-1						
Total Dissolved Solids		441	444		mg/L	0.7	20	20-DEC-18
WG2958212-2	LCS							
Total Dissolved Solids			99.4		%		85-115	20-DEC-18
WG2958212-1	MB							
Total Dissolved Solids			<10		mg/L		10	20-DEC-18
SOLIDS-TSS-WT Water								
Batch	R4408292							
WG2957964-3	DUP	L2211922-1						
Total Suspended Solids		3090	3050		mg/L	1.3	20	21-DEC-18
WG2957964-2	LCS							
Total Suspended Solids			101.2		%		85-115	21-DEC-18
WG2957964-1	MB							
Total Suspended Solids			<2.0		mg/L		2	21-DEC-18
TKN-WT Water								
Batch	R4408827							
WG2957752-3	DUP	L2210983-1						
Total Kjeldahl Nitrogen		0.21	<0.15	RPD-NA	mg/L	N/A	20	20-DEC-18
WG2957752-2	LCS							
Total Kjeldahl Nitrogen			110.0		%		75-125	20-DEC-18
WG2957752-1	MB							
Total Kjeldahl Nitrogen			<0.15		mg/L		0.15	20-DEC-18



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Client: GHD Limited (Waterloo)
455 PHILLIP STREET
WATERLOO ON N2L 3X2

Contact: LAURA ERMETA

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
TKN-WT								
	Water							
Batch	R4408827							
WG2957752-4 MS		L2210983-1						
Total Kjeldahl Nitrogen			100.9		%		70-130	20-DEC-18
VOC-ROU-HS-WT								
	Water							
Batch	R4402352							
WG2955022-4 DUP		WG2955022-3						
1,1,1,2-Tetrachloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	19-DEC-18
1,1,2,2-Tetrachloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	19-DEC-18
1,1,1-Trichloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	19-DEC-18
1,1,2-Trichloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	19-DEC-18
1,2-Dibromoethane		<0.20	<0.20	RPD-NA	ug/L	N/A	30	19-DEC-18
1,1-Dichloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	19-DEC-18
1,1-Dichloroethylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	19-DEC-18
1,2-Dichlorobenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	19-DEC-18
1,2-Dichloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	19-DEC-18
1,2-Dichloropropane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	19-DEC-18
1,3-Dichlorobenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	19-DEC-18
1,4-Dichlorobenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	19-DEC-18
Acetone		56	51		ug/L	8.8	30	19-DEC-18
Benzene		2.08	1.99		ug/L	4.4	30	19-DEC-18
Bromodichloromethane		<1.0	<1.0	RPD-NA	ug/L	N/A	30	19-DEC-18
Bromoform		<1.0	<1.0	RPD-NA	ug/L	N/A	30	19-DEC-18
Bromomethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	19-DEC-18
Carbon tetrachloride		<0.50	<0.50	RPD-NA	ug/L	N/A	30	19-DEC-18
Chlorobenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	19-DEC-18
Chloroethane		<1.0	<1.0	RPD-NA	ug/L	N/A	30	19-DEC-18
Chloroform		1.4	1.4		ug/L	1.4	30	19-DEC-18
cis-1,2-Dichloroethylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	19-DEC-18
cis-1,3-Dichloropropene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	19-DEC-18
Dibromochloromethane		<1.0	<1.0	RPD-NA	ug/L	N/A	30	19-DEC-18
Dichlorodifluoromethane		<1.0	<1.0	RPD-NA	ug/L	N/A	30	19-DEC-18
Dichloromethane		2.8	2.8		ug/L	1.8	30	19-DEC-18
Ethylbenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	19-DEC-18
m+p-Xylenes		2.0	2.1		ug/L	2.0	30	19-DEC-18



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455 PHILLIP STREET
WATERLOO ON N2L 3X2

Contact: LAURA ERMETA

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-ROU-HS-WT		Water						
Batch	R4402352							
WG2955022-4	DUP	WG2955022-3						
Methyl Ethyl Ketone		20	24		ug/L	17	30	19-DEC-18
Methyl Isobutyl Ketone		<20	<20	RPD-NA	ug/L	N/A	30	19-DEC-18
n-Hexane		0.77	0.69		ug/L	11	30	19-DEC-18
MTBE		<0.50	<0.50	RPD-NA	ug/L	N/A	30	19-DEC-18
o-Xylene		0.69	0.70		ug/L	1.4	30	19-DEC-18
Styrene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	19-DEC-18
Tetrachloroethylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	19-DEC-18
Toluene		2.16	2.22		ug/L	2.7	30	19-DEC-18
trans-1,2-Dichloroethylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	19-DEC-18
trans-1,3-Dichloropropene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	19-DEC-18
Trichloroethylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	19-DEC-18
Trichlorofluoromethane		<1.0	<1.0	RPD-NA	ug/L	N/A	30	19-DEC-18
Vinyl chloride		<0.50	<0.50	RPD-NA	ug/L	N/A	30	19-DEC-18
WG2955022-1	LCS							
1,1,1,2-Tetrachloroethane			110.1		%		70-130	19-DEC-18
1,1,2,2-Tetrachloroethane			111.7		%		70-130	19-DEC-18
1,1,1-Trichloroethane			111.1		%		70-130	19-DEC-18
1,1,2-Trichloroethane			111.9		%		70-130	19-DEC-18
1,2-Dibromoethane			110.3		%		70-130	19-DEC-18
1,1-Dichloroethane			111.5		%		70-130	19-DEC-18
1,1-Dichloroethylene			109.5		%		70-130	19-DEC-18
1,2-Dichlorobenzene			109.3		%		70-130	19-DEC-18
1,2-Dichloroethane			112.0		%		70-130	19-DEC-18
1,2-Dichloropropane			109.5		%		70-130	19-DEC-18
1,3-Dichlorobenzene			111.6		%		70-130	19-DEC-18
1,4-Dichlorobenzene			109.5		%		70-130	19-DEC-18
Acetone			111.7		%		60-140	19-DEC-18
Benzene			112.0		%		70-130	19-DEC-18
Bromodichloromethane			109.6		%		70-130	19-DEC-18
Bromoform			105.6		%		70-130	19-DEC-18
Bromomethane			95.9		%		60-140	19-DEC-18
Carbon tetrachloride			109.1		%		70-130	19-DEC-18
Chlorobenzene			109.7		%		70-130	19-DEC-18



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Client: GHD Limited (Waterloo)
 455 PHILLIP STREET
 WATERLOO ON N2L 3X2

Contact: LAURA ERMETA

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-ROU-HS-WT								
	Water							
Batch	R4402352							
WG2955022-1	LCS							
Chloroethane			99.5		%		70-130	19-DEC-18
Chloroform			108.7		%		70-130	19-DEC-18
cis-1,2-Dichloroethylene			107.6		%		70-130	19-DEC-18
cis-1,3-Dichloropropene			109.2		%		70-130	19-DEC-18
Dibromochloromethane			108.2		%		70-130	19-DEC-18
Dichlorodifluoromethane			129.0		%		50-140	19-DEC-18
Dichloromethane			109.2		%		70-130	19-DEC-18
Ethylbenzene			111.6		%		70-130	19-DEC-18
m+p-Xylenes			109.9		%		70-130	19-DEC-18
Methyl Ethyl Ketone			105.4		%		60-140	19-DEC-18
Methyl Isobutyl Ketone			100.9		%		50-150	19-DEC-18
n-Hexane			102.9		%		70-130	19-DEC-18
MTBE			112.1		%		70-130	19-DEC-18
o-Xylene			109.0		%		70-130	19-DEC-18
Styrene			112.1		%		70-130	19-DEC-18
Tetrachloroethylene			112.6		%		70-130	19-DEC-18
Toluene			111.6		%		70-130	19-DEC-18
trans-1,2-Dichloroethylene			109.6		%		70-130	19-DEC-18
trans-1,3-Dichloropropene			106.9		%		70-130	19-DEC-18
Trichloroethylene			111.5		%		70-130	19-DEC-18
Trichlorofluoromethane			121.6		%		60-140	19-DEC-18
Vinyl chloride			91.4		%		60-140	19-DEC-18
WG2955022-2	MB							
1,1,1,2-Tetrachloroethane			<0.50		ug/L		0.5	19-DEC-18
1,1,1,2,2-Tetrachloroethane			<0.50		ug/L		0.5	19-DEC-18
1,1,1-Trichloroethane			<0.50		ug/L		0.5	19-DEC-18
1,1,2-Trichloroethane			<0.50		ug/L		0.5	19-DEC-18
1,2-Dibromoethane			<0.20		ug/L		0.2	19-DEC-18
1,1-Dichloroethane			<0.50		ug/L		0.5	19-DEC-18
1,1-Dichloroethylene			<0.50		ug/L		0.5	19-DEC-18
1,2-Dichlorobenzene			<0.50		ug/L		0.5	19-DEC-18
1,2-Dichloroethane			<0.50		ug/L		0.5	19-DEC-18
1,2-Dichloropropane			<0.50		ug/L		0.5	19-DEC-18
1,3-Dichlorobenzene			<0.50		ug/L		0.5	19-DEC-18



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Client: GHD Limited (Waterloo)
 455 PHILLIP STREET
 WATERLOO ON N2L 3X2
 Contact: LAURA ERMETA

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-ROU-HS-WT								
	Water							
Batch	R4402352							
WG2955022-2 MB								
1,4-Dichlorobenzene			<0.50		ug/L		0.5	19-DEC-18
Acetone			<20		ug/L		20	19-DEC-18
Benzene			<0.50		ug/L		0.5	19-DEC-18
Bromodichloromethane			<1.0		ug/L		1	19-DEC-18
Bromoform			<1.0		ug/L		1	19-DEC-18
Bromomethane			<0.50		ug/L		0.5	19-DEC-18
Carbon tetrachloride			<0.50		ug/L		0.5	19-DEC-18
Chlorobenzene			<0.50		ug/L		0.5	19-DEC-18
Chloroethane			<1.0		ug/L		1	19-DEC-18
Chloroform			<1.0		ug/L		1	19-DEC-18
cis-1,2-Dichloroethylene			<0.50		ug/L		0.5	19-DEC-18
cis-1,3-Dichloropropene			<0.50		ug/L		0.5	19-DEC-18
Dibromochloromethane			<1.0		ug/L		1	19-DEC-18
Dichlorodifluoromethane			<1.0		ug/L		1	19-DEC-18
Dichloromethane			<2.0		ug/L		2	19-DEC-18
Ethylbenzene			<0.50		ug/L		0.5	19-DEC-18
m+p-Xylenes			<1.0		ug/L		1	19-DEC-18
Methyl Ethyl Ketone			<20		ug/L		20	19-DEC-18
Methyl Isobutyl Ketone			<20		ug/L		20	19-DEC-18
n-Hexane			<0.50		ug/L		0.5	19-DEC-18
MTBE			<0.50		ug/L		0.5	19-DEC-18
o-Xylene			<0.50		ug/L		0.5	19-DEC-18
Styrene			<0.50		ug/L		0.5	19-DEC-18
Tetrachloroethylene			<0.50		ug/L		0.5	19-DEC-18
Toluene			<0.50		ug/L		0.5	19-DEC-18
trans-1,2-Dichloroethylene			<0.50		ug/L		0.5	19-DEC-18
trans-1,3-Dichloropropene			<0.50		ug/L		0.5	19-DEC-18
Trichloroethylene			<0.50		ug/L		0.5	19-DEC-18
Trichlorofluoromethane			<1.0		ug/L		1	19-DEC-18
Vinyl chloride			<0.50		ug/L		0.5	19-DEC-18
Surrogate: 1,4-Difluorobenzene			100.0		%		70-130	19-DEC-18
Surrogate: 4-Bromofluorobenzene			99.6		%		70-130	19-DEC-18
WG2955022-5 MS		WG2955022-3						
1,1,1,2-Tetrachloroethane			108.5		%		50-150	19-DEC-18



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Client: GHD Limited (Waterloo)
 455 PHILLIP STREET
 WATERLOO ON N2L 3X2

Contact: LAURA ERMETA

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-ROU-HS-WT								
	Water							
Batch	R4402352							
WG2955022-5 MS		WG2955022-3						
1,1,2,2-Tetrachloroethane			109.8		%		50-150	19-DEC-18
1,1,1-Trichloroethane			110.3		%		50-150	19-DEC-18
1,1,2-Trichloroethane			107.5		%		50-150	19-DEC-18
1,2-Dibromoethane			105.1		%		50-150	19-DEC-18
1,1-Dichloroethane			109.8		%		50-150	19-DEC-18
1,1-Dichloroethylene			106.0		%		50-150	19-DEC-18
1,2-Dichlorobenzene			109.6		%		50-150	19-DEC-18
1,2-Dichloroethane			108.3		%		50-150	19-DEC-18
1,2-Dichloropropane			107.2		%		50-150	19-DEC-18
1,3-Dichlorobenzene			114.5		%		50-150	19-DEC-18
1,4-Dichlorobenzene			113.3		%		50-150	19-DEC-18
Acetone			88.4		%		50-150	19-DEC-18
Benzene			110.4		%		50-150	19-DEC-18
Bromodichloromethane			106.1		%		50-150	19-DEC-18
Bromoform			96.6		%		50-150	19-DEC-18
Bromomethane			90.9		%		50-150	19-DEC-18
Carbon tetrachloride			108.5		%		50-150	19-DEC-18
Chlorobenzene			110.2		%		50-150	19-DEC-18
Chloroethane			93.1		%		50-150	19-DEC-18
Chloroform			108.0		%		50-150	19-DEC-18
cis-1,2-Dichloroethylene			107.4		%		50-150	19-DEC-18
cis-1,3-Dichloropropene			112.4		%		50-150	19-DEC-18
Dibromochloromethane			101.8		%		50-150	19-DEC-18
Dichlorodifluoromethane			104.1		%		50-150	19-DEC-18
Dichloromethane			107.1		%		50-150	19-DEC-18
Ethylbenzene			113.2		%		50-150	19-DEC-18
m+p-Xylenes			111.8		%		50-150	19-DEC-18
Methyl Ethyl Ketone			92.7		%		50-150	19-DEC-18
Methyl Isobutyl Ketone			92.0		%		50-150	19-DEC-18
n-Hexane			97.0		%		50-150	19-DEC-18
MTBE			111.9		%		50-150	19-DEC-18
o-Xylene			109.4		%		50-150	19-DEC-18
Styrene			111.4		%		50-150	19-DEC-18



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Client: GHD Limited (Waterloo)
455 PHILLIP STREET
WATERLOO ON N2L 3X2

Contact: LAURA ERMETA

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-ROU-HS-WT								
	Water							
Batch	R4402352							
WG2955022-5 MS		WG2955022-3						
Tetrachloroethylene			117.1		%		50-150	19-DEC-18
Toluene			111.5		%		50-150	19-DEC-18
trans-1,2-Dichloroethylene			110.1		%		50-150	19-DEC-18
trans-1,3-Dichloropropene			109.1		%		50-150	19-DEC-18
Trichloroethylene			114.6		%		50-150	19-DEC-18
Trichlorofluoromethane			116.3		%		50-150	19-DEC-18
Vinyl chloride			82.7		%		50-150	19-DEC-18

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WATERLOO ON N2L 3X2
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Legend:

Limit ALS Control Limit (Data Quality Objectives)
DUP Duplicate
RPD Relative Percent Difference
N/A Not Available
LCS Laboratory Control Sample
SRM Standard Reference Material
MS Matrix Spike
MSD Matrix Spike Duplicate
ADE Average Desorption Efficiency
MB Method Blank
IRM Internal Reference Material
CRM Certified Reference Material
CCV Continuing Calibration Verification
CVS Calibration Verification Standard
LCSD Laboratory Control Sample Duplicate

Sample Parameter Qualifier Definitions:

Qualifier	Description
J	Duplicate results and limits are expressed in terms of absolute difference.
MES	Data Quality Objective was marginally exceeded (by < 10% absolute) for < 10% of analytes in a Multi-Element Scan / Multi-Parameter Scan (considered acceptable as per OMOE & CCME).
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.
RPD-NA	Relative Percent Difference Not Available due to result(s) being less than detection limit.
RRQC	Refer to report remarks for information regarding this QC result.

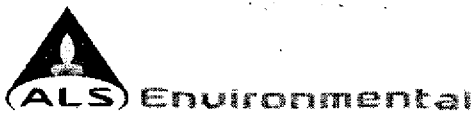
Hold Time Exceedances:

All test results reported with this submission were conducted within ALS recommended hold times.

ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where available). For more information, please contact ALS.

The ALS Quality Control Report is provided to ALS clients upon request. ALS includes comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against pre-determined data quality objectives to provide confidence in the accuracy of associated test results.

Please note that this report may contain QC results from anonymous Sample Duplicates and Matrix Spikes that do not originate from this Work Order.



Chain of Custody (COC) / Analytical Request Form

Canada Toll Free: 1 800 668 9878



L2211993-COFC

COC Number: 14 -

Page 1 of 1

www.alsglobal.com

Report To		Acct#13791		Report Format / Distribution			Select Service Level Below (Rush Turnaround Time (TAT) is not available for all tests)												
Company: GHD LIMITED				Select Report Format: <input checked="" type="checkbox"/> PDF <input checked="" type="checkbox"/> EXCEL <input checked="" type="checkbox"/> EDD (DIGITAL)			R <input checked="" type="checkbox"/> Regular (Standard TAT if received by 3 pm - business days)												
Contact: Laura Ermeta				Quality Control (QC) Report with Report <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No			P <input type="checkbox"/> Priority (2-4 bus. days if received by 3pm) 50% surcharge - contact ALS to confirm TAT												
Address: 455 Phillip St N2L 3X2				<input type="checkbox"/> Criteria on Report - provide details below if box checked			E <input type="checkbox"/> Emergency (1-2 bus. days if received by 3pm) 100% surcharge - contact ALS to confirm TAT												
Phone: 519-884-0510				Select Distribution: <input checked="" type="checkbox"/> EMAIL <input type="checkbox"/> MAIL <input type="checkbox"/> FAX			E2 <input type="checkbox"/> Same day or weekend emergency - contact ALS to confirm TAT and surcharge												
				Email 1 or Fax laura.ermeta@ghd.com			Specify Date Required for E2,E or P:												
				Email 2 See PO			Analysis Request												
Invoice To		Same as Report To <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Invoice Distribution			Indicate Filtered (F), Preserved (P) or Filtered and Preserved (FP) below												
Copy of Invoice with Report <input type="checkbox"/> Yes <input type="checkbox"/> No				Select Invoice Distribution: <input checked="" type="checkbox"/> EMAIL <input type="checkbox"/> MAIL <input checked="" type="checkbox"/> FAX															
Company: GHD LIMITED				Email 1 or Fax laura.ermeta@ghd.com															
Contact: Laura Ermeta				Email 2															
Project Information				Oil and Gas Required Fields (client use)															
ALS Quote #: 44985		Job #: 73506479		Approver ID:		Cost Center:		GL Account:		Routing Code:		Activity Code:		Location:					
ALS Lab Work Order # (lab use only)		L2211993		ALS Contact: Rick H		Sampler:													
ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)			Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	ALK, Conductivity, pH, TDS, TSS	Br, NO2, NO3, SO4, Cl, F (ANIONS-IC-6-WT)	DOC (DOC-WT), COD, TKN, TP	Total CN (CN-TOT-WT)	Un-ionized NH3 (NH3, ETL-NH3-UNION-CL)	Total Metals (MET-T-COMSS-WT, WT-44985-Met)	Total Mercury (HG-T-CVAA-WT)	Total Cr 6+ (CR-CR6-IC-WT), Hardness calc	VOCs (VOC-ROU-HS-WT, WT-44985-VOC)	SVOCs (SVOC-44985-P-WT)	CLIENT SUPPLIED TEMPERATURE **	CLIENT SUPPLIED pH **	Number of Containers
	EQ Pond Discharge			17/12/18	12:00	Water	R	R	R	R	R	R	R	R	R	R	3	7.8	
	West Storm Water Pond			17/12/18	11:45	Water	R	R	R	R	R	R	R	R	R	R	3	7.50	
	East Storm Water Pond			17/12/18	11:30	Water	R	R	R	R	R	R	R	R	R	R	3	7.42	
Drinking Water (DW) Samples¹ (client use)				Special Instructions / Specify Criteria to add on report (client Use)															
Are samples taken from a Regulated DW System? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No				**Please fill in Client Supplied temperature and pH for Unionized NH3 calculation**															
Are samples for human drinking water use? <input type="checkbox"/> Yes <input type="checkbox"/> No																			
SHIPMENT RELEASE (client use)				INITIAL SHIPMENT RECEPTION (lab use only)						FINAL SHIPMENT RECEPTION (lab use only)									
Released by: <i>R. Tobin</i>		Date: <i>Dec 17/18</i>	Time: <i>14:45</i>	Received by:		Date:	Time:	Received by:		Date:	Time:	INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			
												9.5							
Frozen: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No				SIF Observations Yes <input type="checkbox"/> No <input type="checkbox"/>															
Ice packs Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>				Custody seal intact Yes <input type="checkbox"/> No <input type="checkbox"/>															
Cooling Initiated <input type="checkbox"/>																			

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

NA-PLA-0326a v09 Form 04 January 2014

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.

AP



GHD Limited (Waterloo)
ATTN: LAURA ERMETA
455 PHILLIP STREET
WATERLOO ON N2L 3X2

Date Received: 18-DEC-18
Report Date: 08-JAN-19 14:33 (MT)
Version: FINAL REV. 2

Client Phone: 519-884-0510

Certificate of Analysis

Lab Work Order #: L2211630
Project P.O. #: 73506479
Job Reference: 44985
C of C Numbers:
Legal Site Desc:

Comments:

8-JAN-2019 Account number revised to GHD Limited.

Rick Hawthorne
Account Manager

[This report shall not be reproduced except in full without the written authority of the Laboratory.]

ADDRESS: 60 Northland Road, Unit 1, Waterloo, ON N2V 2B8 Canada | Phone: +1 519 886 6910 | Fax: +1 519 886 9047
ALS CANADA LTD Part of the ALS Group An ALS Limited Company

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2211630-1 EQ POND DISCHARGE Sampled By: CLIENT on 17-DEC-18 @ 12:00 Matrix: WATER							
Microtox Physical Tests							
Turbidity	N/A				19-DEC-18	19-DEC-18	R4402229
Colour	Colourless				19-DEC-18	19-DEC-18	R4402229
Clarification	None				19-DEC-18	19-DEC-18	R4402229
Initial pH	7.9		0.10	pH	19-DEC-18	19-DEC-18	R4402229
Final pH	7.9		0.10	pH	19-DEC-18	19-DEC-18	R4402229
Lab Treatment	None				19-DEC-18	19-DEC-18	R4402229
Microtox Original							
EC50 (15min) Original	>100		1.0	%	19-DEC-18	19-DEC-18	R4402229
EC20 (15min) Original	>100		1.0	%	19-DEC-18	19-DEC-18	R4402229
EC50 (5min) Original	>100		1.0	%	19-DEC-18	19-DEC-18	R4402229
EC20 (5min) Original	>100		1.0	%	19-DEC-18	19-DEC-18	R4402229
Interpretation Original	NON TOXIC				19-DEC-18	19-DEC-18	R4402229
L2211630-2 WEST STORM WATER POND Sampled By: CLIENT on 17-DEC-18 @ 11:45 Matrix: WATER							
Microtox Physical Tests							
Turbidity	N/A				19-DEC-18	19-DEC-18	R4402229
Colour	Colourless				19-DEC-18	19-DEC-18	R4402229
Clarification	None				19-DEC-18	19-DEC-18	R4402229
Initial pH	8.0		0.10	pH	19-DEC-18	19-DEC-18	R4402229
Final pH	8.0		0.10	pH	19-DEC-18	19-DEC-18	R4402229
Lab Treatment	None				19-DEC-18	19-DEC-18	R4402229
Microtox Original							
EC50 (15min) Original	>100		1.0	%	19-DEC-18	19-DEC-18	R4402229
EC20 (15min) Original	>100		1.0	%	19-DEC-18	19-DEC-18	R4402229
EC50 (5min) Original	>100		1.0	%	19-DEC-18	19-DEC-18	R4402229
EC20 (5min) Original	>100		1.0	%	19-DEC-18	19-DEC-18	R4402229
Interpretation Original	NON TOXIC				19-DEC-18	19-DEC-18	R4402229

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
MICROTOX-ORG-ED	Water	Microtox Original	ERCB Directive 050
Light output of luminescent bacteria is measured after they have been challenged by a sample of unknown toxicity, and compared to the light output of a control reagent blank. The difference in light output is attributed to the effect of the sample on the organisms, and the degree of light loss indicates metabolic inhibition and the degree of toxicity of the sample to the bacteria. EC50(5) and EC50(15) values are reported, and refer to the effective concentration of the sample that caused a 50% decrease in the light output in 5 and 15 minutes.			
MICROTOX-PHYSICAL-ED	Water	Microtox Physical Tests	ERCB Directive 050

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
ED	ALS ENVIRONMENTAL - EDMONTON, ALBERTA, CANADA

Chain of Custody Numbers:

GLOSSARY OF REPORT TERMS

Surrogates are compounds that are similar in behaviour to target analyte(s), but that do not normally occur in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery. In reports that display the D.L. column, laboratory objectives for surrogates are listed there.

mg/kg - milligrams per kilogram based on dry weight of sample

mg/kg wwt - milligrams per kilogram based on wet weight of sample

mg/kg lwt - milligrams per kilogram based on lipid weight of sample

mg/L - unit of concentration based on volume, parts per million.

< - Less than.

D.L. - The reporting limit.

N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.

UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.



Quality Control Report

Workorder: L2211630

Report Date: 08-JAN-19

Page 1 of 2

Client: GHD Limited (Waterloo)
 455 PHILLIP STREET
 WATERLOO ON N2L 3X2

Contact: LAURA ERMETA

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MICROTOX-ORG-ED								
	Water							
Batch	R4402229							
WG2956967-2 CRM		PHENOL_ED						
EC50 (5min) Original			16.5		mg/L		13-26	19-DEC-18
WG2956967-3 CRM		PHENOL_ED						
EC50 (5min) Original			15.0		mg/L		13-26	19-DEC-18
WG2956967-4 DUP		L2211630-1						
EC50 (15min) Original		>100	>100	RPD-NA	%	N/A		19-DEC-18
EC20 (15min) Original		>100	>100	RPD-NA	%	N/A		19-DEC-18
EC50 (5min) Original		>100	>100	RPD-NA	%	N/A		19-DEC-18
EC20 (5min) Original		>100	>100	RPD-NA	%	N/A		19-DEC-18
WG2956967-1 MB								
EC50 (15min) Original			PASS					19-DEC-18
EC20 (15min) Original			PASS					19-DEC-18
EC50 (5min) Original			PASS					19-DEC-18
EC20 (5min) Original			PASS					19-DEC-18

Quality Control Report

Workorder: L2211630

Report Date: 08-JAN-19

Client: GHD Limited (Waterloo)
455 PHILLIP STREET
WATERLOO ON N2L 3X2
Contact: LAURA ERMETA

Page 2 of 2

Legend:

Limit	ALS Control Limit (Data Quality Objectives)
DUP	Duplicate
RPD	Relative Percent Difference
N/A	Not Available
LCS	Laboratory Control Sample
SRM	Standard Reference Material
MS	Matrix Spike
MSD	Matrix Spike Duplicate
ADE	Average Desorption Efficiency
MB	Method Blank
IRM	Internal Reference Material
CRM	Certified Reference Material
CCV	Continuing Calibration Verification
CVS	Calibration Verification Standard
LCSD	Laboratory Control Sample Duplicate

Sample Parameter Qualifier Definitions:

Qualifier	Description
RPD-NA	Relative Percent Difference Not Available due to result(s) being less than detection limit.

Hold Time Exceedances:

All test results reported with this submission were conducted within ALS recommended hold times.

ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where available). For more information, please contact ALS.

The ALS Quality Control Report is provided to ALS clients upon request. ALS includes comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against pre-determined data quality objectives to provide confidence in the accuracy of associated test results.

Please note that this report may contain QC results from anonymous Sample Duplicates and Matrix Spikes that do not originate from this Work Order.



P/A Ice / Ice packs
P/A free water

Chain of Custody (COC) / Analytical Request Form



COC Number: 14 -

Page 1 of 1

Canada Toll Free: 1 800 668 9878

L2211630-COFC

www.alsglobal.com

Report To Company: GHD LIMITED Contact: Laura Ermeta Address: 455 Phillip St N2L 3X2 Phone: 519-884-0510		Acct#13791		Report Format / Distribution Select Report Format: <input checked="" type="checkbox"/> PDF <input checked="" type="checkbox"/> EXCEL <input checked="" type="checkbox"/> EDD (DIGITAL) Quality Control (QC) Report with Report <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Criteria on Report - provide details below if box checked Select Distribution: <input checked="" type="checkbox"/> EMAIL <input type="checkbox"/> MAIL <input type="checkbox"/> FAX Email 1 or Fax laura.ermeta@ghd.com Email 2 See PO			Select Service Level Below (Rush Turnaround Time (TAT) is not available for all tests) R <input checked="" type="checkbox"/> Regular (Standard TAT if received by 3 pm - business days) P <input type="checkbox"/> Priority (2-4 bus. days if received by 3pm) 50% surcharge - contact ALS to confirm TAT E <input type="checkbox"/> Emergency (1-2 bus. days if received by 3pm) 100% surcharge - contact ALS to confirm TAT E2 <input type="checkbox"/> Same day or weekend emergency - contact ALS to confirm TAT and surcharge Specify Date Required for E2, E or P:					
Invoice To Same as Report To <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Copy of Invoice with Report <input type="checkbox"/> Yes <input type="checkbox"/> No		Invoice Distribution Select Invoice Distribution: <input checked="" type="checkbox"/> EMAIL <input type="checkbox"/> MAIL <input checked="" type="checkbox"/> FAX Email 1 or Fax laura.ermeta@ghd.com Email 2		Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below								
Company: GHD LIMITED Contact: Laura Ermeta		Project Information ALS Quote #: 44985 Job #: 44985 PO / AFE: 73506479 LSD:		Oil and Gas Required Fields (client use) Approver ID: GL Account: Activity Code: Location:		ALS Lab Work Order # (lab use only) <u>L2211630</u> ALS Contact: Rick H Sampler:		MICROTOX (MICROTOX-ORG-ED) MICROTOX-PHYSICAL-ED		Number of Containers		
ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)			Date (dd-mmm-yy)	Time (hh:mm)	Sample Type						
	EQ Pond Discharge			17/12/18	12:30	Water	R					
	West Storm water Pond			17/12/18	11:45	water	R					
	East Storm water Pond			17/12/18	11:30	water	R					
Drinking Water (DW) Samples ¹ (client use) Are samples taken from a Regulated DW System? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Are samples for human drinking water use? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		Special Instructions / Specify Criteria to add on report (client Use) Please send to ALS Edmonton ASAP for analysis (short HT)				SAMPLE CONDITION AS RECEIVED (lab use only) Frozen <input type="checkbox"/> SIF Observations Yes <input type="checkbox"/> No <input type="checkbox"/> Ice packs Yes <input type="checkbox"/> No <input type="checkbox"/> Custody seal intact Yes <input type="checkbox"/> No <input type="checkbox"/> Cooling Initiated <input type="checkbox"/> INITIAL COOLER TEMPERATURES °C: 3.8°C FINAL COOLER TEMPERATURES °C:						
SHIPMENT RELEASE (client use) Released by: <u>R Tobin</u> Date: <u>Dec 17/18</u> Time: <u>14:30</u>		INITIAL SHIPMENT RECEPTION (lab use only) Received by: <u>S</u> Date: <u>DEC 18/18</u> Time: <u>9:21 A</u>				FINAL SHIPMENT RECEPTION (lab use only) Received by: Date: Time:						

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

12A-F10 02/06-05 Form 04 January 2014

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy

1. If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form

Appendix C

Analytical Data Verification Memo



Memorandum

January 15, 2019

To: Diana Ball; Jim Yardley

Ref. No.: 044985-20

From:  Laura Ermeta/ev/50

**Subject: Analytical Data Verification
Surface Water Sampling Events
Clean Harbors Canada Inc.
Sarnia, Ontario
February to December 2018**

1. Introduction

The following document details an analytical data verification of results for surface water samples collected at the Clean Harbors Canada Inc. site in Sarnia, Ontario from February to December 2018. Samples were submitted to ALS Canada Ltd. (ALS) located in Edmonton and/or Grande Prairie, Alberta for microtox analysis as well as Waterloo, Ontario for all remaining analyses. A sample collection and analysis summary is presented in Table 1. A summary of the analytical methodology is presented in Table 2.

Standard GHD Limited (GHD) report deliverables were submitted by the laboratory. The final results and supporting quality assurance/quality control (QA/QC) data were assessed. Evaluation of the data was based on information obtained from the chain of custody forms, finished report forms, method blank data, duplicate data, recovery data from surrogate spikes, laboratory control samples (LCS) and matrix spikes (MS).

The QA/QC criteria by which these data have been assessed are outlined in the analytical methods referenced in Table 2 and applicable guidance from the documents entitled:

- i) "USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review", United States Environmental Protection Agency (USEPA) 540/R-99-008, October 1999
- ii) "USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review", USEPA 540/R-94-013, February 1994

Items i) and ii) will subsequently be referred to as the "Guidelines" in this Memorandum.

2. Sample Holding Time and Preservation

The sample holding time criteria for the analyses are summarized in Table 2. Sample chain of custody documents and analytical reports were used to determine sample holding times. Most samples were prepared and analyzed within the required holding times. Sample data that were obtained past the recommended holding time have been qualified as estimated (see Table 3).



Most samples were properly preserved, delivered with ice packs and were stored by the laboratory at the required temperature (0–10°C). The samples summarized in Table 4 were qualified due to high temperature upon arrival at the laboratory. Samples submitted on August 28, 2018 grossly exceeded the required temperature upon arrival at the laboratory. Associated non-detect sample results have been rejected.

Select water samples were analyzed for volatile organic compounds (VOCs) from vials containing headspace. Associated sample results have been qualified as estimated due to potential VOC losses (see Table 5).

3. Laboratory Method Blank Analyses

Method blanks are prepared from a purified matrix and analyzed with investigative samples to determine the existence and magnitude of sample contamination introduced during the analytical procedures.

For this study, laboratory method blanks were analyzed at a minimum frequency of 1 per 20 investigative samples and/or 1 per analytical batch.

All method blank results were non-detect, indicating that laboratory contamination was not a factor for this investigation.

4. Surrogate Spike Recoveries

In accordance with the methods employed, all samples, blanks, and QC samples analyzed for organics are spiked with surrogate compounds prior to sample extraction and/or analysis. Surrogate recoveries provide a means to evaluate the effects of laboratory performance on individual sample matrices.

All samples submitted for VOC and semi-volatile organic compound (SVOC) determinations were spiked with the appropriate number of surrogate compounds prior to sample analysis.

Surrogate recoveries were assessed against laboratory control limits. All surrogate recoveries met the above criteria. One SVOC surrogate in report L2060595 was outside laboratory control limits. According to the "Guidelines" for SVOC analyses, up to one outlying surrogate in the base/neutral fraction is acceptable as long as the recovery is at least 10 percent.

5. Laboratory Control Sample Analyses

LCS are prepared and analyzed as samples to assess the analytical efficiencies of the methods employed, independent of sample matrix effects.

For this study, LCS were analyzed at a minimum frequency of 1 per 20 investigative samples and/or 1 per analytical batch.



Organic Analyses

The LCS contained all compounds of interest. Most LCS recoveries were within the laboratory control limits, demonstrating acceptable analytical accuracy. Samples associated outlying recoveries were qualified as follows (see Table 6):

- i) Non-detect results associated with low LCS recoveries were qualified as estimated.
- ii) Non-detect results associated with high LCS recoveries were not qualified. The indicated high bias would not impact the data.

Inorganic Analyses

The LCS contained all analytes of interest. LCS recoveries were assessed per the "Guidelines". All LCS recoveries were within the control limits, demonstrating acceptable analytical accuracy.

6. Matrix Spike (MS) Analyses

To evaluate the effects of sample matrices on the extraction or digestion process, measurement procedures, and accuracy of a particular analysis, samples are spiked with a known concentration of the analyte of concern and analyzed as MS samples. If the original sample concentration is significantly greater than the spike concentration, the recovery is not assessed.

The MS samples were spiked with the analytes of interest, and the results were evaluated using the "Guidelines". All percent recoveries were within the control limits, demonstrating acceptable analytical accuracy.

7. Duplicate Sample Analyses

Analytical precision is evaluated based on the analysis of laboratory duplicate samples. For this study, duplicate samples were prepared and analyzed by the laboratory. The laboratory performed additional site-specific duplicate analyses internally. The relative percent differences (RPDs) associated with these duplicate samples must be less than 20 percent for water samples. If the reported concentration in either the investigative sample or its duplicate is less than five times the reporting limit (RL), the evaluation criteria is a difference of one times the RL value for water samples. All duplicate analyses performed were acceptable, demonstrating acceptable analytical precision.

8. Total Calcium and Magnesium Data Used For Hardness Calculation

Hardness results were flagged by the laboratory because the values were calculated using total calcium and magnesium concentrations. The associated sample results have been qualified as estimated as the results may be biased high (see Table 7).



9. Conclusion

Based on the assessment detailed in the foregoing, the data are acceptable with the specific qualifications and exceptions noted herein.

Table 1

**Sample Collection and Analysis Summary
Surface Water Sampling Events
Clean Harbors Canada Inc.
Sarnia, Ontario
February to December 2018**

Lab Report #	Sample Identification	Location	Matrix	Collection Date (mm/dd/yyyy)	Collection Time (hr:min.sec)	Analysis/Parameters																				
						VOCs	SVOCs	Metals	Mercury	Hexavalent Chromium	Hardness	pH	Ammonia-N	Un-ionized ammonia-N	Anions (Br, Cl, F, NO3-N, NO2-N, SO4)	Alkalinity	Conductivity	Total Dissolved Solids	Total Suspended Solids	Cyanide, total	Total Phosphorus	Total Kjeldahl Nitrogen	Chemical Oxygen Demand	Dissolved Organic Carbon	Phenols	Microtox
L2060595	EQ POND DISCHARGE	EQ Pond	Surface Water	02/22/2018	11:30:00	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-
L2060595	WEST STORM WATER POND	West Pond	Surface Water	02/22/2018	11:30:00	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-
L2060595	EAST STORM WATER POND	East Pond	Surface Water	02/22/2018	11:30:00	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-
L2060595	STN 6A	STN6A	Surface Water	02/22/2018	11:30:00	-	-	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-
L2061637	EQ POND DISCHARGE	EQ Pond	Surface Water	02/26/2018	09:25:00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	
L2083897	EQ POND DISCHARGE	EQ Pond	Surface Water	04/23/2018	14:00:00	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-
L2083897	WEST STORM WATER POND	West Pond	Surface Water	04/23/2018	14:00:00	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-
L2083897	EAST STORM WATER POND	East Pond	Surface Water	04/23/2018	14:00:00	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-
L2084377	EQ POND DISCHARGE	EQ Pond	Surface Water	04/23/2018	14:00:00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	
L2155268	EQ POND DISCHARGE	EQ Pond	Surface Water	08/28/2018	11:30:00	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-
L2155268	WEST STORM WATER POND	West Pond	Surface Water	08/28/2018	11:15:00	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-
L2155268	EAST STORM WATER POND	East Pond	Surface Water	08/28/2018	11:00:00	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-
L2155768	EQ POND DISCHARGE	EQ Pond	Surface Water	08/28/2018	11:30:00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	
L2193905	EQ SAMPLE DISCHARGE	EQ Pond	Surface Water	11/07/2018	11:30:00	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-
L2193905	WEST STORM WATER POND	West Pond	Surface Water	11/07/2018	11:30:00	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-
L2193905	EAST STORM WATER POND	East Pond	Surface Water	11/07/2018	11:30:00	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-
L2196113	EQ POND DISCHARGE	EQ Pond	Surface Water	11/12/2018	09:30:00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	
L2198864	EQ POND DISCHARGE EQP	EQ Pond	Surface Water	11/19/2018	11:00:00	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-
L2198864	WEST STORM WATER POND WRP	West Pond	Surface Water	11/19/2018	11:00:00	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-
L2198864	EAST STORM WATER POND ERP	East Pond	Surface Water	11/19/2018	11:00:00	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-

**Analytical Method and Holding Time Criteria
Surface Water Sampling Events
Clean Harbors Canada Inc.
Sarnia, Ontario
February to December 2018**

Parameters	Methodology ⁽¹⁾	Holding Time Criteria
		Water
Volatile Organic Compounds	SW846 8260	14 days
Semi-volatile Organic Compounds	SW846 8270	14 days
Metals	SW846 6020/EPA 200.8	60 days
Mercury	EPA 1631	28 days
Hexavalent Chromium	SW846 7199	28 days
Hardness	SM 2340B	60 days
pH	SM 4500H	28 days
Ammonia-N	EPA 350.1	28 days
Un-ionized ammonia-N	Calculation	NA
Anions (Nitrite-N, Nitrate-N)	EPA 300.1	7 days
Anions (Chloride)	EPA 300.1	28 days
Anions (Bromide, Fluoride, Sulphate)	EPA 300.1	30 days
Alkalinity	EPA 310.1	14 days
Conductivity	SM 2510	28 days
Total Dissolved Solids	SM 2540C	7 days
Total Suspended Solids	SM 2540D	7 days
Cyanide, total	SM 4500 CN-E	14 days
Total Phosphorus	SM4500P-F	28 days
Total Kjeldahl Nitrogen	SM 4500 NORGA	28 days
Chemical Oxygen Demand	SM 5220D	28 days
Dissolved Organic Carbon (lab filtered)	SM 5310B	3 days
Phenols	SW846 79066	28 days
Microtox	ERCB Directive 050	7 days

Notes:

- (1) Methods referenced from the following:
 SW846 - "Test Method for Evaluating Solid Waste Physical/Chemical Methods", EPA, November 1986
 with promulgated updates
 SM - Standard Methods for the Examination of Water and Wastewater", 21st Ed., APHA, September 2005
 EPA - "Methods for Chemical Analysis of Water and Wastes", EPA 600/4 79 020, Revised
 ERCB - Energy Resources Conservation Board

N - Nitrogen

NA - Not applicable

**Qualified Sample Data Due To Holding Time Exceedance
Surface Water Sampling Events
Clean Harbors Canada Inc.
Sarnia, Ontario
February to December 2018**

Lab Report #	Parameter	Sample ID	Holding Time	Holding Time Criteria	Analyte	Qualified Sample Results	Units
L2060595	Gen Chem	EQ POND DISCHARGE	4 days	3 days	Dissolved organic carbon (DOC) (dissolved)	4.4 J	mg/L
L2060595	Gen Chem	WEST STORM WATER POND	4 days	3 days	Dissolved organic carbon (DOC) (dissolved)	5.3 J	mg/L
L2060595	Gen Chem	EAST STORM WATER POND	4 days	3 days	Dissolved organic carbon (DOC) (dissolved)	5.3 J	mg/L
L2060595	Gen Chem	STN 6A	4 days	3 days	Dissolved organic carbon (DOC) (dissolved)	9.6 J	mg/L
L2155268	Gen Chem	EQ POND DISCHARGE	7 days	3 days	Dissolved organic carbon (DOC) (dissolved)	4.83 J	mg/L
L2155268	Gen Chem	WEST STORM WATER POND	7 days	3 days	Dissolved organic carbon (DOC) (dissolved)	4.50 J	mg/L
L2155268	Gen Chem	EAST STORM WATER POND	7 days	3 days	Dissolved organic carbon (DOC) (dissolved)	5.34 J	mg/L

Notes:

J - Estimated concentration
Gen Chem - General Chemistry

Table 4

**Qualified Sample Data Due To Insufficient Sample Preservation - Temperature
Surface Water Sampling Events
Clean Harbors Canada Inc.
Sarnia, Ontario
February to December 2018**

Lab Report #	Parameter	Associated Sample ID	Temp. Upon Receipt at Laboratory (°C)	Required Temperature (°C)	Analyte	Qualified Result	Units
L2060595	Gen Chem	EQ POND DISCHARGE	20	10	Alkalinity, total (as CaCO ₃)	149 J	mg/L
L2060595	Gen Chem	EQ POND DISCHARGE	20	10	Ammonia-N	2.28 J	mg/L
L2060595	Gen Chem	EQ POND DISCHARGE	20	10	Bromide	0.48 J	mg/L
L2060595	Gen Chem	EQ POND DISCHARGE	20	10	Chemical oxygen demand (COD)	16 J	mg/L
L2060595	Gen Chem	EQ POND DISCHARGE	20	10	Chloride	60.3 J	mg/L
L2060595	Gen Chem	EQ POND DISCHARGE	20	10	Chromium VI (hexavalent)	0.0010 UJ	mg/L
L2060595	Gen Chem	EQ POND DISCHARGE	20	10	Conductivity	729 J	umhos/cm
L2060595	Gen Chem	EQ POND DISCHARGE	20	10	Cyanide (total)	0.0020 UJ	mg/L
L2060595	Gen Chem	EQ POND DISCHARGE	20	10	Dissolved organic carbon (DOC) (dissolved)	4.4 J	mg/L
L2060595	Gen Chem	EQ POND DISCHARGE	20	10	Fluoride	0.568 J	mg/L
L2060595	Gen Chem	EQ POND DISCHARGE	20	10	Nitrate (as N)	0.377 J	mg/L
L2060595	Gen Chem	EQ POND DISCHARGE	20	10	Nitrite (as N)	0.015 J	mg/L
L2060595	Gen Chem	EQ POND DISCHARGE	20	10	pH, lab	7.62 J	s.u.
L2060595	Gen Chem	EQ POND DISCHARGE	20	10	Phenolics (total)	0.0010 UJ	mg/L
L2060595	Gen Chem	EQ POND DISCHARGE	20	10	Phosphorus	0.0159 J	mg/L
L2060595	Gen Chem	EQ POND DISCHARGE	20	10	Sulfate	131 J	mg/L
L2060595	Gen Chem	EQ POND DISCHARGE	20	10	Total dissolved solids (TDS)	395 J	mg/L
L2060595	Gen Chem	EQ POND DISCHARGE	20	10	Total kjeldahl nitrogen (TKN)	2.86 J	mg/L
L2060595	Gen Chem	EQ POND DISCHARGE	20	10	Total suspended solids (TSS)	3.4 J	mg/L
L2060595	Gen Chem	EQ POND DISCHARGE	20	10	Un-ionized ammonia	0.00218 J	mg/L
L2060595	SVOCs	EQ POND DISCHARGE	20	10	1,2,4-Trichlorobenzene	0.40 UJ	µg/L
L2060595	SVOCs	EQ POND DISCHARGE	20	10	1,2-Dichlorobenzene	0.40 UJ	µg/L
L2060595	SVOCs	EQ POND DISCHARGE	20	10	1,3-Dichlorobenzene	0.40 UJ	µg/L
L2060595	SVOCs	EQ POND DISCHARGE	20	10	1,4-Dichlorobenzene	0.40 UJ	µg/L
L2060595	SVOCs	EQ POND DISCHARGE	20	10	1-Methylnaphthalene	0.40 UJ	µg/L
L2060595	SVOCs	EQ POND DISCHARGE	20	10	2,3,4,5-Tetrachlorophenol	0.50 UJ	µg/L
L2060595	SVOCs	EQ POND DISCHARGE	20	10	2,3,4,6-Tetrachlorophenol	0.50 UJ	µg/L
L2060595	SVOCs	EQ POND DISCHARGE	20	10	2,3,6-Trichlorophenol	0.50 UJ	µg/L
L2060595	SVOCs	EQ POND DISCHARGE	20	10	2,4,5-Trichlorophenol	0.50 UJ	µg/L
L2060595	SVOCs	EQ POND DISCHARGE	20	10	2,4,6-Trichlorophenol	0.50 UJ	µg/L
L2060595	SVOCs	EQ POND DISCHARGE	20	10	2,4-Dichlorophenol	0.30 UJ	µg/L
L2060595	SVOCs	EQ POND DISCHARGE	20	10	2,4-Dimethylphenol	0.50 UJ	µg/L
L2060595	SVOCs	EQ POND DISCHARGE	20	10	2,4-Dinitrophenol	1.0 UJ	µg/L

Table 4

**Qualified Sample Data Due To Insufficient Sample Preservation - Temperature
Surface Water Sampling Events
Clean Harbors Canada Inc.
Sarnia, Ontario
February to December 2018**

Lab Report #	Parameter	Associated Sample ID	Temp. Upon Receipt at Laboratory (°C)	Required Temperature (°C)	Analyte	Qualified Result	Units
L2060595	SVOCs	EQ POND DISCHARGE	20	10	2,4-Dinitrotoluene	0.40 UJ	µg/L
L2060595	SVOCs	EQ POND DISCHARGE	20	10	2,6-Dinitrotoluene	0.40 UJ	µg/L
L2060595	SVOCs	EQ POND DISCHARGE	20	10	2-Chlorophenol	0.30 UJ	µg/L
L2060595	SVOCs	EQ POND DISCHARGE	20	10	2-Methylnaphthalene	0.40 UJ	µg/L
L2060595	SVOCs	EQ POND DISCHARGE	20	10	3,3'-Dichlorobenzidine	0.40 UJ	µg/L
L2060595	SVOCs	EQ POND DISCHARGE	20	10	4-Chloroaniline	0.40 UJ	µg/L
L2060595	SVOCs	EQ POND DISCHARGE	20	10	Acenaphthene	0.20 UJ	µg/L
L2060595	SVOCs	EQ POND DISCHARGE	20	10	Acenaphthylene	0.20 UJ	µg/L
L2060595	SVOCs	EQ POND DISCHARGE	20	10	Anthracene	0.20 UJ	µg/L
L2060595	SVOCs	EQ POND DISCHARGE	20	10	Benzo(a)anthracene	0.20 UJ	µg/L
L2060595	SVOCs	EQ POND DISCHARGE	20	10	Benzo(a)pyrene	0.050 UJ	µg/L
L2060595	SVOCs	EQ POND DISCHARGE	20	10	Benzo(b)fluoranthene	0.20 UJ	µg/L
L2060595	SVOCs	EQ POND DISCHARGE	20	10	Benzo(g,h,i)perylene	0.20 UJ	µg/L
L2060595	SVOCs	EQ POND DISCHARGE	20	10	Benzo(k)fluoranthene	0.20 UJ	µg/L
L2060595	SVOCs	EQ POND DISCHARGE	20	10	bis(2-Chloroethyl)ether	0.40 UJ	µg/L
L2060595	SVOCs	EQ POND DISCHARGE	20	10	bis(2-Ethylhexyl)phthalate (DEHP)	2.0 UJ	µg/L
L2060595	SVOCs	EQ POND DISCHARGE	20	10	Chrysene	0.20 UJ	µg/L
L2060595	SVOCs	EQ POND DISCHARGE	20	10	Dibenz(a,h)anthracene	0.20 UJ	µg/L
L2060595	SVOCs	EQ POND DISCHARGE	20	10	Diethyl phthalate	0.20 UJ	µg/L
L2060595	SVOCs	EQ POND DISCHARGE	20	10	Dimethyl phthalate	0.20 UJ	µg/L
L2060595	SVOCs	EQ POND DISCHARGE	20	10	Fluoranthene	0.20 UJ	µg/L
L2060595	SVOCs	EQ POND DISCHARGE	20	10	Fluorene	0.20 UJ	µg/L
L2060595	SVOCs	EQ POND DISCHARGE	20	10	Hexachlorobenzene	0.040 UJ	µg/L
L2060595	SVOCs	EQ POND DISCHARGE	20	10	Hexachlorobutadiene	0.20 UJ	µg/L
L2060595	SVOCs	EQ POND DISCHARGE	20	10	Indeno(1,2,3-cd)pyrene	0.20 UJ	µg/L
L2060595	SVOCs	EQ POND DISCHARGE	20	10	Naphthalene	0.20 UJ	µg/L
L2060595	SVOCs	EQ POND DISCHARGE	20	10	Pentachlorophenol	0.50 UJ	µg/L
L2060595	SVOCs	EQ POND DISCHARGE	20	10	Perylene	0.20 UJ	µg/L
L2060595	SVOCs	EQ POND DISCHARGE	20	10	Phenanthrene	0.20 UJ	µg/L
L2060595	SVOCs	EQ POND DISCHARGE	20	10	Pyrene	0.20 UJ	µg/L
L2060595	VOCs	EQ POND DISCHARGE	20	10	1,1,1,2-Tetrachloroethane	0.50 UJ	µg/L
L2060595	VOCs	EQ POND DISCHARGE	20	10	1,1,1-Trichloroethane	0.50 UJ	µg/L
L2060595	VOCs	EQ POND DISCHARGE	20	10	1,1,2,2-Tetrachloroethane	0.50 UJ	µg/L

Table 4

**Qualified Sample Data Due To Insufficient Sample Preservation - Temperature
Surface Water Sampling Events
Clean Harbors Canada Inc.
Sarnia, Ontario
February to December 2018**

Lab Report #	Parameter	Associated Sample ID	Temp. Upon Receipt at Laboratory (°C)	Required Temperature (°C)	Analyte	Qualified Result	Units
L2060595	VOCs	EQ POND DISCHARGE	20	10	1,1,2-Trichloroethane	0.50 UJ	µg/L
L2060595	VOCs	EQ POND DISCHARGE	20	10	1,1-Dichloroethane	0.50 UJ	µg/L
L2060595	VOCs	EQ POND DISCHARGE	20	10	1,1-Dichloroethene	0.50 UJ	µg/L
L2060595	VOCs	EQ POND DISCHARGE	20	10	1,2-Dibromoethane (Ethylene dibromide)	0.20 UJ	µg/L
L2060595	VOCs	EQ POND DISCHARGE	20	10	1,2-Dichlorobenzene	0.50 UJ	µg/L
L2060595	VOCs	EQ POND DISCHARGE	20	10	1,2-Dichloroethane	0.50 UJ	µg/L
L2060595	VOCs	EQ POND DISCHARGE	20	10	1,2-Dichloropropane	0.50 UJ	µg/L
L2060595	VOCs	EQ POND DISCHARGE	20	10	1,3-Dichlorobenzene	0.50 UJ	µg/L
L2060595	VOCs	EQ POND DISCHARGE	20	10	1,4-Dichlorobenzene	0.50 UJ	µg/L
L2060595	VOCs	EQ POND DISCHARGE	20	10	2-Butanone (Methyl ethyl ketone) (MEK)	20 UJ	µg/L
L2060595	VOCs	EQ POND DISCHARGE	20	10	4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	20 UJ	µg/L
L2060595	VOCs	EQ POND DISCHARGE	20	10	Acetone	20 UJ	µg/L
L2060595	VOCs	EQ POND DISCHARGE	20	10	Benzene	0.50 UJ	µg/L
L2060595	VOCs	EQ POND DISCHARGE	20	10	Bromodichloromethane	1.0 UJ	µg/L
L2060595	VOCs	EQ POND DISCHARGE	20	10	Bromoform	1.0 UJ	µg/L
L2060595	VOCs	EQ POND DISCHARGE	20	10	Bromomethane (Methyl bromide)	0.50 UJ	µg/L
L2060595	VOCs	EQ POND DISCHARGE	20	10	Carbon tetrachloride	0.50 UJ	µg/L
L2060595	VOCs	EQ POND DISCHARGE	20	10	Chlorobenzene	0.50 UJ	µg/L
L2060595	VOCs	EQ POND DISCHARGE	20	10	Chloroethane	1.0 UJ	µg/L
L2060595	VOCs	EQ POND DISCHARGE	20	10	Chloroform (Trichloromethane)	1.0 UJ	µg/L
L2060595	VOCs	EQ POND DISCHARGE	20	10	cis-1,2-Dichloroethene	0.50 UJ	µg/L
L2060595	VOCs	EQ POND DISCHARGE	20	10	cis-1,3-Dichloropropene	0.50 UJ	µg/L
L2060595	VOCs	EQ POND DISCHARGE	20	10	Dibromochloromethane	1.0 UJ	µg/L
L2060595	VOCs	EQ POND DISCHARGE	20	10	Dichlorodifluoromethane (CFC-12)	1.0 UJ	µg/L
L2060595	VOCs	EQ POND DISCHARGE	20	10	Ethylbenzene	0.50 UJ	µg/L
L2060595	VOCs	EQ POND DISCHARGE	20	10	Hexane	0.50 UJ	µg/L
L2060595	VOCs	EQ POND DISCHARGE	20	10	m&p-Xylenes	1.0 UJ	µg/L
L2060595	VOCs	EQ POND DISCHARGE	20	10	Methyl tert butyl ether (MTBE)	0.50 UJ	µg/L
L2060595	VOCs	EQ POND DISCHARGE	20	10	Methylene chloride	2.0 UJ	µg/L
L2060595	VOCs	EQ POND DISCHARGE	20	10	o-Xylene	0.50 UJ	µg/L
L2060595	VOCs	EQ POND DISCHARGE	20	10	Styrene	0.50 UJ	µg/L
L2060595	VOCs	EQ POND DISCHARGE	20	10	Tetrachloroethene	0.50 UJ	µg/L
L2060595	VOCs	EQ POND DISCHARGE	20	10	Toluene	0.50 UJ	µg/L
L2060595	VOCs	EQ POND DISCHARGE	20	10	trans-1,2-Dichloroethene	0.50 UJ	µg/L

Table 4

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Surface Water Sampling Events
Clean Harbors Canada Inc.
Sarnia, Ontario
February to December 2018**

Lab Report #	Parameter	Associated Sample ID	Temp. Upon Receipt at Laboratory (°C)	Required Temperature (°C)	Analyte	Qualified Result	Units
L2060595	VOCs	EQ POND DISCHARGE	20	10	trans-1,3-Dichloropropene	0.50 UJ	µg/L
L2060595	VOCs	EQ POND DISCHARGE	20	10	Trichloroethene	0.50 UJ	µg/L
L2060595	VOCs	EQ POND DISCHARGE	20	10	Trichlorofluoromethane (CFC-11)	1.0 UJ	µg/L
L2060595	VOCs	EQ POND DISCHARGE	20	10	Vinyl chloride	0.50 UJ	µg/L
L2060595	VOCs	EQ POND DISCHARGE	20	10	Trihalomethanes	2.0 UJ	µg/L
L2060595	VOCs	EQ POND DISCHARGE	20	10	Xylenes (total)	1.1 UJ	µg/L
L2060595	Gen Chem	WEST STORM WATER POND	20	10	Alkalinity, total (as CaCO ₃)	160 J	mg/L
L2060595	Gen Chem	WEST STORM WATER POND	20	10	Ammonia-N	1.44 J	mg/L
L2060595	Gen Chem	WEST STORM WATER POND	20	10	Bromide	0.54 J	mg/L
L2060595	Gen Chem	WEST STORM WATER POND	20	10	Chemical oxygen demand (COD)	25 J	mg/L
L2060595	Gen Chem	WEST STORM WATER POND	20	10	Chloride	76.3 J	mg/L
L2060595	Gen Chem	WEST STORM WATER POND	20	10	Chromium VI (hexavalent)	0.0010 UJ	mg/L
L2060595	Gen Chem	WEST STORM WATER POND	20	10	Conductivity	817 J	umhos/cm
L2060595	Gen Chem	WEST STORM WATER POND	20	10	Cyanide (total)	0.0020 UJ	mg/L
L2060595	Gen Chem	WEST STORM WATER POND	20	10	Dissolved organic carbon (DOC) (dissolved)	5.3 J	mg/L
L2060595	Gen Chem	WEST STORM WATER POND	20	10	Fluoride	0.555 J	mg/L
L2060595	Gen Chem	WEST STORM WATER POND	20	10	Nitrate (as N)	0.533 J	mg/L
L2060595	Gen Chem	WEST STORM WATER POND	20	10	Nitrite (as N)	0.010 UJ	mg/L
L2060595	Gen Chem	WEST STORM WATER POND	20	10	pH, lab	7.43 J	s.u.
L2060595	Gen Chem	WEST STORM WATER POND	20	10	Phenolics (total)	0.0013 J	mg/L
L2060595	Gen Chem	WEST STORM WATER POND	20	10	Phosphorus	0.0239 J	mg/L
L2060595	Gen Chem	WEST STORM WATER POND	20	10	Sulfate	138 J	mg/L
L2060595	Gen Chem	WEST STORM WATER POND	20	10	Total dissolved solids (TDS)	465 J	mg/L
L2060595	Gen Chem	WEST STORM WATER POND	20	10	Total kjeldahl nitrogen (TKN)	1.25 J	mg/L
L2060595	Gen Chem	WEST STORM WATER POND	20	10	Total suspended solids (TSS)	6.3 J	mg/L
L2060595	Gen Chem	WEST STORM WATER POND	20	10	Un-ionized ammonia	0.00160 J	mg/L
L2060595	SVOCs	WEST STORM WATER POND	20	10	1,2,4-Trichlorobenzene	0.40 UJ	µg/L
L2060595	SVOCs	WEST STORM WATER POND	20	10	1,2-Dichlorobenzene	0.40 UJ	µg/L
L2060595	SVOCs	WEST STORM WATER POND	20	10	1,3-Dichlorobenzene	0.40 UJ	µg/L
L2060595	SVOCs	WEST STORM WATER POND	20	10	1,4-Dichlorobenzene	0.40 UJ	µg/L
L2060595	SVOCs	WEST STORM WATER POND	20	10	1-Methylnaphthalene	0.40 UJ	µg/L
L2060595	SVOCs	WEST STORM WATER POND	20	10	2,3,4,5-Tetrachlorophenol	0.50 UJ	µg/L

Table 4

**Qualified Sample Data Due To Insufficient Sample Preservation - Temperature
Surface Water Sampling Events
Clean Harbors Canada Inc.
Sarnia, Ontario
February to December 2018**

Lab Report #	Parameter	Associated Sample ID	Temp. Upon Receipt at Laboratory (°C)	Required Temperature (°C)	Analyte	Qualified Result	Units
L2060595	SVOCs	WEST STORM WATER POND	20	10	2,3,4,6-Tetrachlorophenol	0.50 UJ	µg/L
L2060595	SVOCs	WEST STORM WATER POND	20	10	2,3,6-Trichlorophenol	0.50 UJ	µg/L
L2060595	SVOCs	WEST STORM WATER POND	20	10	2,4,5-Trichlorophenol	0.50 UJ	µg/L
L2060595	SVOCs	WEST STORM WATER POND	20	10	2,4,6-Trichlorophenol	0.50 UJ	µg/L
L2060595	SVOCs	WEST STORM WATER POND	20	10	2,4-Dichlorophenol	0.30 UJ	µg/L
L2060595	SVOCs	WEST STORM WATER POND	20	10	2,4-Dimethylphenol	0.50 UJ	µg/L
L2060595	SVOCs	WEST STORM WATER POND	20	10	2,4-Dinitrophenol	1.0 UJ	µg/L
L2060595	SVOCs	WEST STORM WATER POND	20	10	2,4-Dinitrotoluene	0.40 UJ	µg/L
L2060595	SVOCs	WEST STORM WATER POND	20	10	2,6-Dinitrotoluene	0.40 UJ	µg/L
L2060595	SVOCs	WEST STORM WATER POND	20	10	2-Chlorophenol	0.30 UJ	µg/L
L2060595	SVOCs	WEST STORM WATER POND	20	10	2-Methylnaphthalene	0.40 UJ	µg/L
L2060595	SVOCs	WEST STORM WATER POND	20	10	3,3'-Dichlorobenzidine	0.40 UJ	µg/L
L2060595	SVOCs	WEST STORM WATER POND	20	10	4-Chloroaniline	0.40 UJ	µg/L
L2060595	SVOCs	WEST STORM WATER POND	20	10	Acenaphthene	0.20 UJ	µg/L
L2060595	SVOCs	WEST STORM WATER POND	20	10	Acenaphthylene	0.20 UJ	µg/L
L2060595	SVOCs	WEST STORM WATER POND	20	10	Anthracene	0.20 UJ	µg/L
L2060595	SVOCs	WEST STORM WATER POND	20	10	Benzo(a)anthracene	0.20 UJ	µg/L
L2060595	SVOCs	WEST STORM WATER POND	20	10	Benzo(a)pyrene	0.050 UJ	µg/L
L2060595	SVOCs	WEST STORM WATER POND	20	10	Benzo(b)fluoranthene	0.20 UJ	µg/L
L2060595	SVOCs	WEST STORM WATER POND	20	10	Benzo(g,h,i)perylene	0.20 UJ	µg/L
L2060595	SVOCs	WEST STORM WATER POND	20	10	Benzo(k)fluoranthene	0.20 UJ	µg/L
L2060595	SVOCs	WEST STORM WATER POND	20	10	bis(2-Chloroethyl)ether	0.40 UJ	µg/L
L2060595	SVOCs	WEST STORM WATER POND	20	10	bis(2-Ethylhexyl)phthalate (DEHP)	2.0 UJ	µg/L
L2060595	SVOCs	WEST STORM WATER POND	20	10	Chrysene	0.20 UJ	µg/L
L2060595	SVOCs	WEST STORM WATER POND	20	10	Dibenz(a,h)anthracene	0.20 UJ	µg/L
L2060595	SVOCs	WEST STORM WATER POND	20	10	Diethyl phthalate	0.20 UJ	µg/L
L2060595	SVOCs	WEST STORM WATER POND	20	10	Dimethyl phthalate	0.20 UJ	µg/L
L2060595	SVOCs	WEST STORM WATER POND	20	10	Fluoranthene	0.20 UJ	µg/L
L2060595	SVOCs	WEST STORM WATER POND	20	10	Fluorene	0.20 UJ	µg/L
L2060595	SVOCs	WEST STORM WATER POND	20	10	Hexachlorobenzene	0.040 UJ	µg/L
L2060595	SVOCs	WEST STORM WATER POND	20	10	Hexachlorobutadiene	0.20 UJ	µg/L
L2060595	SVOCs	WEST STORM WATER POND	20	10	Indeno(1,2,3-cd)pyrene	0.20 UJ	µg/L
L2060595	SVOCs	WEST STORM WATER POND	20	10	Naphthalene	0.20 UJ	µg/L
L2060595	SVOCs	WEST STORM WATER POND	20	10	Pentachlorophenol	0.50 UJ	µg/L

Table 4

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Lab Report #	Parameter	Associated Sample ID	Temp. Upon Receipt at Laboratory (°C)	Required Temperature (°C)	Analyte	Qualified Result	Units
L2060595	SVOCs	WEST STORM WATER POND	20	10	Perylene	0.20 UJ	µg/L
L2060595	SVOCs	WEST STORM WATER POND	20	10	Phenanthrene	0.20 UJ	µg/L
L2060595	SVOCs	WEST STORM WATER POND	20	10	Pyrene	0.20 UJ	µg/L
L2060595	VOCs	WEST STORM WATER POND	20	10	1,1,1,2-Tetrachloroethane	0.50 UJ	µg/L
L2060595	VOCs	WEST STORM WATER POND	20	10	1,1,1-Trichloroethane	0.50 UJ	µg/L
L2060595	VOCs	WEST STORM WATER POND	20	10	1,1,2,2-Tetrachloroethane	0.50 UJ	µg/L
L2060595	VOCs	WEST STORM WATER POND	20	10	1,1,2-Trichloroethane	0.50 UJ	µg/L
L2060595	VOCs	WEST STORM WATER POND	20	10	1,1-Dichloroethane	0.50 UJ	µg/L
L2060595	VOCs	WEST STORM WATER POND	20	10	1,1-Dichloroethene	0.50 UJ	µg/L
L2060595	VOCs	WEST STORM WATER POND	20	10	1,2-Dibromoethane (Ethylene dibromide)	0.20 UJ	µg/L
L2060595	VOCs	WEST STORM WATER POND	20	10	1,2-Dichlorobenzene	0.50 UJ	µg/L
L2060595	VOCs	WEST STORM WATER POND	20	10	1,2-Dichloroethane	0.50 UJ	µg/L
L2060595	VOCs	WEST STORM WATER POND	20	10	1,2-Dichloropropane	0.50 UJ	µg/L
L2060595	VOCs	WEST STORM WATER POND	20	10	1,3-Dichlorobenzene	0.50 UJ	µg/L
L2060595	VOCs	WEST STORM WATER POND	20	10	1,4-Dichlorobenzene	0.50 UJ	µg/L
L2060595	VOCs	WEST STORM WATER POND	20	10	2-Butanone (Methyl ethyl ketone) (MEK)	20 UJ	µg/L
L2060595	VOCs	WEST STORM WATER POND	20	10	4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	20 UJ	µg/L
L2060595	VOCs	WEST STORM WATER POND	20	10	Acetone	20 UJ	µg/L
L2060595	VOCs	WEST STORM WATER POND	20	10	Benzene	0.50 UJ	µg/L
L2060595	VOCs	WEST STORM WATER POND	20	10	Bromodichloromethane	1.0 UJ	µg/L
L2060595	VOCs	WEST STORM WATER POND	20	10	Bromoform	1.0 UJ	µg/L
L2060595	VOCs	WEST STORM WATER POND	20	10	Bromomethane (Methyl bromide)	0.50 UJ	µg/L
L2060595	VOCs	WEST STORM WATER POND	20	10	Carbon tetrachloride	0.50 UJ	µg/L
L2060595	VOCs	WEST STORM WATER POND	20	10	Chlorobenzene	0.50 UJ	µg/L
L2060595	VOCs	WEST STORM WATER POND	20	10	Chloroethane	1.0 UJ	µg/L
L2060595	VOCs	WEST STORM WATER POND	20	10	Chloroform (Trichloromethane)	1.0 UJ	µg/L
L2060595	VOCs	WEST STORM WATER POND	20	10	cis-1,2-Dichloroethene	0.50 UJ	µg/L
L2060595	VOCs	WEST STORM WATER POND	20	10	cis-1,3-Dichloropropene	0.50 UJ	µg/L
L2060595	VOCs	WEST STORM WATER POND	20	10	Dibromochloromethane	1.0 UJ	µg/L
L2060595	VOCs	WEST STORM WATER POND	20	10	Dichlorodifluoromethane (CFC-12)	1.0 UJ	µg/L
L2060595	VOCs	WEST STORM WATER POND	20	10	Ethylbenzene	0.50 UJ	µg/L
L2060595	VOCs	WEST STORM WATER POND	20	10	Hexane	0.50 UJ	µg/L
L2060595	VOCs	WEST STORM WATER POND	20	10	m&p-Xylenes	1.0 UJ	µg/L

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Lab Report #	Parameter	Associated Sample ID	Temp. Upon Receipt at Laboratory (°C)	Required Temperature (°C)	Analyte	Qualified Result	Units
L2060595	VOCs	WEST STORM WATER POND	20	10	Methyl tert butyl ether (MTBE)	0.50 UJ	µg/L
L2060595	VOCs	WEST STORM WATER POND	20	10	Methylene chloride	2.0 UJ	µg/L
L2060595	VOCs	WEST STORM WATER POND	20	10	o-Xylene	0.50 UJ	µg/L
L2060595	VOCs	WEST STORM WATER POND	20	10	Styrene	0.50 UJ	µg/L
L2060595	VOCs	WEST STORM WATER POND	20	10	Tetrachloroethene	0.50 UJ	µg/L
L2060595	VOCs	WEST STORM WATER POND	20	10	Toluene	0.50 UJ	µg/L
L2060595	VOCs	WEST STORM WATER POND	20	10	trans-1,2-Dichloroethene	0.50 UJ	µg/L
L2060595	VOCs	WEST STORM WATER POND	20	10	trans-1,3-Dichloropropene	0.50 UJ	µg/L
L2060595	VOCs	WEST STORM WATER POND	20	10	Trichloroethene	0.50 UJ	µg/L
L2060595	VOCs	WEST STORM WATER POND	20	10	Trichlorofluoromethane (CFC-11)	1.0 UJ	µg/L
L2060595	VOCs	WEST STORM WATER POND	20	10	Vinyl chloride	0.50 UJ	µg/L
L2060595	VOCs	WEST STORM WATER POND	20	10	Trihalomethanes	2.0 UJ	µg/L
L2060595	VOCs	WEST STORM WATER POND	20	10	Xylenes (total)	1.1 UJ	µg/L
L2060595	Gen Chem	EAST STORM WATER POND	20	10	Alkalinity, total (as CaCO3)	166 J	mg/L
L2060595	Gen Chem	EAST STORM WATER POND	20	10	Ammonia-N	1.46 J	mg/L
L2060595	Gen Chem	EAST STORM WATER POND	20	10	Bromide	0.54 J	mg/L
L2060595	Gen Chem	EAST STORM WATER POND	20	10	Chemical oxygen demand (COD)	29 J	mg/L
L2060595	Gen Chem	EAST STORM WATER POND	20	10	Chloride	76.4 J	mg/L
L2060595	Gen Chem	EAST STORM WATER POND	20	10	Chromium VI (hexavalent)	0.0010 UJ	mg/L
L2060595	Gen Chem	EAST STORM WATER POND	20	10	Conductivity	815 J	umhos/cm
L2060595	Gen Chem	EAST STORM WATER POND	20	10	Cyanide (total)	0.0020 UJ	mg/L
L2060595	Gen Chem	EAST STORM WATER POND	20	10	Dissolved organic carbon (DOC) (dissolved)	5.3 J	mg/L
L2060595	Gen Chem	EAST STORM WATER POND	20	10	Fluoride	0.541 J	mg/L
L2060595	Gen Chem	EAST STORM WATER POND	20	10	Nitrate (as N)	0.539 J	mg/L
L2060595	Gen Chem	EAST STORM WATER POND	20	10	Nitrite (as N)	0.010 J	mg/L
L2060595	Gen Chem	EAST STORM WATER POND	20	10	pH, lab	7.66 J	s.u.
L2060595	Gen Chem	EAST STORM WATER POND	20	10	Phenolics (total)	0.0023 J	mg/L
L2060595	Gen Chem	EAST STORM WATER POND	20	10	Phosphorus	0.0315 J	mg/L
L2060595	Gen Chem	EAST STORM WATER POND	20	10	Sulfate	138 J	mg/L
L2060595	Gen Chem	EAST STORM WATER POND	20	10	Total dissolved solids (TDS)	470 J	mg/L
L2060595	Gen Chem	EAST STORM WATER POND	20	10	Total kjeldahl nitrogen (TKN)	1.90 J	mg/L
L2060595	Gen Chem	EAST STORM WATER POND	20	10	Total suspended solids (TSS)	7.8 J	mg/L
L2060595	Gen Chem	EAST STORM WATER POND	20	10	Un-ionized ammonia	0.00350 J	mg/L

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L2060595	SVOCs	EAST STORM WATER POND	20	10	1,2,4-Trichlorobenzene	0.40 UJ	µg/L
L2060595	SVOCs	EAST STORM WATER POND	20	10	1,2-Dichlorobenzene	0.40 UJ	µg/L
L2060595	SVOCs	EAST STORM WATER POND	20	10	1,3-Dichlorobenzene	0.40 UJ	µg/L
L2060595	SVOCs	EAST STORM WATER POND	20	10	1,4-Dichlorobenzene	0.40 UJ	µg/L
L2060595	SVOCs	EAST STORM WATER POND	20	10	1-Methylnaphthalene	0.40 UJ	µg/L
L2060595	SVOCs	EAST STORM WATER POND	20	10	2,3,4,5-Tetrachlorophenol	0.50 UJ	µg/L
L2060595	SVOCs	EAST STORM WATER POND	20	10	2,3,4,6-Tetrachlorophenol	0.50 UJ	µg/L
L2060595	SVOCs	EAST STORM WATER POND	20	10	2,3,6-Trichlorophenol	0.50 UJ	µg/L
L2060595	SVOCs	EAST STORM WATER POND	20	10	2,4,5-Trichlorophenol	0.50 UJ	µg/L
L2060595	SVOCs	EAST STORM WATER POND	20	10	2,4,6-Trichlorophenol	0.50 UJ	µg/L
L2060595	SVOCs	EAST STORM WATER POND	20	10	2,4-Dichlorophenol	0.30 UJ	µg/L
L2060595	SVOCs	EAST STORM WATER POND	20	10	2,4-Dimethylphenol	0.50 UJ	µg/L
L2060595	SVOCs	EAST STORM WATER POND	20	10	2,4-Dinitrophenol	1.0 UJ	µg/L
L2060595	SVOCs	EAST STORM WATER POND	20	10	2,4-Dinitrotoluene	0.40 UJ	µg/L
L2060595	SVOCs	EAST STORM WATER POND	20	10	2,6-Dinitrotoluene	0.40 UJ	µg/L
L2060595	SVOCs	EAST STORM WATER POND	20	10	2-Chlorophenol	0.30 UJ	µg/L
L2060595	SVOCs	EAST STORM WATER POND	20	10	2-Methylnaphthalene	0.40 UJ	µg/L
L2060595	SVOCs	EAST STORM WATER POND	20	10	3,3'-Dichlorobenzidine	0.40 UJ	µg/L
L2060595	SVOCs	EAST STORM WATER POND	20	10	4-Chloroaniline	0.40 UJ	µg/L
L2060595	SVOCs	EAST STORM WATER POND	20	10	Acenaphthene	0.20 UJ	µg/L
L2060595	SVOCs	EAST STORM WATER POND	20	10	Acenaphthylene	0.20 UJ	µg/L
L2060595	SVOCs	EAST STORM WATER POND	20	10	Anthracene	0.20 UJ	µg/L
L2060595	SVOCs	EAST STORM WATER POND	20	10	Benzo(a)anthracene	0.20 UJ	µg/L
L2060595	SVOCs	EAST STORM WATER POND	20	10	Benzo(a)pyrene	0.050 UJ	µg/L
L2060595	SVOCs	EAST STORM WATER POND	20	10	Benzo(b)fluoranthene	0.20 UJ	µg/L
L2060595	SVOCs	EAST STORM WATER POND	20	10	Benzo(g,h,i)perylene	0.20 UJ	µg/L
L2060595	SVOCs	EAST STORM WATER POND	20	10	Benzo(k)fluoranthene	0.20 UJ	µg/L
L2060595	SVOCs	EAST STORM WATER POND	20	10	bis(2-Chloroethyl)ether	0.40 UJ	µg/L
L2060595	SVOCs	EAST STORM WATER POND	20	10	bis(2-Ethylhexyl)phthalate (DEHP)	7.0 J	µg/L
L2060595	SVOCs	EAST STORM WATER POND	20	10	Chrysene	0.20 UJ	µg/L
L2060595	SVOCs	EAST STORM WATER POND	20	10	Dibenz(a,h)anthracene	0.20 UJ	µg/L
L2060595	SVOCs	EAST STORM WATER POND	20	10	Diethyl phthalate	0.20 UJ	µg/L
L2060595	SVOCs	EAST STORM WATER POND	20	10	Dimethyl phthalate	0.20 UJ	µg/L

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L2060595	SVOCs	EAST STORM WATER POND	20	10	Fluoranthene	0.20 UJ	µg/L
L2060595	SVOCs	EAST STORM WATER POND	20	10	Fluorene	0.20 UJ	µg/L
L2060595	SVOCs	EAST STORM WATER POND	20	10	Hexachlorobenzene	0.040 UJ	µg/L
L2060595	SVOCs	EAST STORM WATER POND	20	10	Hexachlorobutadiene	0.20 UJ	µg/L
L2060595	SVOCs	EAST STORM WATER POND	20	10	Indeno(1,2,3-cd)pyrene	0.20 UJ	µg/L
L2060595	SVOCs	EAST STORM WATER POND	20	10	Naphthalene	0.20 UJ	µg/L
L2060595	SVOCs	EAST STORM WATER POND	20	10	Pentachlorophenol	0.50 UJ	µg/L
L2060595	SVOCs	EAST STORM WATER POND	20	10	Perylene	0.20 UJ	µg/L
L2060595	SVOCs	EAST STORM WATER POND	20	10	Phenanthrene	0.20 UJ	µg/L
L2060595	SVOCs	EAST STORM WATER POND	20	10	Pyrene	0.20 UJ	µg/L
L2060595	VOCs	EAST STORM WATER POND	20	10	1,1,1,2-Tetrachloroethane	0.50 UJ	µg/L
L2060595	VOCs	EAST STORM WATER POND	20	10	1,1,1-Trichloroethane	0.50 UJ	µg/L
L2060595	VOCs	EAST STORM WATER POND	20	10	1,1,2,2-Tetrachloroethane	0.50 UJ	µg/L
L2060595	VOCs	EAST STORM WATER POND	20	10	1,1,2-Trichloroethane	0.50 UJ	µg/L
L2060595	VOCs	EAST STORM WATER POND	20	10	1,1-Dichloroethane	0.50 UJ	µg/L
L2060595	VOCs	EAST STORM WATER POND	20	10	1,1-Dichloroethene	0.50 UJ	µg/L
L2060595	VOCs	EAST STORM WATER POND	20	10	1,2-Dibromoethane (Ethylene dibromide)	0.20 UJ	µg/L
L2060595	VOCs	EAST STORM WATER POND	20	10	1,2-Dichlorobenzene	0.50 UJ	µg/L
L2060595	VOCs	EAST STORM WATER POND	20	10	1,2-Dichloroethane	0.50 UJ	µg/L
L2060595	VOCs	EAST STORM WATER POND	20	10	1,2-Dichloropropane	0.50 UJ	µg/L
L2060595	VOCs	EAST STORM WATER POND	20	10	1,3-Dichlorobenzene	0.50 UJ	µg/L
L2060595	VOCs	EAST STORM WATER POND	20	10	1,4-Dichlorobenzene	0.50 UJ	µg/L
L2060595	VOCs	EAST STORM WATER POND	20	10	2-Butanone (Methyl ethyl ketone) (MEK)	20 UJ	µg/L
L2060595	VOCs	EAST STORM WATER POND	20	10	4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	20 UJ	µg/L
L2060595	VOCs	EAST STORM WATER POND	20	10	Acetone	20 UJ	µg/L
L2060595	VOCs	EAST STORM WATER POND	20	10	Benzene	0.50 UJ	µg/L
L2060595	VOCs	EAST STORM WATER POND	20	10	Bromodichloromethane	1.0 UJ	µg/L
L2060595	VOCs	EAST STORM WATER POND	20	10	Bromoform	1.0 UJ	µg/L
L2060595	VOCs	EAST STORM WATER POND	20	10	Bromomethane (Methyl bromide)	0.50 UJ	µg/L
L2060595	VOCs	EAST STORM WATER POND	20	10	Carbon tetrachloride	0.50 UJ	µg/L
L2060595	VOCs	EAST STORM WATER POND	20	10	Chlorobenzene	0.50 UJ	µg/L
L2060595	VOCs	EAST STORM WATER POND	20	10	Chloroethane	1.0 UJ	µg/L
L2060595	VOCs	EAST STORM WATER POND	20	10	Chloroform (Trichloromethane)	1.0 UJ	µg/L

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L2060595	VOCs	EAST STORM WATER POND	20	10	cis-1,2-Dichloroethene	0.50 UJ	µg/L
L2060595	VOCs	EAST STORM WATER POND	20	10	cis-1,3-Dichloropropene	0.50 UJ	µg/L
L2060595	VOCs	EAST STORM WATER POND	20	10	Dibromochloromethane	1.0 UJ	µg/L
L2060595	VOCs	EAST STORM WATER POND	20	10	Dichlorodifluoromethane (CFC-12)	1.0 UJ	µg/L
L2060595	VOCs	EAST STORM WATER POND	20	10	Ethylbenzene	0.50 UJ	µg/L
L2060595	VOCs	EAST STORM WATER POND	20	10	Hexane	0.50 UJ	µg/L
L2060595	VOCs	EAST STORM WATER POND	20	10	m&p-Xylenes	1.0 UJ	µg/L
L2060595	VOCs	EAST STORM WATER POND	20	10	Methyl tert butyl ether (MTBE)	0.50 UJ	µg/L
L2060595	VOCs	EAST STORM WATER POND	20	10	Methylene chloride	2.0 UJ	µg/L
L2060595	VOCs	EAST STORM WATER POND	20	10	o-Xylene	0.50 UJ	µg/L
L2060595	VOCs	EAST STORM WATER POND	20	10	Styrene	0.50 UJ	µg/L
L2060595	VOCs	EAST STORM WATER POND	20	10	Tetrachloroethene	0.50 UJ	µg/L
L2060595	VOCs	EAST STORM WATER POND	20	10	Toluene	0.50 UJ	µg/L
L2060595	VOCs	EAST STORM WATER POND	20	10	trans-1,2-Dichloroethene	0.50 UJ	µg/L
L2060595	VOCs	EAST STORM WATER POND	20	10	trans-1,3-Dichloropropene	0.50 UJ	µg/L
L2060595	VOCs	EAST STORM WATER POND	20	10	Trichloroethene	0.50 UJ	µg/L
L2060595	VOCs	EAST STORM WATER POND	20	10	Trichlorofluoromethane (CFC-11)	1.0 UJ	µg/L
L2060595	VOCs	EAST STORM WATER POND	20	10	Vinyl chloride	0.50 UJ	µg/L
L2060595	VOCs	EAST STORM WATER POND	20	10	Trihalomethanes	2.0 UJ	µg/L
L2060595	VOCs	EAST STORM WATER POND	20	10	Xylenes (total)	1.1 UJ	µg/L
L2060595	Gen Chem	STN 6A	20	10	Alkalinity, total (as CaCO3)	90 J	mg/L
L2060595	Gen Chem	STN 6A	20	10	Ammonia-N	2.32 J	mg/L
L2060595	Gen Chem	STN 6A	20	10	Bromide	0.10 UJ	mg/L
L2060595	Gen Chem	STN 6A	20	10	Chemical oxygen demand (COD)	51 J	mg/L
L2060595	Gen Chem	STN 6A	20	10	Chloride	14.4 J	mg/L
L2060595	Gen Chem	STN 6A	20	10	Chromium VI (hexavalent)	0.0010 UJ	mg/L
L2060595	Gen Chem	STN 6A	20	10	Conductivity	323 J	umhos/cm
L2060595	Gen Chem	STN 6A	20	10	Cyanide (total)	0.0020 UJ	mg/L
L2060595	Gen Chem	STN 6A	20	10	Dissolved organic carbon (DOC) (dissolved)	9.6 J	mg/L
L2060595	Gen Chem	STN 6A	20	10	Fluoride	0.189 J	mg/L
L2060595	Gen Chem	STN 6A	20	10	Nitrate (as N)	4.86 J	mg/L
L2060595	Gen Chem	STN 6A	20	10	Nitrite (as N)	0.037 J	mg/L
L2060595	Gen Chem	STN 6A	20	10	pH, lab	7.46 J	s.u.

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L2060595	Gen Chem	STN 6A	20	10	Phenolics (total)	0.0010 UJ	mg/L
L2060595	Gen Chem	STN 6A	20	10	Phosphorus	0.323 J	mg/L
L2060595	Gen Chem	STN 6A	20	10	Sulfate	30.2 J	mg/L
L2060595	Gen Chem	STN 6A	20	10	Total dissolved solids (TDS)	227 J	mg/L
L2060595	Gen Chem	STN 6A	20	10	Total kjeldahl nitrogen (TKN)	4.40 J	mg/L
L2060595	Gen Chem	STN 6A	20	10	Total suspended solids (TSS)	31.0 J	mg/L
L2060595	Gen Chem	STN 6A	20	10	Un-ionized ammonia	0.00512 J	mg/L
L2061637	Microtox	EQ POND DISCHARGE	11.8	10	EC 20 (15min)	>100 J	%
L2061637	Microtox	EQ POND DISCHARGE	11.8	10	EC 20 (5min)	>100 J	%
L2061637	Microtox	EQ POND DISCHARGE	11.8	10	EC 50 (15min)	>100 J	%
L2061637	Microtox	EQ POND DISCHARGE	11.8	10	EC 50 (5min)	>100 J	%
L2083897	Gen Chem	EQ POND DISCHARGE	14.8	10	Alkalinity, total (as CaCO ₃)	142 J	mg/L
L2083897	Gen Chem	EQ POND DISCHARGE	14.8	10	Ammonia-N	0.827 J	mg/L
L2083897	Gen Chem	EQ POND DISCHARGE	14.8	10	Bromide	1.00 J	mg/L
L2083897	Gen Chem	EQ POND DISCHARGE	14.8	10	Chemical oxygen demand (COD)	17 J	mg/L
L2083897	Gen Chem	EQ POND DISCHARGE	14.8	10	Chloride	67.6 J	mg/L
L2083897	Gen Chem	EQ POND DISCHARGE	14.8	10	Chromium VI (hexavalent)	0.0010 UJ	mg/L
L2083897	Gen Chem	EQ POND DISCHARGE	14.8	10	Conductivity	780 J	umhos/cm
L2083897	Gen Chem	EQ POND DISCHARGE	14.8	10	Cyanide (total)	0.0020 UJ	mg/L
L2083897	Gen Chem	EQ POND DISCHARGE	14.8	10	Dissolved organic carbon (DOC) (dissolved)	4.4 J	mg/L
L2083897	Gen Chem	EQ POND DISCHARGE	14.8	10	Fluoride	0.483 J	mg/L
L2083897	Gen Chem	EQ POND DISCHARGE	14.8	10	Nitrate (as N)	0.776 J	mg/L
L2083897	Gen Chem	EQ POND DISCHARGE	14.8	10	Nitrite (as N)	0.017 J	mg/L
L2083897	Gen Chem	EQ POND DISCHARGE	14.8	10	pH, lab	8.06 J	s.u.
L2083897	Gen Chem	EQ POND DISCHARGE	14.8	10	Phenolics (total)	0.0010 UJ	mg/L
L2083897	Gen Chem	EQ POND DISCHARGE	14.8	10	Phosphorus	0.0255 J	mg/L
L2083897	Gen Chem	EQ POND DISCHARGE	14.8	10	Sulfate	156 J	mg/L
L2083897	Gen Chem	EQ POND DISCHARGE	14.8	10	Total dissolved solids (TDS)	482 J	mg/L
L2083897	Gen Chem	EQ POND DISCHARGE	14.8	10	Total kjeldahl nitrogen (TKN)	0.80 J	mg/L
L2083897	Gen Chem	EQ POND DISCHARGE	14.8	10	Total suspended solids (TSS)	5.6 J	mg/L
L2083897	Gen Chem	EQ POND DISCHARGE	14.8	10	Un-ionized ammonia	0.00928 J	mg/L

Table 4

**Qualified Sample Data Due To Insufficient Sample Preservation - Temperature
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Lab Report #	Parameter	Associated Sample ID	Temp. Upon Receipt at Laboratory (°C)	Required Temperature (°C)	Analyte	Qualified Result	Units
L2083897	SVOCs	EQ POND DISCHARGE	14.8	10	1,2,4-Trichlorobenzene	0.40 UJ	µg/L
L2083897	SVOCs	EQ POND DISCHARGE	14.8	10	1,2-Dichlorobenzene	0.40 UJ	µg/L
L2083897	SVOCs	EQ POND DISCHARGE	14.8	10	1,3-Dichlorobenzene	0.40 UJ	µg/L
L2083897	SVOCs	EQ POND DISCHARGE	14.8	10	1,4-Dichlorobenzene	0.40 UJ	µg/L
L2083897	SVOCs	EQ POND DISCHARGE	14.8	10	1-Methylnaphthalene	0.40 UJ	µg/L
L2083897	SVOCs	EQ POND DISCHARGE	14.8	10	2,3,4,5-Tetrachlorophenol	0.50 UJ	µg/L
L2083897	SVOCs	EQ POND DISCHARGE	14.8	10	2,3,4,6-Tetrachlorophenol	0.50 UJ	µg/L
L2083897	SVOCs	EQ POND DISCHARGE	14.8	10	2,3,6-Trichlorophenol	0.50 UJ	µg/L
L2083897	SVOCs	EQ POND DISCHARGE	14.8	10	2,4,5-Trichlorophenol	0.50 UJ	µg/L
L2083897	SVOCs	EQ POND DISCHARGE	14.8	10	2,4,6-Trichlorophenol	0.50 UJ	µg/L
L2083897	SVOCs	EQ POND DISCHARGE	14.8	10	2,4-Dichlorophenol	0.30 UJ	µg/L
L2083897	SVOCs	EQ POND DISCHARGE	14.8	10	2,4-Dimethylphenol	0.50 UJ	µg/L
L2083897	SVOCs	EQ POND DISCHARGE	14.8	10	2,4-Dinitrophenol	1.0 UJ	µg/L
L2083897	SVOCs	EQ POND DISCHARGE	14.8	10	2,4-Dinitrotoluene	0.40 UJ	µg/L
L2083897	SVOCs	EQ POND DISCHARGE	14.8	10	2,6-Dinitrotoluene	0.40 UJ	µg/L
L2083897	SVOCs	EQ POND DISCHARGE	14.8	10	2-Chlorophenol	0.30 UJ	µg/L
L2083897	SVOCs	EQ POND DISCHARGE	14.8	10	2-Methylnaphthalene	0.40 UJ	µg/L
L2083897	SVOCs	EQ POND DISCHARGE	14.8	10	3,3'-Dichlorobenzidine	0.40 UJ	µg/L
L2083897	SVOCs	EQ POND DISCHARGE	14.8	10	4-Chloroaniline	0.40 UJ	µg/L
L2083897	SVOCs	EQ POND DISCHARGE	14.8	10	Acenaphthene	0.20 UJ	µg/L
L2083897	SVOCs	EQ POND DISCHARGE	14.8	10	Acenaphthylene	0.20 UJ	µg/L
L2083897	SVOCs	EQ POND DISCHARGE	14.8	10	Anthracene	0.20 UJ	µg/L
L2083897	SVOCs	EQ POND DISCHARGE	14.8	10	Benzo(a)anthracene	0.20 UJ	µg/L
L2083897	SVOCs	EQ POND DISCHARGE	14.8	10	Benzo(a)pyrene	0.050 UJ	µg/L
L2083897	SVOCs	EQ POND DISCHARGE	14.8	10	Benzo(b)fluoranthene	0.20 UJ	µg/L
L2083897	SVOCs	EQ POND DISCHARGE	14.8	10	Benzo(g,h,i)perylene	0.20 UJ	µg/L
L2083897	SVOCs	EQ POND DISCHARGE	14.8	10	Benzo(k)fluoranthene	0.20 UJ	µg/L
L2083897	SVOCs	EQ POND DISCHARGE	14.8	10	bis(2-Chloroethyl)ether	0.40 UJ	µg/L
L2083897	SVOCs	EQ POND DISCHARGE	14.8	10	bis(2-Ethylhexyl)phthalate (DEHP)	2.0 UJ	µg/L
L2083897	SVOCs	EQ POND DISCHARGE	14.8	10	Dibenz(a,h)anthracene	0.20 UJ	µg/L
L2083897	SVOCs	EQ POND DISCHARGE	14.8	10	Diethyl phthalate	0.20 UJ	µg/L
L2083897	SVOCs	EQ POND DISCHARGE	14.8	10	Dimethyl phthalate	0.20 UJ	µg/L
L2083897	SVOCs	EQ POND DISCHARGE	14.8	10	Chrysene	0.20 UJ	µg/L
L2083897	SVOCs	EQ POND DISCHARGE	14.8	10	Fluoranthene	0.20 UJ	µg/L

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Lab Report #	Parameter	Associated Sample ID	Temp. Upon Receipt at Laboratory (°C)	Required Temperature (°C)	Analyte	Qualified Result	Units
L2083897	SVOCs	EQ POND DISCHARGE	14.8	10	Fluorene	0.20 UJ	µg/L
L2083897	SVOCs	EQ POND DISCHARGE	14.8	10	Hexachlorobenzene	0.040 UJ	µg/L
L2083897	SVOCs	EQ POND DISCHARGE	14.8	10	Hexachlorobutadiene	0.20 UJ	µg/L
L2083897	SVOCs	EQ POND DISCHARGE	14.8	10	Indeno(1,2,3-cd)pyrene	0.20 UJ	µg/L
L2083897	SVOCs	EQ POND DISCHARGE	14.8	10	Naphthalene	0.20 UJ	µg/L
L2083897	SVOCs	EQ POND DISCHARGE	14.8	10	Pentachlorophenol	0.50 UJ	µg/L
L2083897	SVOCs	EQ POND DISCHARGE	14.8	10	Perylene	0.20 UJ	µg/L
L2083897	SVOCs	EQ POND DISCHARGE	14.8	10	Phenanthrene	0.20 UJ	µg/L
L2083897	SVOCs	EQ POND DISCHARGE	14.8	10	Pyrene	0.20 UJ	µg/L
L2083897	VOCs	EQ POND DISCHARGE	14.8	10	1,1,1,2-Tetrachloroethane	0.50 UJ	µg/L
L2083897	VOCs	EQ POND DISCHARGE	14.8	10	1,1,1-Trichloroethane	0.50 UJ	µg/L
L2083897	VOCs	EQ POND DISCHARGE	14.8	10	1,1,2,2-Tetrachloroethane	0.50 UJ	µg/L
L2083897	VOCs	EQ POND DISCHARGE	14.8	10	1,1,2-Trichloroethane	0.50 UJ	µg/L
L2083897	VOCs	EQ POND DISCHARGE	14.8	10	1,1-Dichloroethane	0.50 UJ	µg/L
L2083897	VOCs	EQ POND DISCHARGE	14.8	10	1,1-Dichloroethene	0.50 UJ	µg/L
L2083897	VOCs	EQ POND DISCHARGE	14.8	10	1,2-Dibromoethane (Ethylene dibromide)	0.20 UJ	µg/L
L2083897	VOCs	EQ POND DISCHARGE	14.8	10	1,2-Dichlorobenzene	0.50 UJ	µg/L
L2083897	VOCs	EQ POND DISCHARGE	14.8	10	1,2-Dichloroethane	0.50 UJ	µg/L
L2083897	VOCs	EQ POND DISCHARGE	14.8	10	1,2-Dichloropropane	0.50 UJ	µg/L
L2083897	VOCs	EQ POND DISCHARGE	14.8	10	1,3-Dichlorobenzene	0.50 UJ	µg/L
L2083897	VOCs	EQ POND DISCHARGE	14.8	10	1,4-Dichlorobenzene	0.50 UJ	µg/L
L2083897	VOCs	EQ POND DISCHARGE	14.8	10	2-Butanone (Methyl ethyl ketone) (MEK)	20 UJ	µg/L
L2083897	VOCs	EQ POND DISCHARGE	14.8	10	4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	20 UJ	µg/L
L2083897	VOCs	EQ POND DISCHARGE	14.8	10	Acetone	20 UJ	µg/L
L2083897	VOCs	EQ POND DISCHARGE	14.8	10	Benzene	0.50 UJ	µg/L
L2083897	VOCs	EQ POND DISCHARGE	14.8	10	Bromodichloromethane	1.0 UJ	µg/L
L2083897	VOCs	EQ POND DISCHARGE	14.8	10	Bromoform	1.0 UJ	µg/L
L2083897	VOCs	EQ POND DISCHARGE	14.8	10	Bromomethane (Methyl bromide)	0.50 UJ	µg/L
L2083897	VOCs	EQ POND DISCHARGE	14.8	10	Carbon tetrachloride	0.50 UJ	µg/L
L2083897	VOCs	EQ POND DISCHARGE	14.8	10	Chlorobenzene	0.50 UJ	µg/L
L2083897	VOCs	EQ POND DISCHARGE	14.8	10	Chloroethane	1.0 UJ	µg/L
L2083897	VOCs	EQ POND DISCHARGE	14.8	10	Chloroform (Trichloromethane)	1.0 UJ	µg/L
L2083897	VOCs	EQ POND DISCHARGE	14.8	10	cis-1,2-Dichloroethene	0.50 UJ	µg/L

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L2083897	VOCs	EQ POND DISCHARGE	14.8	10	cis-1,3-Dichloropropene	0.50 UJ	µg/L
L2083897	VOCs	EQ POND DISCHARGE	14.8	10	Dibromochloromethane	1.0 UJ	µg/L
L2083897	VOCs	EQ POND DISCHARGE	14.8	10	Dichlorodifluoromethane (CFC-12)	1.0 UJ	µg/L
L2083897	VOCs	EQ POND DISCHARGE	14.8	10	Ethylbenzene	0.50 UJ	µg/L
L2083897	VOCs	EQ POND DISCHARGE	14.8	10	Hexane	0.50 UJ	µg/L
L2083897	VOCs	EQ POND DISCHARGE	14.8	10	m&p-Xylenes	1.0 UJ	µg/L
L2083897	VOCs	EQ POND DISCHARGE	14.8	10	Methyl tert butyl ether (MTBE)	0.50 UJ	µg/L
L2083897	VOCs	EQ POND DISCHARGE	14.8	10	Methylene chloride	2.0 UJ	µg/L
L2083897	VOCs	EQ POND DISCHARGE	14.8	10	o-Xylene	0.50 UJ	µg/L
L2083897	VOCs	EQ POND DISCHARGE	14.8	10	Styrene	0.50 UJ	µg/L
L2083897	VOCs	EQ POND DISCHARGE	14.8	10	Tetrachloroethene	0.50 UJ	µg/L
L2083897	VOCs	EQ POND DISCHARGE	14.8	10	Toluene	0.50 UJ	µg/L
L2083897	VOCs	EQ POND DISCHARGE	14.8	10	trans-1,2-Dichloroethene	0.50 UJ	µg/L
L2083897	VOCs	EQ POND DISCHARGE	14.8	10	trans-1,3-Dichloropropene	0.50 UJ	µg/L
L2083897	VOCs	EQ POND DISCHARGE	14.8	10	Trichloroethene	0.50 UJ	µg/L
L2083897	VOCs	EQ POND DISCHARGE	14.8	10	Trichlorofluoromethane (CFC-11)	1.0 UJ	µg/L
L2083897	VOCs	EQ POND DISCHARGE	14.8	10	Vinyl chloride	0.50 UJ	µg/L
L2083897	VOCs	EQ POND DISCHARGE	14.8	10	Trihalomethanes	2.0 UJ	µg/L
L2083897	VOCs	EQ POND DISCHARGE	14.8	10	Xylenes (total)	1.1 UJ	µg/L
L2083897	Gen Chem	WEST STORM WATER POND	14.8	10	Alkalinity, total (as CaCO3)	142 J	mg/L
L2083897	Gen Chem	WEST STORM WATER POND	14.8	10	Ammonia-N	0.729 J	mg/L
L2083897	Gen Chem	WEST STORM WATER POND	14.8	10	Bromide	0.88 J	mg/L
L2083897	Gen Chem	WEST STORM WATER POND	14.8	10	Chemical oxygen demand (COD)	30 J	mg/L
L2083897	Gen Chem	WEST STORM WATER POND	14.8	10	Chloride	63.4 J	mg/L
L2083897	Gen Chem	WEST STORM WATER POND	14.8	10	Chromium VI (hexavalent)	0.0010 UJ	mg/L
L2083897	Gen Chem	WEST STORM WATER POND	14.8	10	Conductivity	760 J	umhos/cm
L2083897	Gen Chem	WEST STORM WATER POND	14.8	10	Cyanide (total)	0.0020 UJ	mg/L
L2083897	Gen Chem	WEST STORM WATER POND	14.8	10	Dissolved organic carbon (DOC) (dissolved)	4.8 J	mg/L
L2083897	Gen Chem	WEST STORM WATER POND	14.8	10	Fluoride	0.494 J	mg/L
L2083897	Gen Chem	WEST STORM WATER POND	14.8	10	Nitrate (as N)	0.530 J	mg/L
L2083897	Gen Chem	WEST STORM WATER POND	14.8	10	Nitrite (as N)	0.011 J	mg/L
L2083897	Gen Chem	WEST STORM WATER POND	14.8	10	pH, lab	8.16 J	s.u.
L2083897	Gen Chem	WEST STORM WATER POND	14.8	10	Phenolics (total)	0.0010 UJ	mg/L

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L2083897	Gen Chem	WEST STORM WATER POND	14.8	10	Phosphorus	0.0260 J	mg/L
L2083897	Gen Chem	WEST STORM WATER POND	14.8	10	Sulfate	156 J	mg/L
L2083897	Gen Chem	WEST STORM WATER POND	14.8	10	Total dissolved solids (TDS)	480 J	mg/L
L2083897	Gen Chem	WEST STORM WATER POND	14.8	10	Total kjeldahl nitrogen (TKN)	1.02 J	mg/L
L2083897	Gen Chem	WEST STORM WATER POND	14.8	10	Total suspended solids (TSS)	5.8 J	mg/L
L2083897	Gen Chem	WEST STORM WATER POND	14.8	10	Un-ionized ammonia	0.00281 J	mg/L
L2083897	SVOCs	WEST STORM WATER POND	14.8	10	1,2,4-Trichlorobenzene	0.40 UJ	µg/L
L2083897	SVOCs	WEST STORM WATER POND	14.8	10	1,2-Dichlorobenzene	0.40 UJ	µg/L
L2083897	SVOCs	WEST STORM WATER POND	14.8	10	1,3-Dichlorobenzene	0.40 UJ	µg/L
L2083897	SVOCs	WEST STORM WATER POND	14.8	10	1,4-Dichlorobenzene	0.40 UJ	µg/L
L2083897	SVOCs	WEST STORM WATER POND	14.8	10	1-Methylnaphthalene	0.40 UJ	µg/L
L2083897	SVOCs	WEST STORM WATER POND	14.8	10	2,3,4,5-Tetrachlorophenol	0.50 UJ	µg/L
L2083897	SVOCs	WEST STORM WATER POND	14.8	10	2,3,4,6-Tetrachlorophenol	0.50 UJ	µg/L
L2083897	SVOCs	WEST STORM WATER POND	14.8	10	2,3,6-Trichlorophenol	0.50 UJ	µg/L
L2083897	SVOCs	WEST STORM WATER POND	14.8	10	2,4,5-Trichlorophenol	0.50 UJ	µg/L
L2083897	SVOCs	WEST STORM WATER POND	14.8	10	2,4,6-Trichlorophenol	0.50 UJ	µg/L
L2083897	SVOCs	WEST STORM WATER POND	14.8	10	2,4-Dichlorophenol	0.30 UJ	µg/L
L2083897	SVOCs	WEST STORM WATER POND	14.8	10	2,4-Dimethylphenol	0.50 UJ	µg/L
L2083897	SVOCs	WEST STORM WATER POND	14.8	10	2,4-Dinitrophenol	1.0 UJ	µg/L
L2083897	SVOCs	WEST STORM WATER POND	14.8	10	2,4-Dinitrotoluene	0.40 UJ	µg/L
L2083897	SVOCs	WEST STORM WATER POND	14.8	10	2,6-Dinitrotoluene	0.40 UJ	µg/L
L2083897	SVOCs	WEST STORM WATER POND	14.8	10	2-Chlorophenol	0.30 UJ	µg/L
L2083897	SVOCs	WEST STORM WATER POND	14.8	10	2-Methylnaphthalene	0.40 UJ	µg/L
L2083897	SVOCs	WEST STORM WATER POND	14.8	10	3,3'-Dichlorobenzidine	0.40 UJ	µg/L
L2083897	SVOCs	WEST STORM WATER POND	14.8	10	4-Chloroaniline	0.40 UJ	µg/L
L2083897	SVOCs	WEST STORM WATER POND	14.8	10	Acenaphthene	0.20 UJ	µg/L
L2083897	SVOCs	WEST STORM WATER POND	14.8	10	Acenaphthylene	0.20 UJ	µg/L
L2083897	SVOCs	WEST STORM WATER POND	14.8	10	Anthracene	0.20 UJ	µg/L
L2083897	SVOCs	WEST STORM WATER POND	14.8	10	Benzo(a)anthracene	0.20 UJ	µg/L
L2083897	SVOCs	WEST STORM WATER POND	14.8	10	Benzo(a)pyrene	0.050 UJ	µg/L
L2083897	SVOCs	WEST STORM WATER POND	14.8	10	Benzo(b)fluoranthene	0.20 UJ	µg/L
L2083897	SVOCs	WEST STORM WATER POND	14.8	10	Benzo(g,h,i)perylene	0.20 UJ	µg/L
L2083897	SVOCs	WEST STORM WATER POND	14.8	10	Benzo(k)fluoranthene	0.20 UJ	µg/L

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Clean Harbors Canada Inc.
Sarnia, Ontario
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Lab Report #	Parameter	Associated Sample ID	Temp. Upon Receipt at Laboratory (°C)	Required Temperature (°C)	Analyte	Qualified Result	Units
L2083897	SVOCs	WEST STORM WATER POND	14.8	10	bis(2-Chloroethyl)ether	0.40 UJ	µg/L
L2083897	SVOCs	WEST STORM WATER POND	14.8	10	bis(2-Ethylhexyl)phthalate (DEHP)	2.0 UJ	µg/L
L2083897	SVOCs	WEST STORM WATER POND	14.8	10	Chrysene	0.20 UJ	µg/L
L2083897	SVOCs	WEST STORM WATER POND	14.8	10	Dibenz(a,h)anthracene	0.20 UJ	µg/L
L2083897	SVOCs	WEST STORM WATER POND	14.8	10	Diethyl phthalate	0.20 UJ	µg/L
L2083897	SVOCs	WEST STORM WATER POND	14.8	10	Dimethyl phthalate	0.20 UJ	µg/L
L2083897	SVOCs	WEST STORM WATER POND	14.8	10	Fluoranthene	0.20 UJ	µg/L
L2083897	SVOCs	WEST STORM WATER POND	14.8	10	Fluorene	0.20 UJ	µg/L
L2083897	SVOCs	WEST STORM WATER POND	14.8	10	Hexachlorobenzene	0.040 UJ	µg/L
L2083897	SVOCs	WEST STORM WATER POND	14.8	10	Hexachlorobutadiene	0.20 UJ	µg/L
L2083897	SVOCs	WEST STORM WATER POND	14.8	10	Indeno(1,2,3-cd)pyrene	0.20 UJ	µg/L
L2083897	SVOCs	WEST STORM WATER POND	14.8	10	Naphthalene	0.20 UJ	µg/L
L2083897	SVOCs	WEST STORM WATER POND	14.8	10	Pentachlorophenol	0.50 UJ	µg/L
L2083897	SVOCs	WEST STORM WATER POND	14.8	10	Perylene	0.20 UJ	µg/L
L2083897	SVOCs	WEST STORM WATER POND	14.8	10	Phenanthrene	0.20 UJ	µg/L
L2083897	SVOCs	WEST STORM WATER POND	14.8	10	Pyrene	0.20 UJ	µg/L
L2083897	VOCs	WEST STORM WATER POND	14.8	10	1,1,1,2-Tetrachloroethane	0.50 UJ	µg/L
L2083897	VOCs	WEST STORM WATER POND	14.8	10	1,1,1-Trichloroethane	0.50 UJ	µg/L
L2083897	VOCs	WEST STORM WATER POND	14.8	10	1,1,2,2-Tetrachloroethane	0.50 UJ	µg/L
L2083897	VOCs	WEST STORM WATER POND	14.8	10	1,1,2-Trichloroethane	0.50 UJ	µg/L
L2083897	VOCs	WEST STORM WATER POND	14.8	10	1,1-Dichloroethane	0.50 UJ	µg/L
L2083897	VOCs	WEST STORM WATER POND	14.8	10	1,1-Dichloroethene	0.50 UJ	µg/L
L2083897	VOCs	WEST STORM WATER POND	14.8	10	1,2-Dibromoethane (Ethylene dibromide)	0.20 UJ	µg/L
L2083897	VOCs	WEST STORM WATER POND	14.8	10	1,2-Dichlorobenzene	0.50 UJ	µg/L
L2083897	VOCs	WEST STORM WATER POND	14.8	10	1,2-Dichloroethane	0.50 UJ	µg/L
L2083897	VOCs	WEST STORM WATER POND	14.8	10	1,2-Dichloropropane	0.50 UJ	µg/L
L2083897	VOCs	WEST STORM WATER POND	14.8	10	1,3-Dichlorobenzene	0.50 UJ	µg/L
L2083897	VOCs	WEST STORM WATER POND	14.8	10	1,4-Dichlorobenzene	0.50 UJ	µg/L
L2083897	VOCs	WEST STORM WATER POND	14.8	10	2-Butanone (Methyl ethyl ketone) (MEK)	20 UJ	µg/L
L2083897	VOCs	WEST STORM WATER POND	14.8	10	4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	20 UJ	µg/L
L2083897	VOCs	WEST STORM WATER POND	14.8	10	Acetone	20 UJ	µg/L
L2083897	VOCs	WEST STORM WATER POND	14.8	10	Benzene	0.50 UJ	µg/L
L2083897	VOCs	WEST STORM WATER POND	14.8	10	Bromodichloromethane	1.0 UJ	µg/L

Table 4

**Qualified Sample Data Due To Insufficient Sample Preservation - Temperature
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Clean Harbors Canada Inc.
Sarnia, Ontario
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Lab Report #	Parameter	Associated Sample ID	Temp. Upon Receipt at Laboratory (°C)	Required Temperature (°C)	Analyte	Qualified Result	Units
L2083897	VOCs	WEST STORM WATER POND	14.8	10	Bromoform	1.0 UJ	µg/L
L2083897	VOCs	WEST STORM WATER POND	14.8	10	Bromomethane (Methyl bromide)	0.50 UJ	µg/L
L2083897	VOCs	WEST STORM WATER POND	14.8	10	Carbon tetrachloride	0.50 UJ	µg/L
L2083897	VOCs	WEST STORM WATER POND	14.8	10	Chlorobenzene	0.50 UJ	µg/L
L2083897	VOCs	WEST STORM WATER POND	14.8	10	Chloroethane	1.0 UJ	µg/L
L2083897	VOCs	WEST STORM WATER POND	14.8	10	Chloroform (Trichloromethane)	1.0 UJ	µg/L
L2083897	VOCs	WEST STORM WATER POND	14.8	10	cis-1,2-Dichloroethene	0.50 UJ	µg/L
L2083897	VOCs	WEST STORM WATER POND	14.8	10	cis-1,3-Dichloropropene	0.50 UJ	µg/L
L2083897	VOCs	WEST STORM WATER POND	14.8	10	Dibromochloromethane	1.0 UJ	µg/L
L2083897	VOCs	WEST STORM WATER POND	14.8	10	Dichlorodifluoromethane (CFC-12)	1.0 UJ	µg/L
L2083897	VOCs	WEST STORM WATER POND	14.8	10	Ethylbenzene	0.50 UJ	µg/L
L2083897	VOCs	WEST STORM WATER POND	14.8	10	Hexane	0.50 UJ	µg/L
L2083897	VOCs	WEST STORM WATER POND	14.8	10	m&p-Xylenes	1.0 UJ	µg/L
L2083897	VOCs	WEST STORM WATER POND	14.8	10	Methyl tert butyl ether (MTBE)	0.50 UJ	µg/L
L2083897	VOCs	WEST STORM WATER POND	14.8	10	Methylene chloride	2.0 UJ	µg/L
L2083897	VOCs	WEST STORM WATER POND	14.8	10	o-Xylene	0.50 UJ	µg/L
L2083897	VOCs	WEST STORM WATER POND	14.8	10	Styrene	0.50 UJ	µg/L
L2083897	VOCs	WEST STORM WATER POND	14.8	10	Tetrachloroethene	0.50 UJ	µg/L
L2083897	VOCs	WEST STORM WATER POND	14.8	10	Toluene	0.50 UJ	µg/L
L2083897	VOCs	WEST STORM WATER POND	14.8	10	trans-1,2-Dichloroethene	0.50 UJ	µg/L
L2083897	VOCs	WEST STORM WATER POND	14.8	10	trans-1,3-Dichloropropene	0.50 UJ	µg/L
L2083897	VOCs	WEST STORM WATER POND	14.8	10	Trichloroethene	0.50 UJ	µg/L
L2083897	VOCs	WEST STORM WATER POND	14.8	10	Trichlorofluoromethane (CFC-11)	1.0 UJ	µg/L
L2083897	VOCs	WEST STORM WATER POND	14.8	10	Vinyl chloride	0.50 UJ	µg/L
L2083897	VOCs	WEST STORM WATER POND	14.8	10	Trihalomethanes	2.0 UJ	µg/L
L2083897	VOCs	WEST STORM WATER POND	14.8	10	Xylenes (total)	1.1 UJ	µg/L
L2083897	Gen Chem	EAST STORM WATER POND	14.8	10	Alkalinity, total (as CaCO ₃)	114 J	mg/L
L2083897	Gen Chem	EAST STORM WATER POND	14.8	10	Ammonia-N	0.959 J	mg/L
L2083897	Gen Chem	EAST STORM WATER POND	14.8	10	Bromide	0.38 J	mg/L
L2083897	Gen Chem	EAST STORM WATER POND	14.8	10	Chemical oxygen demand (COD)	24 J	mg/L
L2083897	Gen Chem	EAST STORM WATER POND	14.8	10	Chloride	42.5 J	mg/L
L2083897	Gen Chem	EAST STORM WATER POND	14.8	10	Chromium VI (hexavalent)	0.0010 UJ	mg/L
L2083897	Gen Chem	EAST STORM WATER POND	14.8	10	Conductivity	657 J	umhos/cm

Table 4

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Lab Report #	Parameter	Associated Sample ID	Temp. Upon Receipt at Laboratory (°C)	Required Temperature (°C)	Analyte	Qualified Result	Units
L2083897	Gen Chem	EAST STORM WATER POND	14.8	10	Cyanide (total)	0.0020 UJ	mg/L
L2083897	Gen Chem	EAST STORM WATER POND	14.8	10	Dissolved organic carbon (DOC) (dissolved)	4.6 J	mg/L
L2083897	Gen Chem	EAST STORM WATER POND	14.8	10	Fluoride	0.549 J	mg/L
L2083897	Gen Chem	EAST STORM WATER POND	14.8	10	Nitrate (as N)	0.320 J	mg/L
L2083897	Gen Chem	EAST STORM WATER POND	14.8	10	Nitrite (as N)	0.010 UJ	mg/L
L2083897	Gen Chem	EAST STORM WATER POND	14.8	10	pH, lab	8.08 J	s.u.
L2083897	Gen Chem	EAST STORM WATER POND	14.8	10	Phenolics (total)	0.0010 UJ	mg/L
L2083897	Gen Chem	EAST STORM WATER POND	14.8	10	Phosphorus	0.0315 J	mg/L
L2083897	Gen Chem	EAST STORM WATER POND	14.8	10	Sulfate	155 J	mg/L
L2083897	Gen Chem	EAST STORM WATER POND	14.8	10	Total dissolved solids (TDS)	429 J	mg/L
L2083897	Gen Chem	EAST STORM WATER POND	14.8	10	Total kjeldahl nitrogen (TKN)	1.02 J	mg/L
L2083897	Gen Chem	EAST STORM WATER POND	14.8	10	Total suspended solids (TSS)	5.2 J	mg/L
L2083897	Gen Chem	EAST STORM WATER POND	14.8	10	Un-ionized ammonia	0.00117 J	mg/L
L2083897	SVOCs	EAST STORM WATER POND	14.8	10	1,2,4-Trichlorobenzene	0.40 UJ	µg/L
L2083897	SVOCs	EAST STORM WATER POND	14.8	10	1,2-Dichlorobenzene	0.40 UJ	µg/L
L2083897	SVOCs	EAST STORM WATER POND	14.8	10	1,3-Dichlorobenzene	0.40 UJ	µg/L
L2083897	SVOCs	EAST STORM WATER POND	14.8	10	1,4-Dichlorobenzene	0.40 UJ	µg/L
L2083897	SVOCs	EAST STORM WATER POND	14.8	10	1-Methylnaphthalene	0.40 UJ	µg/L
L2083897	SVOCs	EAST STORM WATER POND	14.8	10	2,3,4,5-Tetrachlorophenol	0.50 UJ	µg/L
L2083897	SVOCs	EAST STORM WATER POND	14.8	10	2,3,4,6-Tetrachlorophenol	0.50 UJ	µg/L
L2083897	SVOCs	EAST STORM WATER POND	14.8	10	2,3,6-Trichlorophenol	0.50 UJ	µg/L
L2083897	SVOCs	EAST STORM WATER POND	14.8	10	2,4,5-Trichlorophenol	0.50 UJ	µg/L
L2083897	SVOCs	EAST STORM WATER POND	14.8	10	2,4,6-Trichlorophenol	0.50 UJ	µg/L
L2083897	SVOCs	EAST STORM WATER POND	14.8	10	2,4-Dichlorophenol	0.30 UJ	µg/L
L2083897	SVOCs	EAST STORM WATER POND	14.8	10	2,4-Dimethylphenol	0.50 UJ	µg/L
L2083897	SVOCs	EAST STORM WATER POND	14.8	10	2,4-Dinitrophenol	1.0 UJ	µg/L
L2083897	SVOCs	EAST STORM WATER POND	14.8	10	2,4-Dinitrotoluene	0.40 UJ	µg/L
L2083897	SVOCs	EAST STORM WATER POND	14.8	10	2,6-Dinitrotoluene	0.40 UJ	µg/L
L2083897	SVOCs	EAST STORM WATER POND	14.8	10	2-Chlorophenol	0.30 UJ	µg/L
L2083897	SVOCs	EAST STORM WATER POND	14.8	10	2-Methylnaphthalene	0.40 UJ	µg/L
L2083897	SVOCs	EAST STORM WATER POND	14.8	10	3,3'-Dichlorobenzidine	0.40 UJ	µg/L
L2083897	SVOCs	EAST STORM WATER POND	14.8	10	4-Chloroaniline	0.40 UJ	µg/L
L2083897	SVOCs	EAST STORM WATER POND	14.8	10	Acenaphthene	0.20 UJ	µg/L

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L2083897	SVOCs	EAST STORM WATER POND	14.8	10	Acenaphthylene	0.20 UJ	µg/L
L2083897	SVOCs	EAST STORM WATER POND	14.8	10	Anthracene	0.20 UJ	µg/L
L2083897	SVOCs	EAST STORM WATER POND	14.8	10	Benzo(a)anthracene	0.20 UJ	µg/L
L2083897	SVOCs	EAST STORM WATER POND	14.8	10	Benzo(a)pyrene	0.050 UJ	µg/L
L2083897	SVOCs	EAST STORM WATER POND	14.8	10	Benzo(b)fluoranthene	0.20 UJ	µg/L
L2083897	SVOCs	EAST STORM WATER POND	14.8	10	Benzo(g,h,i)perylene	0.20 UJ	µg/L
L2083897	SVOCs	EAST STORM WATER POND	14.8	10	Benzo(k)fluoranthene	0.20 UJ	µg/L
L2083897	SVOCs	EAST STORM WATER POND	14.8	10	bis(2-Chloroethyl)ether	0.40 UJ	µg/L
L2083897	SVOCs	EAST STORM WATER POND	14.8	10	bis(2-Ethylhexyl)phthalate (DEHP)	2.0 UJ	µg/L
L2083897	SVOCs	EAST STORM WATER POND	14.8	10	Chrysene	0.20 UJ	µg/L
L2083897	SVOCs	EAST STORM WATER POND	14.8	10	Dibenz(a,h)anthracene	0.20 UJ	µg/L
L2083897	SVOCs	EAST STORM WATER POND	14.8	10	Diethyl phthalate	0.20 UJ	µg/L
L2083897	SVOCs	EAST STORM WATER POND	14.8	10	Dimethyl phthalate	0.20 UJ	µg/L
L2083897	SVOCs	EAST STORM WATER POND	14.8	10	Fluoranthene	0.20 UJ	µg/L
L2083897	SVOCs	EAST STORM WATER POND	14.8	10	Fluorene	0.20 UJ	µg/L
L2083897	SVOCs	EAST STORM WATER POND	14.8	10	Hexachlorobenzene	0.040 UJ	µg/L
L2083897	SVOCs	EAST STORM WATER POND	14.8	10	Hexachlorobutadiene	0.20 UJ	µg/L
L2083897	SVOCs	EAST STORM WATER POND	14.8	10	Indeno(1,2,3-cd)pyrene	0.20 UJ	µg/L
L2083897	SVOCs	EAST STORM WATER POND	14.8	10	Naphthalene	0.20 UJ	µg/L
L2083897	SVOCs	EAST STORM WATER POND	14.8	10	Pentachlorophenol	0.50 UJ	µg/L
L2083897	SVOCs	EAST STORM WATER POND	14.8	10	Perylene	0.20 UJ	µg/L
L2083897	SVOCs	EAST STORM WATER POND	14.8	10	Phenanthrene	0.20 UJ	µg/L
L2083897	SVOCs	EAST STORM WATER POND	14.8	10	Pyrene	0.20 UJ	µg/L
L2083897	VOCs	EAST STORM WATER POND	14.8	10	1,1,1,2-Tetrachloroethane	0.50 UJ	µg/L
L2083897	VOCs	EAST STORM WATER POND	14.8	10	1,1,1-Trichloroethane	0.50 UJ	µg/L
L2083897	VOCs	EAST STORM WATER POND	14.8	10	1,1,2,2-Tetrachloroethane	0.50 UJ	µg/L
L2083897	VOCs	EAST STORM WATER POND	14.8	10	1,1,2-Trichloroethane	0.50 UJ	µg/L
L2083897	VOCs	EAST STORM WATER POND	14.8	10	1,1-Dichloroethane	0.50 UJ	µg/L
L2083897	VOCs	EAST STORM WATER POND	14.8	10	1,1-Dichloroethene	0.50 UJ	µg/L
L2083897	VOCs	EAST STORM WATER POND	14.8	10	1,2-Dibromoethane (Ethylene dibromide)	0.20 UJ	µg/L
L2083897	VOCs	EAST STORM WATER POND	14.8	10	1,2-Dichlorobenzene	0.50 UJ	µg/L
L2083897	VOCs	EAST STORM WATER POND	14.8	10	1,2-Dichloroethane	0.50 UJ	µg/L
L2083897	VOCs	EAST STORM WATER POND	14.8	10	1,2-Dichloropropane	0.50 UJ	µg/L

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Lab Report #	Parameter	Associated Sample ID	Temp. Upon Receipt at Laboratory (°C)	Required Temperature (°C)	Analyte	Qualified Result	Units
L2083897	VOCs	EAST STORM WATER POND	14.8	10	1,3-Dichlorobenzene	0.50 UJ	µg/L
L2083897	VOCs	EAST STORM WATER POND	14.8	10	1,4-Dichlorobenzene	0.50 UJ	µg/L
L2083897	VOCs	EAST STORM WATER POND	14.8	10	2-Butanone (Methyl ethyl ketone) (MEK)	20 UJ	µg/L
L2083897	VOCs	EAST STORM WATER POND	14.8	10	4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	20 UJ	µg/L
L2083897	VOCs	EAST STORM WATER POND	14.8	10	Acetone	20 UJ	µg/L
L2083897	VOCs	EAST STORM WATER POND	14.8	10	Benzene	0.50 UJ	µg/L
L2083897	VOCs	EAST STORM WATER POND	14.8	10	Bromodichloromethane	1.0 UJ	µg/L
L2083897	VOCs	EAST STORM WATER POND	14.8	10	Bromoform	1.0 UJ	µg/L
L2083897	VOCs	EAST STORM WATER POND	14.8	10	Bromomethane (Methyl bromide)	0.50 UJ	µg/L
L2083897	VOCs	EAST STORM WATER POND	14.8	10	Carbon tetrachloride	0.50 UJ	µg/L
L2083897	VOCs	EAST STORM WATER POND	14.8	10	Chlorobenzene	0.50 UJ	µg/L
L2083897	VOCs	EAST STORM WATER POND	14.8	10	Chloroethane	1.0 UJ	µg/L
L2083897	VOCs	EAST STORM WATER POND	14.8	10	Chloroform (Trichloromethane)	1.0 UJ	µg/L
L2083897	VOCs	EAST STORM WATER POND	14.8	10	cis-1,2-Dichloroethene	0.50 UJ	µg/L
L2083897	VOCs	EAST STORM WATER POND	14.8	10	cis-1,3-Dichloropropene	0.50 UJ	µg/L
L2083897	VOCs	EAST STORM WATER POND	14.8	10	Dibromochloromethane	1.0 UJ	µg/L
L2083897	VOCs	EAST STORM WATER POND	14.8	10	Dichlorodifluoromethane (CFC-12)	1.0 UJ	µg/L
L2083897	VOCs	EAST STORM WATER POND	14.8	10	Ethylbenzene	0.50 UJ	µg/L
L2083897	VOCs	EAST STORM WATER POND	14.8	10	Hexane	0.50 UJ	µg/L
L2083897	VOCs	EAST STORM WATER POND	14.8	10	m&p-Xylenes	1.0 UJ	µg/L
L2083897	VOCs	EAST STORM WATER POND	14.8	10	Methyl tert butyl ether (MTBE)	0.50 UJ	µg/L
L2083897	VOCs	EAST STORM WATER POND	14.8	10	Methylene chloride	2.0 UJ	µg/L
L2083897	VOCs	EAST STORM WATER POND	14.8	10	o-Xylene	0.50 UJ	µg/L
L2083897	VOCs	EAST STORM WATER POND	14.8	10	Styrene	0.50 UJ	µg/L
L2083897	VOCs	EAST STORM WATER POND	14.8	10	Tetrachloroethene	0.50 UJ	µg/L
L2083897	VOCs	EAST STORM WATER POND	14.8	10	Toluene	0.50 UJ	µg/L
L2083897	VOCs	EAST STORM WATER POND	14.8	10	trans-1,2-Dichloroethene	0.50 UJ	µg/L
L2083897	VOCs	EAST STORM WATER POND	14.8	10	trans-1,3-Dichloropropene	0.50 UJ	µg/L
L2083897	VOCs	EAST STORM WATER POND	14.8	10	Trichloroethene	0.50 UJ	µg/L
L2083897	VOCs	EAST STORM WATER POND	14.8	10	Trichlorofluoromethane (CFC-11)	1.0 UJ	µg/L
L2083897	VOCs	EAST STORM WATER POND	14.8	10	Vinyl chloride	0.50 UJ	µg/L
L2083897	VOCs	EAST STORM WATER POND	14.8	10	Trihalomethanes	2.0 UJ	µg/L
L2083897	VOCs	EAST STORM WATER POND	14.8	10	Xylenes (total)	1.1 UJ	µg/L

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Lab Report #	Parameter	Associated Sample ID	Temp. Upon Receipt at Laboratory (°C)	Required Temperature (°C)	Analyte	Qualified Result	Units
L2084377	Microtox	EQ POND DISCHARGE	14.8	10	EC 20 (15min)	>100 J	%
L2084377	Microtox	EQ POND DISCHARGE	14.8	10	EC 20 (5min)	>100 J	%
L2084377	Microtox	EQ POND DISCHARGE	14.8	10	EC 50 (15min)	>100 J	%
L2084377	Microtox	EQ POND DISCHARGE	14.8	10	EC 50 (5min)	>100 J	%
L2155268	Gen Chem	EQ POND DISCHARGE	28.6	10	Alkalinity, total (as CaCO3)	83 J	mg/L
L2155268	Gen Chem	EQ POND DISCHARGE	28.6	10	Ammonia-N	0.252 J	mg/L
L2155268	Gen Chem	EQ POND DISCHARGE	28.6	10	Bromide	0.69 J	mg/L
L2155268	Gen Chem	EQ POND DISCHARGE	28.6	10	Chemical oxygen demand (COD)	25 J	mg/L
L2155268	Gen Chem	EQ POND DISCHARGE	28.6	10	Chloride	59.3 J	mg/L
L2155268	Gen Chem	EQ POND DISCHARGE	28.6	10	Chromium VI (hexavalent)	R	mg/L
L2155268	Gen Chem	EQ POND DISCHARGE	28.6	10	Conductivity	626 J	umhos/cm
L2155268	Gen Chem	EQ POND DISCHARGE	28.6	10	Cyanide (total)	R	mg/L
L2155268	Gen Chem	EQ POND DISCHARGE	28.6	10	Dissolved organic carbon (DOC) (dissolved)	4.83 J	mg/L
L2155268	Gen Chem	EQ POND DISCHARGE	28.6	10	Fluoride	0.508 J	mg/L
L2155268	Gen Chem	EQ POND DISCHARGE	28.6	10	Nitrate (as N)	0.060 J	mg/L
L2155268	Gen Chem	EQ POND DISCHARGE	28.6	10	Nitrite (as N)	R	mg/L
L2155268	Gen Chem	EQ POND DISCHARGE	28.6	10	pH, lab	7.95 J	s.u.
L2155268	Gen Chem	EQ POND DISCHARGE	28.6	10	Phenolics (total)	R	mg/L
L2155268	Gen Chem	EQ POND DISCHARGE	28.6	10	Phosphorus	0.0277 J	mg/L
L2155268	Gen Chem	EQ POND DISCHARGE	28.6	10	Sulfate	143 J	mg/L
L2155268	Gen Chem	EQ POND DISCHARGE	28.6	10	Total dissolved solids (TDS)	386 J	mg/L
L2155268	Gen Chem	EQ POND DISCHARGE	28.6	10	Total kjeldahl nitrogen (TKN)	0.57 J	mg/L
L2155268	Gen Chem	EQ POND DISCHARGE	28.6	10	Total suspended solids (TSS)	2.2 J	mg/L
L2155268	Gen Chem	EQ POND DISCHARGE	28.6	10	Un-ionized ammonia	0.00777 J	mg/L
L2155268	SVOCs	EQ POND DISCHARGE	28.6	10	1,2,4-Trichlorobenzene	R	µg/L
L2155268	SVOCs	EQ POND DISCHARGE	28.6	10	1,2-Dichlorobenzene	R	µg/L
L2155268	SVOCs	EQ POND DISCHARGE	28.6	10	1,3-Dichlorobenzene	R	µg/L
L2155268	SVOCs	EQ POND DISCHARGE	28.6	10	1,4-Dichlorobenzene	R	µg/L
L2155268	SVOCs	EQ POND DISCHARGE	28.6	10	1-Methylnaphthalene	R	µg/L
L2155268	SVOCs	EQ POND DISCHARGE	28.6	10	2,3,4,5-Tetrachlorophenol	R	µg/L
L2155268	SVOCs	EQ POND DISCHARGE	28.6	10	2,3,4,6-Tetrachlorophenol	R	µg/L
L2155268	SVOCs	EQ POND DISCHARGE	28.6	10	2,3,6-Trichlorophenol	R	µg/L

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L2155268	SVOCs	EQ POND DISCHARGE	28.6	10	2,4,5-Trichlorophenol	R	µg/L
L2155268	SVOCs	EQ POND DISCHARGE	28.6	10	2,4,6-Trichlorophenol	R	µg/L
L2155268	SVOCs	EQ POND DISCHARGE	28.6	10	2,4-Dichlorophenol	R	µg/L
L2155268	SVOCs	EQ POND DISCHARGE	28.6	10	2,4-Dimethylphenol	R	µg/L
L2155268	SVOCs	EQ POND DISCHARGE	28.6	10	2,4-Dinitrophenol	R	µg/L
L2155268	SVOCs	EQ POND DISCHARGE	28.6	10	2,4-Dinitrotoluene	R	µg/L
L2155268	SVOCs	EQ POND DISCHARGE	28.6	10	2,6-Dinitrotoluene	R	µg/L
L2155268	SVOCs	EQ POND DISCHARGE	28.6	10	2-Chlorophenol	R	µg/L
L2155268	SVOCs	EQ POND DISCHARGE	28.6	10	2-Methylnaphthalene	R	µg/L
L2155268	SVOCs	EQ POND DISCHARGE	28.6	10	3,3'-Dichlorobenzidine	R	µg/L
L2155268	SVOCs	EQ POND DISCHARGE	28.6	10	4-Chloroaniline	R	µg/L
L2155268	SVOCs	EQ POND DISCHARGE	28.6	10	Acenaphthene	R	µg/L
L2155268	SVOCs	EQ POND DISCHARGE	28.6	10	Acenaphthylene	R	µg/L
L2155268	SVOCs	EQ POND DISCHARGE	28.6	10	Anthracene	R	µg/L
L2155268	SVOCs	EQ POND DISCHARGE	28.6	10	Benzo(a)anthracene	R	µg/L
L2155268	SVOCs	EQ POND DISCHARGE	28.6	10	Benzo(a)pyrene	R	µg/L
L2155268	SVOCs	EQ POND DISCHARGE	28.6	10	Benzo(b)fluoranthene	R	µg/L
L2155268	SVOCs	EQ POND DISCHARGE	28.6	10	Benzo(g,h,i)perylene	R	µg/L
L2155268	SVOCs	EQ POND DISCHARGE	28.6	10	Benzo(k)fluoranthene	R	µg/L
L2155268	SVOCs	EQ POND DISCHARGE	28.6	10	bis(2-Chloroethyl)ether	R	µg/L
L2155268	SVOCs	EQ POND DISCHARGE	28.6	10	bis(2-Ethylhexyl)phthalate (DEHP)	R	µg/L
L2155268	SVOCs	EQ POND DISCHARGE	28.6	10	Chrysene	R	µg/L
L2155268	SVOCs	EQ POND DISCHARGE	28.6	10	Dibenz(a,h)anthracene	R	µg/L
L2155268	SVOCs	EQ POND DISCHARGE	28.6	10	Diethyl phthalate	R	µg/L
L2155268	SVOCs	EQ POND DISCHARGE	28.6	10	Dimethyl phthalate	R	µg/L
L2155268	SVOCs	EQ POND DISCHARGE	28.6	10	Fluoranthene	R	µg/L
L2155268	SVOCs	EQ POND DISCHARGE	28.6	10	Fluorene	R	µg/L
L2155268	SVOCs	EQ POND DISCHARGE	28.6	10	Hexachlorobenzene	R	µg/L
L2155268	SVOCs	EQ POND DISCHARGE	28.6	10	Hexachlorobutadiene	R	µg/L
L2155268	SVOCs	EQ POND DISCHARGE	28.6	10	Indeno(1,2,3-cd)pyrene	R	µg/L
L2155268	SVOCs	EQ POND DISCHARGE	28.6	10	Naphthalene	R	µg/L
L2155268	SVOCs	EQ POND DISCHARGE	28.6	10	Pentachlorophenol	R	µg/L
L2155268	SVOCs	EQ POND DISCHARGE	28.6	10	Perylene	R	µg/L
L2155268	SVOCs	EQ POND DISCHARGE	28.6	10	Phenanthrene	R	µg/L
L2155268	SVOCs	EQ POND DISCHARGE	28.6	10	Pyrene	R	µg/L

Table 4

**Qualified Sample Data Due To Insufficient Sample Preservation - Temperature
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Lab Report #	Parameter	Associated Sample ID	Temp. Upon Receipt at Laboratory (°C)	Required Temperature (°C)	Analyte	Qualified Result	Units
L2155268	VOCs	EQ POND DISCHARGE	28.6	10	1,1,1,2-Tetrachloroethane	R	µg/L
L2155268	VOCs	EQ POND DISCHARGE	28.6	10	1,1,1-Trichloroethane	R	µg/L
L2155268	VOCs	EQ POND DISCHARGE	28.6	10	1,1,2,2-Tetrachloroethane	R	µg/L
L2155268	VOCs	EQ POND DISCHARGE	28.6	10	1,1,2-Trichloroethane	R	µg/L
L2155268	VOCs	EQ POND DISCHARGE	28.6	10	1,1-Dichloroethane	R	µg/L
L2155268	VOCs	EQ POND DISCHARGE	28.6	10	1,1-Dichloroethene	R	µg/L
L2155268	VOCs	EQ POND DISCHARGE	28.6	10	1,2-Dibromoethane (Ethylene dibromide)	R	µg/L
L2155268	VOCs	EQ POND DISCHARGE	28.6	10	1,2-Dichlorobenzene	R	µg/L
L2155268	VOCs	EQ POND DISCHARGE	28.6	10	1,2-Dichloroethane	R	µg/L
L2155268	VOCs	EQ POND DISCHARGE	28.6	10	1,2-Dichloropropane	R	µg/L
L2155268	VOCs	EQ POND DISCHARGE	28.6	10	1,3-Dichlorobenzene	R	µg/L
L2155268	VOCs	EQ POND DISCHARGE	28.6	10	1,4-Dichlorobenzene	R	µg/L
L2155268	VOCs	EQ POND DISCHARGE	28.6	10	2-Butanone (Methyl ethyl ketone) (MEK)	R	µg/L
L2155268	VOCs	EQ POND DISCHARGE	28.6	10	4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	R	µg/L
L2155268	VOCs	EQ POND DISCHARGE	28.6	10	Acetone	R	µg/L
L2155268	VOCs	EQ POND DISCHARGE	28.6	10	Benzene	R	µg/L
L2155268	VOCs	EQ POND DISCHARGE	28.6	10	Bromodichloromethane	R	µg/L
L2155268	VOCs	EQ POND DISCHARGE	28.6	10	Bromoform	R	µg/L
L2155268	VOCs	EQ POND DISCHARGE	28.6	10	Bromomethane (Methyl bromide)	R	µg/L
L2155268	VOCs	EQ POND DISCHARGE	28.6	10	Carbon tetrachloride	R	µg/L
L2155268	VOCs	EQ POND DISCHARGE	28.6	10	Chlorobenzene	R	µg/L
L2155268	VOCs	EQ POND DISCHARGE	28.6	10	Chloroethane	R	µg/L
L2155268	VOCs	EQ POND DISCHARGE	28.6	10	Chloroform (Trichloromethane)	R	µg/L
L2155268	VOCs	EQ POND DISCHARGE	28.6	10	cis-1,2-Dichloroethene	R	µg/L
L2155268	VOCs	EQ POND DISCHARGE	28.6	10	cis-1,3-Dichloropropene	R	µg/L
L2155268	VOCs	EQ POND DISCHARGE	28.6	10	Dibromochloromethane	R	µg/L
L2155268	VOCs	EQ POND DISCHARGE	28.6	10	Dichlorodifluoromethane (CFC-12)	R	µg/L
L2155268	VOCs	EQ POND DISCHARGE	28.6	10	Ethylbenzene	R	µg/L
L2155268	VOCs	EQ POND DISCHARGE	28.6	10	Hexane	R	µg/L
L2155268	VOCs	EQ POND DISCHARGE	28.6	10	m&p-Xylenes	R	µg/L
L2155268	VOCs	EQ POND DISCHARGE	28.6	10	Methyl tert butyl ether (MTBE)	R	µg/L
L2155268	VOCs	EQ POND DISCHARGE	28.6	10	Methylene chloride	R	µg/L
L2155268	VOCs	EQ POND DISCHARGE	28.6	10	o-Xylene	R	µg/L

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L2155268	VOCs	EQ POND DISCHARGE	28.6	10	Styrene	R	µg/L
L2155268	VOCs	EQ POND DISCHARGE	28.6	10	Tetrachloroethene	R	µg/L
L2155268	VOCs	EQ POND DISCHARGE	28.6	10	Toluene	R	µg/L
L2155268	VOCs	EQ POND DISCHARGE	28.6	10	trans-1,2-Dichloroethene	R	µg/L
L2155268	VOCs	EQ POND DISCHARGE	28.6	10	trans-1,3-Dichloropropene	R	µg/L
L2155268	VOCs	EQ POND DISCHARGE	28.6	10	Trichloroethene	R	µg/L
L2155268	VOCs	EQ POND DISCHARGE	28.6	10	Trichlorofluoromethane (CFC-11)	R	µg/L
L2155268	VOCs	EQ POND DISCHARGE	28.6	10	Vinyl chloride	R	µg/L
L2155268	VOCs	EQ POND DISCHARGE	28.6	10	Trihalomethanes	R	µg/L
L2155268	VOCs	EQ POND DISCHARGE	28.6	10	Xylenes (total)	R	µg/L
L2155268	Gen Chem	WEST STORM WATER POND	28.6	10	Alkalinity, total (as CaCO3)	88 J	mg/L
L2155268	Gen Chem	WEST STORM WATER POND	28.6	10	Ammonia-N	0.073 J	mg/L
L2155268	Gen Chem	WEST STORM WATER POND	28.6	10	Bromide	0.66 J	mg/L
L2155268	Gen Chem	WEST STORM WATER POND	28.6	10	Chemical oxygen demand (COD)	25 J	mg/L
L2155268	Gen Chem	WEST STORM WATER POND	28.6	10	Chloride	52.0 J	mg/L
L2155268	Gen Chem	WEST STORM WATER POND	28.6	10	Chromium VI (hexavalent)	R	mg/L
L2155268	Gen Chem	WEST STORM WATER POND	28.6	10	Conductivity	580 J	umhos/cm
L2155268	Gen Chem	WEST STORM WATER POND	28.6	10	Cyanide (total)	R	mg/L
L2155268	Gen Chem	WEST STORM WATER POND	28.6	10	Dissolved organic carbon (DOC) (dissolved)	4.50 J	mg/L
L2155268	Gen Chem	WEST STORM WATER POND	28.6	10	Fluoride	0.499 J	mg/L
L2155268	Gen Chem	WEST STORM WATER POND	28.6	10	Nitrate (as N)	0.084 J	mg/L
L2155268	Gen Chem	WEST STORM WATER POND	28.6	10	Nitrite (as N)	R	mg/L
L2155268	Gen Chem	WEST STORM WATER POND	28.6	10	pH, lab	7.94 J	s.u.
L2155268	Gen Chem	WEST STORM WATER POND	28.6	10	Phenolics (total)	0.0010 J	mg/L
L2155268	Gen Chem	WEST STORM WATER POND	28.6	10	Phosphorus	0.0234 J	mg/L
L2155268	Gen Chem	WEST STORM WATER POND	28.6	10	Sulfate	125 J	mg/L
L2155268	Gen Chem	WEST STORM WATER POND	28.6	10	Total dissolved solids (TDS)	350 J	mg/L
L2155268	Gen Chem	WEST STORM WATER POND	28.6	10	Total kjeldahl nitrogen (TKN)	0.43 J	mg/L
L2155268	Gen Chem	WEST STORM WATER POND	28.6	10	Total suspended solids (TSS)	4.5 J	mg/L
L2155268	Gen Chem	WEST STORM WATER POND	28.6	10	Un-ionized ammonia	0.00252 J	mg/L
L2155268	SVOCs	WEST STORM WATER POND	28.6	10	1,2,4-Trichlorobenzene	R	µg/L
L2155268	SVOCs	WEST STORM WATER POND	28.6	10	1,2-Dichlorobenzene	R	µg/L

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Lab Report #	Parameter	Associated Sample ID	Temp. Upon Receipt at Laboratory (°C)	Required Temperature (°C)	Analyte	Qualified Result	Units
L2155268	SVOCs	WEST STORM WATER POND	28.6	10	1,3-Dichlorobenzene	R	µg/L
L2155268	SVOCs	WEST STORM WATER POND	28.6	10	1,4-Dichlorobenzene	R	µg/L
L2155268	SVOCs	WEST STORM WATER POND	28.6	10	1-Methylnaphthalene	R	µg/L
L2155268	SVOCs	WEST STORM WATER POND	28.6	10	2,3,4,5-Tetrachlorophenol	R	µg/L
L2155268	SVOCs	WEST STORM WATER POND	28.6	10	2,3,4,6-Tetrachlorophenol	R	µg/L
L2155268	SVOCs	WEST STORM WATER POND	28.6	10	2,3,6-Trichlorophenol	R	µg/L
L2155268	SVOCs	WEST STORM WATER POND	28.6	10	2,4,5-Trichlorophenol	R	µg/L
L2155268	SVOCs	WEST STORM WATER POND	28.6	10	2,4,6-Trichlorophenol	R	µg/L
L2155268	SVOCs	WEST STORM WATER POND	28.6	10	2,4-Dichlorophenol	R	µg/L
L2155268	SVOCs	WEST STORM WATER POND	28.6	10	2,4-Dimethylphenol	R	µg/L
L2155268	SVOCs	WEST STORM WATER POND	28.6	10	2,4-Dinitrophenol	R	µg/L
L2155268	SVOCs	WEST STORM WATER POND	28.6	10	2,4-Dinitrotoluene	R	µg/L
L2155268	SVOCs	WEST STORM WATER POND	28.6	10	2,6-Dinitrotoluene	R	µg/L
L2155268	SVOCs	WEST STORM WATER POND	28.6	10	2-Chlorophenol	R	µg/L
L2155268	SVOCs	WEST STORM WATER POND	28.6	10	2-Methylnaphthalene	R	µg/L
L2155268	SVOCs	WEST STORM WATER POND	28.6	10	3,3'-Dichlorobenzidine	R	µg/L
L2155268	SVOCs	WEST STORM WATER POND	28.6	10	4-Chloroaniline	R	µg/L
L2155268	SVOCs	WEST STORM WATER POND	28.6	10	Acenaphthene	R	µg/L
L2155268	SVOCs	WEST STORM WATER POND	28.6	10	Acenaphthylene	R	µg/L
L2155268	SVOCs	WEST STORM WATER POND	28.6	10	Anthracene	R	µg/L
L2155268	SVOCs	WEST STORM WATER POND	28.6	10	Benzo(a)anthracene	R	µg/L
L2155268	SVOCs	WEST STORM WATER POND	28.6	10	Benzo(a)pyrene	R	µg/L
L2155268	SVOCs	WEST STORM WATER POND	28.6	10	Benzo(b)fluoranthene	R	µg/L
L2155268	SVOCs	WEST STORM WATER POND	28.6	10	Benzo(g,h,i)perylene	R	µg/L
L2155268	SVOCs	WEST STORM WATER POND	28.6	10	Benzo(k)fluoranthene	R	µg/L
L2155268	SVOCs	WEST STORM WATER POND	28.6	10	bis(2-Chloroethyl)ether	R	µg/L
L2155268	SVOCs	WEST STORM WATER POND	28.6	10	bis(2-Ethylhexyl)phthalate (DEHP)	R	µg/L
L2155268	SVOCs	WEST STORM WATER POND	28.6	10	Chrysene	R	µg/L
L2155268	SVOCs	WEST STORM WATER POND	28.6	10	Dibenz(a,h)anthracene	R	µg/L
L2155268	SVOCs	WEST STORM WATER POND	28.6	10	Diethyl phthalate	R	µg/L
L2155268	SVOCs	WEST STORM WATER POND	28.6	10	Dimethyl phthalate	R	µg/L
L2155268	SVOCs	WEST STORM WATER POND	28.6	10	Fluoranthene	R	µg/L
L2155268	SVOCs	WEST STORM WATER POND	28.6	10	Fluorene	R	µg/L
L2155268	SVOCs	WEST STORM WATER POND	28.6	10	Hexachlorobenzene	R	µg/L

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Lab Report #	Parameter	Associated Sample ID	Temp. Upon Receipt at Laboratory (°C)	Required Temperature (°C)	Analyte	Qualified Result	Units
L2155268	SVOCs	WEST STORM WATER POND	28.6	10	Hexachlorobutadiene	R	µg/L
L2155268	SVOCs	WEST STORM WATER POND	28.6	10	Indeno(1,2,3-cd)pyrene	R	µg/L
L2155268	SVOCs	WEST STORM WATER POND	28.6	10	Naphthalene	R	µg/L
L2155268	SVOCs	WEST STORM WATER POND	28.6	10	Pentachlorophenol	R	µg/L
L2155268	SVOCs	WEST STORM WATER POND	28.6	10	Perylene	R	µg/L
L2155268	SVOCs	WEST STORM WATER POND	28.6	10	Phenanthrene	R	µg/L
L2155268	SVOCs	WEST STORM WATER POND	28.6	10	Pyrene	R	µg/L
L2155268	VOCs	WEST STORM WATER POND	28.6	10	1,1,1,2-Tetrachloroethane	R	µg/L
L2155268	VOCs	WEST STORM WATER POND	28.6	10	1,1,1-Trichloroethane	R	µg/L
L2155268	VOCs	WEST STORM WATER POND	28.6	10	1,1,2,2-Tetrachloroethane	R	µg/L
L2155268	VOCs	WEST STORM WATER POND	28.6	10	1,1,2-Trichloroethane	R	µg/L
L2155268	VOCs	WEST STORM WATER POND	28.6	10	1,1-Dichloroethane	R	µg/L
L2155268	VOCs	WEST STORM WATER POND	28.6	10	1,1-Dichloroethene	R	µg/L
L2155268	VOCs	WEST STORM WATER POND	28.6	10	1,2-Dibromoethane (Ethylene dibromide)	R	µg/L
L2155268	VOCs	WEST STORM WATER POND	28.6	10	1,2-Dichlorobenzene	R	µg/L
L2155268	VOCs	WEST STORM WATER POND	28.6	10	1,2-Dichloroethane	R	µg/L
L2155268	VOCs	WEST STORM WATER POND	28.6	10	1,2-Dichloropropane	R	µg/L
L2155268	VOCs	WEST STORM WATER POND	28.6	10	1,3-Dichlorobenzene	R	µg/L
L2155268	VOCs	WEST STORM WATER POND	28.6	10	1,4-Dichlorobenzene	R	µg/L
L2155268	VOCs	WEST STORM WATER POND	28.6	10	2-Butanone (Methyl ethyl ketone) (MEK)	R	µg/L
L2155268	VOCs	WEST STORM WATER POND	28.6	10	4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	R	µg/L
L2155268	VOCs	WEST STORM WATER POND	28.6	10	Acetone	R	µg/L
L2155268	VOCs	WEST STORM WATER POND	28.6	10	Benzene	R	µg/L
L2155268	VOCs	WEST STORM WATER POND	28.6	10	Bromodichloromethane	R	µg/L
L2155268	VOCs	WEST STORM WATER POND	28.6	10	Bromoform	R	µg/L
L2155268	VOCs	WEST STORM WATER POND	28.6	10	Bromomethane (Methyl bromide)	R	µg/L
L2155268	VOCs	WEST STORM WATER POND	28.6	10	Carbon tetrachloride	R	µg/L
L2155268	VOCs	WEST STORM WATER POND	28.6	10	Chlorobenzene	R	µg/L
L2155268	VOCs	WEST STORM WATER POND	28.6	10	Chloroethane	R	µg/L
L2155268	VOCs	WEST STORM WATER POND	28.6	10	Chloroform (Trichloromethane)	R	µg/L
L2155268	VOCs	WEST STORM WATER POND	28.6	10	cis-1,2-Dichloroethene	R	µg/L
L2155268	VOCs	WEST STORM WATER POND	28.6	10	cis-1,3-Dichloropropene	R	µg/L
L2155268	VOCs	WEST STORM WATER POND	28.6	10	Dibromochloromethane	R	µg/L

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Lab Report #	Parameter	Associated Sample ID	Temp. Upon Receipt at Laboratory (°C)	Required Temperature (°C)	Analyte	Qualified Result	Units
L2155268	VOCs	WEST STORM WATER POND	28.6	10	Dichlorodifluoromethane (CFC-12)	R	µg/L
L2155268	VOCs	WEST STORM WATER POND	28.6	10	Ethylbenzene	R	µg/L
L2155268	VOCs	WEST STORM WATER POND	28.6	10	Hexane	R	µg/L
L2155268	VOCs	WEST STORM WATER POND	28.6	10	m&p-Xylenes	R	µg/L
L2155268	VOCs	WEST STORM WATER POND	28.6	10	Methyl tert butyl ether (MTBE)	R	µg/L
L2155268	VOCs	WEST STORM WATER POND	28.6	10	Methylene chloride	R	µg/L
L2155268	VOCs	WEST STORM WATER POND	28.6	10	o-Xylene	R	µg/L
L2155268	VOCs	WEST STORM WATER POND	28.6	10	Styrene	R	µg/L
L2155268	VOCs	WEST STORM WATER POND	28.6	10	Tetrachloroethene	R	µg/L
L2155268	VOCs	WEST STORM WATER POND	28.6	10	Toluene	R	µg/L
L2155268	VOCs	WEST STORM WATER POND	28.6	10	trans-1,2-Dichloroethene	R	µg/L
L2155268	VOCs	WEST STORM WATER POND	28.6	10	trans-1,3-Dichloropropene	R	µg/L
L2155268	VOCs	WEST STORM WATER POND	28.6	10	Trichloroethene	R	µg/L
L2155268	VOCs	WEST STORM WATER POND	28.6	10	Trichlorofluoromethane (CFC-11)	R	µg/L
L2155268	VOCs	WEST STORM WATER POND	28.6	10	Vinyl chloride	R	µg/L
L2155268	VOCs	WEST STORM WATER POND	28.6	10	Trihalomethanes	R	µg/L
L2155268	VOCs	WEST STORM WATER POND	28.6	10	Xylenes (total)	R	µg/L
L2155268	Gen Chem	EAST STORM WATER POND	28.6	10	Alkalinity, total (as CaCO ₃)	115 J	mg/L
L2155268	Gen Chem	EAST STORM WATER POND	28.6	10	Ammonia-N	0.240 J	mg/L
L2155268	Gen Chem	EAST STORM WATER POND	28.6	10	Bromide	0.40 J	mg/L
L2155268	Gen Chem	EAST STORM WATER POND	28.6	10	Chemical oxygen demand (COD)	33 J	mg/L
L2155268	Gen Chem	EAST STORM WATER POND	28.6	10	Chloride	34.8 J	mg/L
L2155268	Gen Chem	EAST STORM WATER POND	28.6	10	Chromium VI (hexavalent)	R	mg/L
L2155268	Gen Chem	EAST STORM WATER POND	28.6	10	Conductivity	516 J	umhos/cm
L2155268	Gen Chem	EAST STORM WATER POND	28.6	10	Cyanide (total)	R	mg/L
L2155268	Gen Chem	EAST STORM WATER POND	28.6	10	Dissolved organic carbon (DOC) (dissolved)	5.34 J	mg/L
L2155268	Gen Chem	EAST STORM WATER POND	28.6	10	Fluoride	0.561 J	mg/L
L2155268	Gen Chem	EAST STORM WATER POND	28.6	10	Nitrate (as N)	0.023 J	mg/L
L2155268	Gen Chem	EAST STORM WATER POND	28.6	10	Nitrite (as N)	R	mg/L
L2155268	Gen Chem	EAST STORM WATER POND	28.6	10	pH, lab	7.82 J	s.u.
L2155268	Gen Chem	EAST STORM WATER POND	28.6	10	Phenolics (total)	0.0143 J	mg/L
L2155268	Gen Chem	EAST STORM WATER POND	28.6	10	Phosphorus	0.0709 J	mg/L
L2155268	Gen Chem	EAST STORM WATER POND	28.6	10	Sulfate	90.3 J	mg/L

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Lab Report #	Parameter	Associated Sample ID	Temp. Upon Receipt at Laboratory (°C)	Required Temperature (°C)	Analyte	Qualified Result	Units
L2155268	Gen Chem	EAST STORM WATER POND	28.6	10	Total dissolved solids (TDS)	319 J	mg/L
L2155268	Gen Chem	EAST STORM WATER POND	28.6	10	Total kjeldahl nitrogen (TKN)	0.88 J	mg/L
L2155268	Gen Chem	EAST STORM WATER POND	28.6	10	Total suspended solids (TSS)	14.1 J	mg/L
L2155268	Gen Chem	EAST STORM WATER POND	28.6	10	Un-ionized ammonia	0.00588 J	mg/L
L2155268	SVOCs	EAST STORM WATER POND	28.6	10	1,2,4-Trichlorobenzene	R	µg/L
L2155268	SVOCs	EAST STORM WATER POND	28.6	10	1,2-Dichlorobenzene	R	µg/L
L2155268	SVOCs	EAST STORM WATER POND	28.6	10	1,3-Dichlorobenzene	R	µg/L
L2155268	SVOCs	EAST STORM WATER POND	28.6	10	1,4-Dichlorobenzene	R	µg/L
L2155268	SVOCs	EAST STORM WATER POND	28.6	10	1-Methylnaphthalene	R	µg/L
L2155268	SVOCs	EAST STORM WATER POND	28.6	10	2,3,4,5-Tetrachlorophenol	R	µg/L
L2155268	SVOCs	EAST STORM WATER POND	28.6	10	2,3,4,6-Tetrachlorophenol	R	µg/L
L2155268	SVOCs	EAST STORM WATER POND	28.6	10	2,3,6-Trichlorophenol	R	µg/L
L2155268	SVOCs	EAST STORM WATER POND	28.6	10	2,4,5-Trichlorophenol	R	µg/L
L2155268	SVOCs	EAST STORM WATER POND	28.6	10	2,4,6-Trichlorophenol	R	µg/L
L2155268	SVOCs	EAST STORM WATER POND	28.6	10	2,4-Dichlorophenol	R	µg/L
L2155268	SVOCs	EAST STORM WATER POND	28.6	10	2,4-Dimethylphenol	R	µg/L
L2155268	SVOCs	EAST STORM WATER POND	28.6	10	2,4-Dinitrophenol	R	µg/L
L2155268	SVOCs	EAST STORM WATER POND	28.6	10	2,4-Dinitrotoluene	R	µg/L
L2155268	SVOCs	EAST STORM WATER POND	28.6	10	2,6-Dinitrotoluene	R	µg/L
L2155268	SVOCs	EAST STORM WATER POND	28.6	10	2-Chlorophenol	R	µg/L
L2155268	SVOCs	EAST STORM WATER POND	28.6	10	2-Methylnaphthalene	R	µg/L
L2155268	SVOCs	EAST STORM WATER POND	28.6	10	3,3'-Dichlorobenzidine	R	µg/L
L2155268	SVOCs	EAST STORM WATER POND	28.6	10	4-Chloroaniline	R	µg/L
L2155268	SVOCs	EAST STORM WATER POND	28.6	10	Acenaphthene	R	µg/L
L2155268	SVOCs	EAST STORM WATER POND	28.6	10	Acenaphthylene	R	µg/L
L2155268	SVOCs	EAST STORM WATER POND	28.6	10	Anthracene	R	µg/L
L2155268	SVOCs	EAST STORM WATER POND	28.6	10	Benzo(a)anthracene	R	µg/L
L2155268	SVOCs	EAST STORM WATER POND	28.6	10	Benzo(a)pyrene	R	µg/L
L2155268	SVOCs	EAST STORM WATER POND	28.6	10	Benzo(b)fluoranthene	R	µg/L
L2155268	SVOCs	EAST STORM WATER POND	28.6	10	Benzo(g,h,i)perylene	R	µg/L
L2155268	SVOCs	EAST STORM WATER POND	28.6	10	Benzo(k)fluoranthene	R	µg/L
L2155268	SVOCs	EAST STORM WATER POND	28.6	10	bis(2-Chloroethyl)ether	R	µg/L
L2155268	SVOCs	EAST STORM WATER POND	28.6	10	bis(2-Ethylhexyl)phthalate (DEHP)	R	µg/L

Table 4

**Qualified Sample Data Due To Insufficient Sample Preservation - Temperature
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Clean Harbors Canada Inc.
Sarnia, Ontario
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Lab Report #	Parameter	Associated Sample ID	Temp. Upon Receipt at Laboratory (°C)	Required Temperature (°C)	Analyte	Qualified Result	Units
L2155268	SVOCs	EAST STORM WATER POND	28.6	10	Chrysene	R	µg/L
L2155268	SVOCs	EAST STORM WATER POND	28.6	10	Dibenz(a,h)anthracene	R	µg/L
L2155268	SVOCs	EAST STORM WATER POND	28.6	10	Diethyl phthalate	R	µg/L
L2155268	SVOCs	EAST STORM WATER POND	28.6	10	Dimethyl phthalate	R	µg/L
L2155268	SVOCs	EAST STORM WATER POND	28.6	10	Fluoranthene	R	µg/L
L2155268	SVOCs	EAST STORM WATER POND	28.6	10	Fluorene	R	µg/L
L2155268	SVOCs	EAST STORM WATER POND	28.6	10	Hexachlorobenzene	R	µg/L
L2155268	SVOCs	EAST STORM WATER POND	28.6	10	Hexachlorobutadiene	R	µg/L
L2155268	SVOCs	EAST STORM WATER POND	28.6	10	Indeno(1,2,3-cd)pyrene	R	µg/L
L2155268	SVOCs	EAST STORM WATER POND	28.6	10	Naphthalene	R	µg/L
L2155268	SVOCs	EAST STORM WATER POND	28.6	10	Pentachlorophenol	R	µg/L
L2155268	SVOCs	EAST STORM WATER POND	28.6	10	Perylene	R	µg/L
L2155268	SVOCs	EAST STORM WATER POND	28.6	10	Phenanthrene	R	µg/L
L2155268	SVOCs	EAST STORM WATER POND	28.6	10	Pyrene	R	µg/L
L2155268	VOCs	EAST STORM WATER POND	28.6	10	1,1,1,2-Tetrachloroethane	R	µg/L
L2155268	VOCs	EAST STORM WATER POND	28.6	10	1,1,1-Trichloroethane	R	µg/L
L2155268	VOCs	EAST STORM WATER POND	28.6	10	1,1,2,2-Tetrachloroethane	R	µg/L
L2155268	VOCs	EAST STORM WATER POND	28.6	10	1,1,2-Trichloroethane	R	µg/L
L2155268	VOCs	EAST STORM WATER POND	28.6	10	1,1-Dichloroethane	R	µg/L
L2155268	VOCs	EAST STORM WATER POND	28.6	10	1,1-Dichloroethene	R	µg/L
L2155268	VOCs	EAST STORM WATER POND	28.6	10	1,2-Dibromoethane (Ethylene dibromide)	R	µg/L
L2155268	VOCs	EAST STORM WATER POND	28.6	10	1,2-Dichlorobenzene	R	µg/L
L2155268	VOCs	EAST STORM WATER POND	28.6	10	1,2-Dichloroethane	R	µg/L
L2155268	VOCs	EAST STORM WATER POND	28.6	10	1,2-Dichloropropane	R	µg/L
L2155268	VOCs	EAST STORM WATER POND	28.6	10	1,3-Dichlorobenzene	R	µg/L
L2155268	VOCs	EAST STORM WATER POND	28.6	10	1,4-Dichlorobenzene	R	µg/L
L2155268	VOCs	EAST STORM WATER POND	28.6	10	2-Butanone (Methyl ethyl ketone) (MEK)	R	µg/L
L2155268	VOCs	EAST STORM WATER POND	28.6	10	4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	R	µg/L
L2155268	VOCs	EAST STORM WATER POND	28.6	10	Acetone	R	µg/L
L2155268	VOCs	EAST STORM WATER POND	28.6	10	Benzene	R	µg/L
L2155268	VOCs	EAST STORM WATER POND	28.6	10	Bromodichloromethane	R	µg/L
L2155268	VOCs	EAST STORM WATER POND	28.6	10	Bromoform	R	µg/L
L2155268	VOCs	EAST STORM WATER POND	28.6	10	Bromomethane (Methyl bromide)	R	µg/L

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Lab Report #	Parameter	Associated Sample ID	Temp. Upon Receipt at Laboratory (°C)	Required Temperature (°C)	Analyte	Qualified Result	Units
L2155268	VOCs	EAST STORM WATER POND	28.6	10	Carbon tetrachloride	R	µg/L
L2155268	VOCs	EAST STORM WATER POND	28.6	10	Chlorobenzene	R	µg/L
L2155268	VOCs	EAST STORM WATER POND	28.6	10	Chloroethane	R	µg/L
L2155268	VOCs	EAST STORM WATER POND	28.6	10	Chloroform (Trichloromethane)	R	µg/L
L2155268	VOCs	EAST STORM WATER POND	28.6	10	cis-1,2-Dichloroethene	R	µg/L
L2155268	VOCs	EAST STORM WATER POND	28.6	10	cis-1,3-Dichloropropene	R	µg/L
L2155268	VOCs	EAST STORM WATER POND	28.6	10	Dibromochloromethane	R	µg/L
L2155268	VOCs	EAST STORM WATER POND	28.6	10	Dichlorodifluoromethane (CFC-12)	R	µg/L
L2155268	VOCs	EAST STORM WATER POND	28.6	10	Ethylbenzene	R	µg/L
L2155268	VOCs	EAST STORM WATER POND	28.6	10	Hexane	R	µg/L
L2155268	VOCs	EAST STORM WATER POND	28.6	10	m&p-Xylenes	R	µg/L
L2155268	VOCs	EAST STORM WATER POND	28.6	10	Methyl tert butyl ether (MTBE)	R	µg/L
L2155268	VOCs	EAST STORM WATER POND	28.6	10	Methylene chloride	R	µg/L
L2155268	VOCs	EAST STORM WATER POND	28.6	10	o-Xylene	R	µg/L
L2155268	VOCs	EAST STORM WATER POND	28.6	10	Styrene	R	µg/L
L2155268	VOCs	EAST STORM WATER POND	28.6	10	Tetrachloroethene	R	µg/L
L2155268	VOCs	EAST STORM WATER POND	28.6	10	Toluene	R	µg/L
L2155268	VOCs	EAST STORM WATER POND	28.6	10	trans-1,2-Dichloroethene	R	µg/L
L2155268	VOCs	EAST STORM WATER POND	28.6	10	trans-1,3-Dichloropropene	R	µg/L
L2155268	VOCs	EAST STORM WATER POND	28.6	10	Trichloroethene	R	µg/L
L2155268	VOCs	EAST STORM WATER POND	28.6	10	Trichlorofluoromethane (CFC-11)	R	µg/L
L2155268	VOCs	EAST STORM WATER POND	28.6	10	Vinyl chloride	R	µg/L
L2155268	VOCs	EAST STORM WATER POND	28.6	10	Trihalomethanes	R	µg/L
L2155268	VOCs	EAST STORM WATER POND	28.6	10	Xylenes (total)	R	µg/L
L2155768	Microtox	EQ POND DISCHARGE	18.8	10	EC 20 (15min)	>100 J	%
L2155768	Microtox	EQ POND DISCHARGE	18.8	10	EC 20 (5min)	>100 J	%
L2155768	Microtox	EQ POND DISCHARGE	18.8	10	EC 50 (15min)	>100 J	%
L2155768	Microtox	EQ POND DISCHARGE	18.8	10	EC 50 (5min)	>100 J	%
L2193905	Gen Chem	EQ SAMPLE DISCHARGE	13.4	10	Alkalinity, total (as CaCO3)	111 J	mg/L
L2193905	Gen Chem	EQ SAMPLE DISCHARGE	13.4	10	Ammonia-N	0.507 J	mg/L
L2193905	Gen Chem	EQ SAMPLE DISCHARGE	13.4	10	Bromide	0.66 J	mg/L
L2193905	Gen Chem	EQ SAMPLE DISCHARGE	13.4	10	Chemical oxygen demand (COD)	18 J	mg/L

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L2193905	Gen Chem	EQ SAMPLE DISCHARGE	13.4	10	Chloride	50.3 J	mg/L
L2193905	Gen Chem	EQ SAMPLE DISCHARGE	13.4	10	Chromium VI (hexavalent)	0.00050 UJ	mg/L
L2193905	Gen Chem	EQ SAMPLE DISCHARGE	13.4	10	Conductivity	605 J	umhos/cm
L2193905	Gen Chem	EQ SAMPLE DISCHARGE	13.4	10	Cyanide (total)	0.0020 UJ	mg/L
L2193905	Gen Chem	EQ SAMPLE DISCHARGE	13.4	10	Dissolved organic carbon (DOC) (dissolved)	4.58 J	mg/L
L2193905	Gen Chem	EQ SAMPLE DISCHARGE	13.4	10	Fluoride	0.543 J	mg/L
L2193905	Gen Chem	EQ SAMPLE DISCHARGE	13.4	10	Nitrate (as N)	0.136 J	mg/L
L2193905	Gen Chem	EQ SAMPLE DISCHARGE	13.4	10	Nitrite (as N)	0.010 UJ	mg/L
L2193905	Gen Chem	EQ SAMPLE DISCHARGE	13.4	10	pH, lab	7.95 J	s.u.
L2193905	Gen Chem	EQ SAMPLE DISCHARGE	13.4	10	Phenolics (total)	0.0010 UJ	mg/L
L2193905	Gen Chem	EQ SAMPLE DISCHARGE	13.4	10	Phosphorus	0.0192 J	mg/L
L2193905	Gen Chem	EQ SAMPLE DISCHARGE	13.4	10	Sulfate	111 J	mg/L
L2193905	Gen Chem	EQ SAMPLE DISCHARGE	13.4	10	Total dissolved solids (TDS)	369 J	mg/L
L2193905	Gen Chem	EQ SAMPLE DISCHARGE	13.4	10	Total kjeldahl nitrogen (TKN)	0.72 J	mg/L
L2193905	Gen Chem	EQ SAMPLE DISCHARGE	13.4	10	Total suspended solids (TSS)	6.2 J	mg/L
L2193905	Gen Chem	EQ SAMPLE DISCHARGE	13.4	10	Un-ionized ammonia	0.0138 J	mg/L
L2193905	SVOCs	EQ SAMPLE DISCHARGE	13.4	10	1,2,4-Trichlorobenzene	0.40 UJ	µg/L
L2193905	SVOCs	EQ SAMPLE DISCHARGE	13.4	10	1,2-Dichlorobenzene	0.40 UJ	µg/L
L2193905	SVOCs	EQ SAMPLE DISCHARGE	13.4	10	1,3-Dichlorobenzene	0.40 UJ	µg/L
L2193905	SVOCs	EQ SAMPLE DISCHARGE	13.4	10	1,4-Dichlorobenzene	0.40 UJ	µg/L
L2193905	SVOCs	EQ SAMPLE DISCHARGE	13.4	10	1-Methylnaphthalene	0.40 UJ	µg/L
L2193905	SVOCs	EQ SAMPLE DISCHARGE	13.4	10	2,3,4,5-Tetrachlorophenol	0.50 UJ	µg/L
L2193905	SVOCs	EQ SAMPLE DISCHARGE	13.4	10	2,3,4,6-Tetrachlorophenol	0.50 UJ	µg/L
L2193905	SVOCs	EQ SAMPLE DISCHARGE	13.4	10	2,3,6-Trichlorophenol	0.50 UJ	µg/L
L2193905	SVOCs	EQ SAMPLE DISCHARGE	13.4	10	2,4,5-Trichlorophenol	0.50 UJ	µg/L
L2193905	SVOCs	EQ SAMPLE DISCHARGE	13.4	10	2,4,6-Trichlorophenol	0.50 UJ	µg/L
L2193905	SVOCs	EQ SAMPLE DISCHARGE	13.4	10	2,4-Dichlorophenol	0.30 UJ	µg/L
L2193905	SVOCs	EQ SAMPLE DISCHARGE	13.4	10	2,4-Dimethylphenol	0.50 UJ	µg/L
L2193905	SVOCs	EQ SAMPLE DISCHARGE	13.4	10	2,4-Dinitrophenol	1.0 UJ	µg/L
L2193905	SVOCs	EQ SAMPLE DISCHARGE	13.4	10	2,4-Dinitrotoluene	0.40 UJ	µg/L
L2193905	SVOCs	EQ SAMPLE DISCHARGE	13.4	10	2,6-Dinitrotoluene	0.40 UJ	µg/L
L2193905	SVOCs	EQ SAMPLE DISCHARGE	13.4	10	2-Chlorophenol	0.30 UJ	µg/L
L2193905	SVOCs	EQ SAMPLE DISCHARGE	13.4	10	2-Methylnaphthalene	0.40 UJ	µg/L

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L2193905	SVOCs	EQ SAMPLE DISCHARGE	13.4	10	3,3'-Dichlorobenzidine	0.40 UJ	µg/L
L2193905	SVOCs	EQ SAMPLE DISCHARGE	13.4	10	4-Chloroaniline	0.40 UJ	µg/L
L2193905	SVOCs	EQ SAMPLE DISCHARGE	13.4	10	Acenaphthene	0.20 UJ	µg/L
L2193905	SVOCs	EQ SAMPLE DISCHARGE	13.4	10	Acenaphthylene	0.20 UJ	µg/L
L2193905	SVOCs	EQ SAMPLE DISCHARGE	13.4	10	Anthracene	0.20 UJ	µg/L
L2193905	SVOCs	EQ SAMPLE DISCHARGE	13.4	10	Benzo(a)anthracene	0.20 UJ	µg/L
L2193905	SVOCs	EQ SAMPLE DISCHARGE	13.4	10	Benzo(a)pyrene	0.050 UJ	µg/L
L2193905	SVOCs	EQ SAMPLE DISCHARGE	13.4	10	Benzo(b)fluoranthene	0.20 UJ	µg/L
L2193905	SVOCs	EQ SAMPLE DISCHARGE	13.4	10	Benzo(g,h,i)perylene	0.20 UJ	µg/L
L2193905	SVOCs	EQ SAMPLE DISCHARGE	13.4	10	Benzo(k)fluoranthene	0.20 UJ	µg/L
L2193905	SVOCs	EQ SAMPLE DISCHARGE	13.4	10	bis(2-Chloroethyl)ether	0.40 UJ	µg/L
L2193905	SVOCs	EQ SAMPLE DISCHARGE	13.4	10	bis(2-Ethylhexyl)phthalate (DEHP)	2.0 UJ	µg/L
L2193905	SVOCs	EQ SAMPLE DISCHARGE	13.4	10	Chrysene	0.20 UJ	µg/L
L2193905	SVOCs	EQ SAMPLE DISCHARGE	13.4	10	Dibenz(a,h)anthracene	0.20 UJ	µg/L
L2193905	SVOCs	EQ SAMPLE DISCHARGE	13.4	10	Diethyl phthalate	0.20 UJ	µg/L
L2193905	SVOCs	EQ SAMPLE DISCHARGE	13.4	10	Dimethyl phthalate	0.20 UJ	µg/L
L2193905	SVOCs	EQ SAMPLE DISCHARGE	13.4	10	Fluoranthene	0.20 UJ	µg/L
L2193905	SVOCs	EQ SAMPLE DISCHARGE	13.4	10	Fluorene	0.20 UJ	µg/L
L2193905	SVOCs	EQ SAMPLE DISCHARGE	13.4	10	Hexachlorobenzene	0.040 UJ	µg/L
L2193905	SVOCs	EQ SAMPLE DISCHARGE	13.4	10	Hexachlorobutadiene	0.20 UJ	µg/L
L2193905	SVOCs	EQ SAMPLE DISCHARGE	13.4	10	Indeno(1,2,3-cd)pyrene	0.20 UJ	µg/L
L2193905	SVOCs	EQ SAMPLE DISCHARGE	13.4	10	Naphthalene	0.20 UJ	µg/L
L2193905	SVOCs	EQ SAMPLE DISCHARGE	13.4	10	Pentachlorophenol	0.50 UJ	µg/L
L2193905	SVOCs	EQ SAMPLE DISCHARGE	13.4	10	Perylene	0.20 UJ	µg/L
L2193905	SVOCs	EQ SAMPLE DISCHARGE	13.4	10	Phenanthrene	0.20 UJ	µg/L
L2193905	SVOCs	EQ SAMPLE DISCHARGE	13.4	10	Pyrene	0.20 UJ	µg/L
L2193905	VOCs	EQ SAMPLE DISCHARGE	13.4	10	1,1,1,2-Tetrachloroethane	0.50 UJ	µg/L
L2193905	VOCs	EQ SAMPLE DISCHARGE	13.4	10	1,1,1-Trichloroethane	0.50 UJ	µg/L
L2193905	VOCs	EQ SAMPLE DISCHARGE	13.4	10	1,1,2,2-Tetrachloroethane	0.50 UJ	µg/L
L2193905	VOCs	EQ SAMPLE DISCHARGE	13.4	10	1,1,2-Trichloroethane	0.50 UJ	µg/L
L2193905	VOCs	EQ SAMPLE DISCHARGE	13.4	10	1,1-Dichloroethane	0.50 UJ	µg/L
L2193905	VOCs	EQ SAMPLE DISCHARGE	13.4	10	1,1-Dichloroethene	0.50 UJ	µg/L
L2193905	VOCs	EQ SAMPLE DISCHARGE	13.4	10	1,2-Dibromoethane (Ethylene dibromide)	0.20 UJ	µg/L

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L2193905	VOCs	EQ SAMPLE DISCHARGE	13.4	10	1,2-Dichlorobenzene	0.50 UJ	µg/L
L2193905	VOCs	EQ SAMPLE DISCHARGE	13.4	10	1,2-Dichloroethane	0.50 UJ	µg/L
L2193905	VOCs	EQ SAMPLE DISCHARGE	13.4	10	1,2-Dichloropropane	0.50 UJ	µg/L
L2193905	VOCs	EQ SAMPLE DISCHARGE	13.4	10	1,3-Dichlorobenzene	0.50 UJ	µg/L
L2193905	VOCs	EQ SAMPLE DISCHARGE	13.4	10	1,4-Dichlorobenzene	0.50 UJ	µg/L
L2193905	VOCs	EQ SAMPLE DISCHARGE	13.4	10	2-Butanone (Methyl ethyl ketone) (MEK)	20 UJ	µg/L
L2193905	VOCs	EQ SAMPLE DISCHARGE	13.4	10	4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	20 UJ	µg/L
L2193905	VOCs	EQ SAMPLE DISCHARGE	13.4	10	Acetone	20 UJ	µg/L
L2193905	VOCs	EQ SAMPLE DISCHARGE	13.4	10	Benzene	0.50 UJ	µg/L
L2193905	VOCs	EQ SAMPLE DISCHARGE	13.4	10	Bromodichloromethane	1.0 UJ	µg/L
L2193905	VOCs	EQ SAMPLE DISCHARGE	13.4	10	Bromoform	1.0 UJ	µg/L
L2193905	VOCs	EQ SAMPLE DISCHARGE	13.4	10	Bromomethane (Methyl bromide)	0.50 UJ	µg/L
L2193905	VOCs	EQ SAMPLE DISCHARGE	13.4	10	Carbon tetrachloride	0.50 UJ	µg/L
L2193905	VOCs	EQ SAMPLE DISCHARGE	13.4	10	Chlorobenzene	0.50 UJ	µg/L
L2193905	VOCs	EQ SAMPLE DISCHARGE	13.4	10	Chloroethane	1.0 UJ	µg/L
L2193905	VOCs	EQ SAMPLE DISCHARGE	13.4	10	Chloroform (Trichloromethane)	1.0 UJ	µg/L
L2193905	VOCs	EQ SAMPLE DISCHARGE	13.4	10	cis-1,2-Dichloroethene	0.50 UJ	µg/L
L2193905	VOCs	EQ SAMPLE DISCHARGE	13.4	10	cis-1,3-Dichloropropene	0.50 UJ	µg/L
L2193905	VOCs	EQ SAMPLE DISCHARGE	13.4	10	Dibromochloromethane	1.0 UJ	µg/L
L2193905	VOCs	EQ SAMPLE DISCHARGE	13.4	10	Dichlorodifluoromethane (CFC-12)	1.0 UJ	µg/L
L2193905	VOCs	EQ SAMPLE DISCHARGE	13.4	10	Ethylbenzene	0.50 UJ	µg/L
L2193905	VOCs	EQ SAMPLE DISCHARGE	13.4	10	Hexane	0.50 UJ	µg/L
L2193905	VOCs	EQ SAMPLE DISCHARGE	13.4	10	m&p-Xylenes	1.0 UJ	µg/L
L2193905	VOCs	EQ SAMPLE DISCHARGE	13.4	10	Methyl tert butyl ether (MTBE)	0.50 UJ	µg/L
L2193905	VOCs	EQ SAMPLE DISCHARGE	13.4	10	Methylene chloride	2.0 UJ	µg/L
L2193905	VOCs	EQ SAMPLE DISCHARGE	13.4	10	o-Xylene	0.50 UJ	µg/L
L2193905	VOCs	EQ SAMPLE DISCHARGE	13.4	10	Styrene	0.50 UJ	µg/L
L2193905	VOCs	EQ SAMPLE DISCHARGE	13.4	10	Tetrachloroethene	0.50 UJ	µg/L
L2193905	VOCs	EQ SAMPLE DISCHARGE	13.4	10	Toluene	0.50 UJ	µg/L
L2193905	VOCs	EQ SAMPLE DISCHARGE	13.4	10	trans-1,2-Dichloroethene	0.50 UJ	µg/L
L2193905	VOCs	EQ SAMPLE DISCHARGE	13.4	10	trans-1,3-Dichloropropene	0.50 UJ	µg/L
L2193905	VOCs	EQ SAMPLE DISCHARGE	13.4	10	Trichloroethene	0.50 UJ	µg/L
L2193905	VOCs	EQ SAMPLE DISCHARGE	13.4	10	Trichlorofluoromethane (CFC-11)	1.0 UJ	µg/L
L2193905	VOCs	EQ SAMPLE DISCHARGE	13.4	10	Vinyl chloride	0.50 UJ	µg/L

Table 4

**Qualified Sample Data Due To Insufficient Sample Preservation - Temperature
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Clean Harbors Canada Inc.
Sarnia, Ontario
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Lab Report #	Parameter	Associated Sample ID	Temp. Upon Receipt at Laboratory (°C)	Required Temperature (°C)	Analyte	Qualified Result	Units
L2193905	VOCs	EQ SAMPLE DISCHARGE	13.4	10	Trihalomethanes	2.0 UJ	µg/L
L2193905	VOCs	EQ SAMPLE DISCHARGE	13.4	10	Xylenes (total)	1.1 UJ	µg/L
L2193905	Gen Chem	WEST STORM WATER POND	13.4	10	Alkalinity, total (as CaCO ₃)	131 J	mg/L
L2193905	Gen Chem	WEST STORM WATER POND	13.4	10	Ammonia-N	1.68 UJ	mg/L
L2193905	Gen Chem	WEST STORM WATER POND	13.4	10	Bromide	0.71 J	mg/L
L2193905	Gen Chem	WEST STORM WATER POND	13.4	10	Chemical oxygen demand (COD)	20 J	mg/L
L2193905	Gen Chem	WEST STORM WATER POND	13.4	10	Chloride	57.3 J	mg/L
L2193905	Gen Chem	WEST STORM WATER POND	13.4	10	Chromium VI (hexavalent)	0.00050 UJ	mg/L
L2193905	Gen Chem	WEST STORM WATER POND	13.4	10	Conductivity	643 J	umhos/cm
L2193905	Gen Chem	WEST STORM WATER POND	13.4	10	Cyanide (total)	0.0020 UJ	mg/L
L2193905	Gen Chem	WEST STORM WATER POND	13.4	10	Dissolved organic carbon (DOC) (dissolved)	6.16 J	mg/L
L2193905	Gen Chem	WEST STORM WATER POND	13.4	10	Fluoride	0.515 J	mg/L
L2193905	Gen Chem	WEST STORM WATER POND	13.4	10	Nitrate (as N)	0.155 J	mg/L
L2193905	Gen Chem	WEST STORM WATER POND	13.4	10	Nitrite (as N)	0.010 UJ	mg/L
L2193905	Gen Chem	WEST STORM WATER POND	13.4	10	pH, lab	8.08 J	s.u.
L2193905	Gen Chem	WEST STORM WATER POND	13.4	10	Phenolics (total)	0.0013 J	mg/L
L2193905	Gen Chem	WEST STORM WATER POND	13.4	10	Phosphorus	0.0296 J	mg/L
L2193905	Gen Chem	WEST STORM WATER POND	13.4	10	Sulfate	108 J	mg/L
L2193905	Gen Chem	WEST STORM WATER POND	13.4	10	Total dissolved solids (TDS)	383 J	mg/L
L2193905	Gen Chem	WEST STORM WATER POND	13.4	10	Total kjeldahl nitrogen (TKN)	2.55 J	mg/L
L2193905	Gen Chem	WEST STORM WATER POND	13.4	10	Total suspended solids (TSS)	7.9 J	mg/L
L2193905	Gen Chem	WEST STORM WATER POND	13.4	10	Un-ionized ammonia	0.0536 J	mg/L
L2193905	SVOCs	WEST STORM WATER POND	13.4	10	1,2,4-Trichlorobenzene	0.40 UJ	µg/L
L2193905	SVOCs	WEST STORM WATER POND	13.4	10	1,2-Dichlorobenzene	0.40 UJ	µg/L
L2193905	SVOCs	WEST STORM WATER POND	13.4	10	1,3-Dichlorobenzene	0.40 UJ	µg/L
L2193905	SVOCs	WEST STORM WATER POND	13.4	10	1,4-Dichlorobenzene	0.40 UJ	µg/L
L2193905	SVOCs	WEST STORM WATER POND	13.4	10	1-Methylnaphthalene	0.40 UJ	µg/L
L2193905	SVOCs	WEST STORM WATER POND	13.4	10	2,3,4,5-Tetrachlorophenol	0.50 UJ	µg/L
L2193905	SVOCs	WEST STORM WATER POND	13.4	10	2,3,4,6-Tetrachlorophenol	0.50 UJ	µg/L
L2193905	SVOCs	WEST STORM WATER POND	13.4	10	2,3,6-Trichlorophenol	0.50 UJ	µg/L
L2193905	SVOCs	WEST STORM WATER POND	13.4	10	2,4,5-Trichlorophenol	0.50 UJ	µg/L
L2193905	SVOCs	WEST STORM WATER POND	13.4	10	2,4,6-Trichlorophenol	0.50 UJ	µg/L

Table 4

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Clean Harbors Canada Inc.
Sarnia, Ontario
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Lab Report #	Parameter	Associated Sample ID	Temp. Upon Receipt at Laboratory (°C)	Required Temperature (°C)	Analyte	Qualified Result	Units
L2193905	SVOCs	WEST STORM WATER POND	13.4	10	2,4-Dichlorophenol	0.30 UJ	µg/L
L2193905	SVOCs	WEST STORM WATER POND	13.4	10	2,4-Dimethylphenol	0.50 UJ	µg/L
L2193905	SVOCs	WEST STORM WATER POND	13.4	10	2,4-Dinitrophenol	1.0 UJ	µg/L
L2193905	SVOCs	WEST STORM WATER POND	13.4	10	2,4-Dinitrotoluene	0.40 UJ	µg/L
L2193905	SVOCs	WEST STORM WATER POND	13.4	10	2,6-Dinitrotoluene	0.40 UJ	µg/L
L2193905	SVOCs	WEST STORM WATER POND	13.4	10	2-Chlorophenol	0.30 UJ	µg/L
L2193905	SVOCs	WEST STORM WATER POND	13.4	10	2-Methylnaphthalene	0.40 UJ	µg/L
L2193905	SVOCs	WEST STORM WATER POND	13.4	10	3,3'-Dichlorobenzidine	0.40 UJ	µg/L
L2193905	SVOCs	WEST STORM WATER POND	13.4	10	4-Chloroaniline	0.40 UJ	µg/L
L2193905	SVOCs	WEST STORM WATER POND	13.4	10	Acenaphthene	0.20 UJ	µg/L
L2193905	SVOCs	WEST STORM WATER POND	13.4	10	Acenaphthylene	0.20 UJ	µg/L
L2193905	SVOCs	WEST STORM WATER POND	13.4	10	Anthracene	0.20 UJ	µg/L
L2193905	SVOCs	WEST STORM WATER POND	13.4	10	Benzo(a)anthracene	0.20 UJ	µg/L
L2193905	SVOCs	WEST STORM WATER POND	13.4	10	Benzo(a)pyrene	0.050 UJ	µg/L
L2193905	SVOCs	WEST STORM WATER POND	13.4	10	Benzo(b)fluoranthene	0.20 UJ	µg/L
L2193905	SVOCs	WEST STORM WATER POND	13.4	10	Benzo(g,h,i)perylene	0.20 UJ	µg/L
L2193905	SVOCs	WEST STORM WATER POND	13.4	10	Benzo(k)fluoranthene	0.20 UJ	µg/L
L2193905	SVOCs	WEST STORM WATER POND	13.4	10	bis(2-Chloroethyl)ether	0.40 UJ	µg/L
L2193905	SVOCs	WEST STORM WATER POND	13.4	10	bis(2-Ethylhexyl)phthalate (DEHP)	2.0 UJ	µg/L
L2193905	SVOCs	WEST STORM WATER POND	13.4	10	Chrysene	0.20 UJ	µg/L
L2193905	SVOCs	WEST STORM WATER POND	13.4	10	Dibenz(a,h)anthracene	0.20 UJ	µg/L
L2193905	SVOCs	WEST STORM WATER POND	13.4	10	Diethyl phthalate	0.20 UJ	µg/L
L2193905	SVOCs	WEST STORM WATER POND	13.4	10	Dimethyl phthalate	0.20 UJ	µg/L
L2193905	SVOCs	WEST STORM WATER POND	13.4	10	Fluoranthene	0.20 UJ	µg/L
L2193905	SVOCs	WEST STORM WATER POND	13.4	10	Fluorene	0.20 UJ	µg/L
L2193905	SVOCs	WEST STORM WATER POND	13.4	10	Hexachlorobenzene	0.040 UJ	µg/L
L2193905	SVOCs	WEST STORM WATER POND	13.4	10	Hexachlorobutadiene	0.20 UJ	µg/L
L2193905	SVOCs	WEST STORM WATER POND	13.4	10	Indeno(1,2,3-cd)pyrene	0.20 UJ	µg/L
L2193905	SVOCs	WEST STORM WATER POND	13.4	10	Naphthalene	0.20 UJ	µg/L
L2193905	SVOCs	WEST STORM WATER POND	13.4	10	Pentachlorophenol	0.50 UJ	µg/L
L2193905	SVOCs	WEST STORM WATER POND	13.4	10	Perylene	0.20 UJ	µg/L
L2193905	SVOCs	WEST STORM WATER POND	13.4	10	Phenanthrene	0.20 UJ	µg/L
L2193905	SVOCs	WEST STORM WATER POND	13.4	10	Pyrene	0.20 UJ	µg/L

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L2193905	VOCs	WEST STORM WATER POND	13.4	10	1,1,1,2-Tetrachloroethane	0.50 UJ	µg/L
L2193905	VOCs	WEST STORM WATER POND	13.4	10	1,1,1-Trichloroethane	0.50 UJ	µg/L
L2193905	VOCs	WEST STORM WATER POND	13.4	10	1,1,2,2-Tetrachloroethane	0.50 UJ	µg/L
L2193905	VOCs	WEST STORM WATER POND	13.4	10	1,1,2-Trichloroethane	0.50 UJ	µg/L
L2193905	VOCs	WEST STORM WATER POND	13.4	10	1,1-Dichloroethane	0.50 UJ	µg/L
L2193905	VOCs	WEST STORM WATER POND	13.4	10	1,1-Dichloroethane	0.50 UJ	µg/L
L2193905	VOCs	WEST STORM WATER POND	13.4	10	1,2-Dibromoethane (Ethylene dibromide)	0.20 UJ	µg/L
L2193905	VOCs	WEST STORM WATER POND	13.4	10	1,2-Dichlorobenzene	0.50 UJ	µg/L
L2193905	VOCs	WEST STORM WATER POND	13.4	10	1,2-Dichloroethane	0.50 UJ	µg/L
L2193905	VOCs	WEST STORM WATER POND	13.4	10	1,2-Dichloropropane	0.50 UJ	µg/L
L2193905	VOCs	WEST STORM WATER POND	13.4	10	1,3-Dichlorobenzene	0.50 UJ	µg/L
L2193905	VOCs	WEST STORM WATER POND	13.4	10	1,4-Dichlorobenzene	0.50 UJ	µg/L
L2193905	VOCs	WEST STORM WATER POND	13.4	10	2-Butanone (Methyl ethyl ketone) (MEK)	20 UJ	µg/L
L2193905	VOCs	WEST STORM WATER POND	13.4	10	4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	20 UJ	µg/L
L2193905	VOCs	WEST STORM WATER POND	13.4	10	Acetone	20 UJ	µg/L
L2193905	VOCs	WEST STORM WATER POND	13.4	10	Benzene	0.50 UJ	µg/L
L2193905	VOCs	WEST STORM WATER POND	13.4	10	Bromodichloromethane	1.0 UJ	µg/L
L2193905	VOCs	WEST STORM WATER POND	13.4	10	Bromoform	1.0 UJ	µg/L
L2193905	VOCs	WEST STORM WATER POND	13.4	10	Bromomethane (Methyl bromide)	0.50 UJ	µg/L
L2193905	VOCs	WEST STORM WATER POND	13.4	10	Carbon tetrachloride	0.50 UJ	µg/L
L2193905	VOCs	WEST STORM WATER POND	13.4	10	Chlorobenzene	0.50 UJ	µg/L
L2193905	VOCs	WEST STORM WATER POND	13.4	10	Chloroethane	1.0 UJ	µg/L
L2193905	VOCs	WEST STORM WATER POND	13.4	10	Chloroform (Trichloromethane)	1.0 UJ	µg/L
L2193905	VOCs	WEST STORM WATER POND	13.4	10	cis-1,2-Dichloroethene	0.50 UJ	µg/L
L2193905	VOCs	WEST STORM WATER POND	13.4	10	cis-1,3-Dichloropropene	0.50 UJ	µg/L
L2193905	VOCs	WEST STORM WATER POND	13.4	10	Dibromochloromethane	1.0 UJ	µg/L
L2193905	VOCs	WEST STORM WATER POND	13.4	10	Dichlorodifluoromethane (CFC-12)	1.0 UJ	µg/L
L2193905	VOCs	WEST STORM WATER POND	13.4	10	Ethylbenzene	0.50 UJ	µg/L
L2193905	VOCs	WEST STORM WATER POND	13.4	10	Hexane	0.50 UJ	µg/L
L2193905	VOCs	WEST STORM WATER POND	13.4	10	m&p-Xylenes	1.0 UJ	µg/L
L2193905	VOCs	WEST STORM WATER POND	13.4	10	Methyl tert butyl ether (MTBE)	0.50 UJ	µg/L
L2193905	VOCs	WEST STORM WATER POND	13.4	10	Methylene chloride	2.0 UJ	µg/L
L2193905	VOCs	WEST STORM WATER POND	13.4	10	o-Xylene	0.50 UJ	µg/L
L2193905	VOCs	WEST STORM WATER POND	13.4	10	Styrene	0.50 UJ	µg/L

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Lab Report #	Parameter	Associated Sample ID	Temp. Upon Receipt at Laboratory (°C)	Required Temperature (°C)	Analyte	Qualified Result	Units
L2193905	VOCs	WEST STORM WATER POND	13.4	10	Tetrachloroethene	0.50 UJ	µg/L
L2193905	VOCs	WEST STORM WATER POND	13.4	10	Toluene	0.50 UJ	µg/L
L2193905	VOCs	WEST STORM WATER POND	13.4	10	trans-1,2-Dichloroethene	0.50 UJ	µg/L
L2193905	VOCs	WEST STORM WATER POND	13.4	10	trans-1,3-Dichloropropene	0.50 UJ	µg/L
L2193905	VOCs	WEST STORM WATER POND	13.4	10	Trichloroethene	0.50 UJ	µg/L
L2193905	VOCs	WEST STORM WATER POND	13.4	10	Trichlorofluoromethane (CFC-11)	1.0 UJ	µg/L
L2193905	VOCs	WEST STORM WATER POND	13.4	10	Vinyl chloride	0.50 UJ	µg/L
L2193905	VOCs	WEST STORM WATER POND	13.4	10	Trihalomethanes	2.0 UJ	µg/L
L2193905	VOCs	WEST STORM WATER POND	13.4	10	Xylenes (total)	1.1 UJ	µg/L
L2193905	Gen Chem	EAST STORM WATER POND	13.4	10	Alkalinity, total (as CaCO3)	144 J	mg/L
L2193905	Gen Chem	EAST STORM WATER POND	13.4	10	Ammonia-N	0.584 J	mg/L
L2193905	Gen Chem	EAST STORM WATER POND	13.4	10	Bromide	0.76 J	mg/L
L2193905	Gen Chem	EAST STORM WATER POND	13.4	10	Chemical oxygen demand (COD)	32 J	mg/L
L2193905	Gen Chem	EAST STORM WATER POND	13.4	10	Chloride	54.8 J	mg/L
L2193905	Gen Chem	EAST STORM WATER POND	13.4	10	Chromium VI (hexavalent)	0.0053 J	mg/L
L2193905	Gen Chem	EAST STORM WATER POND	13.4	10	Conductivity	662 J	umhos/cm
L2193905	Gen Chem	EAST STORM WATER POND	13.4	10	Cyanide (total)	0.0020 UJ	mg/L
L2193905	Gen Chem	EAST STORM WATER POND	13.4	10	Dissolved organic carbon (DOC) (dissolved)	7.26 J	mg/L
L2193905	Gen Chem	EAST STORM WATER POND	13.4	10	Fluoride	0.574 J	mg/L
L2193905	Gen Chem	EAST STORM WATER POND	13.4	10	Nitrate (as N)	0.072 J	mg/L
L2193905	Gen Chem	EAST STORM WATER POND	13.4	10	Nitrite (as N)	0.010 UJ	mg/L
L2193905	Gen Chem	EAST STORM WATER POND	13.4	10	pH, lab	7.78 J	s.u.
L2193905	Gen Chem	EAST STORM WATER POND	13.4	10	Phenolics (total)	0.0017 J	mg/L
L2193905	Gen Chem	EAST STORM WATER POND	13.4	10	Phosphorus	0.0542 J	mg/L
L2193905	Gen Chem	EAST STORM WATER POND	13.4	10	Sulfate	113 J	mg/L
L2193905	Gen Chem	EAST STORM WATER POND	13.4	10	Total dissolved solids (TDS)	433 UJ	mg/L
L2193905	Gen Chem	EAST STORM WATER POND	13.4	10	Total kjeldahl nitrogen (TKN)	1.31 J	mg/L
L2193905	Gen Chem	EAST STORM WATER POND	13.4	10	Total suspended solids (TSS)	15.0 J	mg/L
L2193905	Gen Chem	EAST STORM WATER POND	13.4	10	Un-ionized ammonia	0.0186 J	mg/L
L2193905	SVOCs	EAST STORM WATER POND	13.4	10	1,2,4-Trichlorobenzene	0.40 UJ	µg/L
L2193905	SVOCs	EAST STORM WATER POND	13.4	10	1,2-Dichlorobenzene	0.40 UJ	µg/L
L2193905	SVOCs	EAST STORM WATER POND	13.4	10	1,3-Dichlorobenzene	0.40 UJ	µg/L

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L2193905	SVOCs	EAST STORM WATER POND	13.4	10	1,4-Dichlorobenzene	0.40 UJ	µg/L
L2193905	SVOCs	EAST STORM WATER POND	13.4	10	1-Methylnaphthalene	0.40 UJ	µg/L
L2193905	SVOCs	EAST STORM WATER POND	13.4	10	2,3,4,5-Tetrachlorophenol	0.50 UJ	µg/L
L2193905	SVOCs	EAST STORM WATER POND	13.4	10	2,3,4,6-Tetrachlorophenol	0.50 UJ	µg/L
L2193905	SVOCs	EAST STORM WATER POND	13.4	10	2,3,6-Trichlorophenol	0.50 UJ	µg/L
L2193905	SVOCs	EAST STORM WATER POND	13.4	10	2,4,5-Trichlorophenol	0.50 UJ	µg/L
L2193905	SVOCs	EAST STORM WATER POND	13.4	10	2,4,6-Trichlorophenol	0.50 UJ	µg/L
L2193905	SVOCs	EAST STORM WATER POND	13.4	10	2,4-Dichlorophenol	0.30 UJ	µg/L
L2193905	SVOCs	EAST STORM WATER POND	13.4	10	2,4-Dimethylphenol	0.50 UJ	µg/L
L2193905	SVOCs	EAST STORM WATER POND	13.4	10	2,4-Dinitrophenol	1.0 UJ	µg/L
L2193905	SVOCs	EAST STORM WATER POND	13.4	10	2,4-Dinitrotoluene	0.40 UJ	µg/L
L2193905	SVOCs	EAST STORM WATER POND	13.4	10	2,6-Dinitrotoluene	0.40 UJ	µg/L
L2193905	SVOCs	EAST STORM WATER POND	13.4	10	2-Chlorophenol	0.30 UJ	µg/L
L2193905	SVOCs	EAST STORM WATER POND	13.4	10	2-Methylnaphthalene	0.40 UJ	µg/L
L2193905	SVOCs	EAST STORM WATER POND	13.4	10	3,3'-Dichlorobenzidine	0.40 UJ	µg/L
L2193905	SVOCs	EAST STORM WATER POND	13.4	10	4-Chloroaniline	0.40 UJ	µg/L
L2193905	SVOCs	EAST STORM WATER POND	13.4	10	Acenaphthene	0.20 UJ	µg/L
L2193905	SVOCs	EAST STORM WATER POND	13.4	10	Acenaphthylene	0.20 UJ	µg/L
L2193905	SVOCs	EAST STORM WATER POND	13.4	10	Anthracene	0.20 UJ	µg/L
L2193905	SVOCs	EAST STORM WATER POND	13.4	10	Benzo(a)anthracene	0.20 UJ	µg/L
L2193905	SVOCs	EAST STORM WATER POND	13.4	10	Benzo(a)pyrene	0.050 UJ	µg/L
L2193905	SVOCs	EAST STORM WATER POND	13.4	10	Benzo(b)fluoranthene	0.20 UJ	µg/L
L2193905	SVOCs	EAST STORM WATER POND	13.4	10	Benzo(g,h,i)perylene	0.20 UJ	µg/L
L2193905	SVOCs	EAST STORM WATER POND	13.4	10	Benzo(k)fluoranthene	0.20 UJ	µg/L
L2193905	SVOCs	EAST STORM WATER POND	13.4	10	bis(2-Chloroethyl)ether	0.40 UJ	µg/L
L2193905	SVOCs	EAST STORM WATER POND	13.4	10	bis(2-Ethylhexyl)phthalate (DEHP)	2.0 UJ	µg/L
L2193905	SVOCs	EAST STORM WATER POND	13.4	10	Chrysene	0.20 UJ	µg/L
L2193905	SVOCs	EAST STORM WATER POND	13.4	10	Dibenz(a,h)anthracene	0.20 UJ	µg/L
L2193905	SVOCs	EAST STORM WATER POND	13.4	10	Diethyl phthalate	0.20 UJ	µg/L
L2193905	SVOCs	EAST STORM WATER POND	13.4	10	Dimethyl phthalate	0.20 UJ	µg/L
L2193905	SVOCs	EAST STORM WATER POND	13.4	10	Fluoranthene	0.20 UJ	µg/L
L2193905	SVOCs	EAST STORM WATER POND	13.4	10	Fluorene	0.20 UJ	µg/L
L2193905	SVOCs	EAST STORM WATER POND	13.4	10	Hexachlorobenzene	0.040 UJ	µg/L
L2193905	SVOCs	EAST STORM WATER POND	13.4	10	Hexachlorobutadiene	0.20 UJ	µg/L

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L2193905	SVOCs	EAST STORM WATER POND	13.4	10	Indeno(1,2,3-cd)pyrene	0.20 UJ	µg/L
L2193905	SVOCs	EAST STORM WATER POND	13.4	10	Naphthalene	0.20 UJ	µg/L
L2193905	SVOCs	EAST STORM WATER POND	13.4	10	Pentachlorophenol	0.50 UJ	µg/L
L2193905	SVOCs	EAST STORM WATER POND	13.4	10	Perylene	0.20 UJ	µg/L
L2193905	SVOCs	EAST STORM WATER POND	13.4	10	Phenanthrene	0.20 UJ	µg/L
L2193905	SVOCs	EAST STORM WATER POND	13.4	10	Pyrene	0.20 UJ	µg/L
L2193905	VOCs	EAST STORM WATER POND	13.4	10	1,1,1,2-Tetrachloroethane	0.50 UJ	µg/L
L2193905	VOCs	EAST STORM WATER POND	13.4	10	1,1,1-Trichloroethane	0.50 UJ	µg/L
L2193905	VOCs	EAST STORM WATER POND	13.4	10	1,1,2,2-Tetrachloroethane	0.50 UJ	µg/L
L2193905	VOCs	EAST STORM WATER POND	13.4	10	1,1,2-Trichloroethane	0.50 UJ	µg/L
L2193905	VOCs	EAST STORM WATER POND	13.4	10	1,1-Dichloroethane	0.50 UJ	µg/L
L2193905	VOCs	EAST STORM WATER POND	13.4	10	1,1-Dichloroethene	0.50 UJ	µg/L
L2193905	VOCs	EAST STORM WATER POND	13.4	10	1,2-Dibromoethane (Ethylene dibromide)	0.20 UJ	µg/L
L2193905	VOCs	EAST STORM WATER POND	13.4	10	1,2-Dichlorobenzene	0.50 UJ	µg/L
L2193905	VOCs	EAST STORM WATER POND	13.4	10	1,2-Dichloroethane	0.50 UJ	µg/L
L2193905	VOCs	EAST STORM WATER POND	13.4	10	1,2-Dichloropropane	0.50 UJ	µg/L
L2193905	VOCs	EAST STORM WATER POND	13.4	10	1,3-Dichlorobenzene	0.50 UJ	µg/L
L2193905	VOCs	EAST STORM WATER POND	13.4	10	1,4-Dichlorobenzene	0.50 UJ	µg/L
L2193905	VOCs	EAST STORM WATER POND	13.4	10	2-Butanone (Methyl ethyl ketone) (MEK)	20 UJ	µg/L
L2193905	VOCs	EAST STORM WATER POND	13.4	10	4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	20 UJ	µg/L
L2193905	VOCs	EAST STORM WATER POND	13.4	10	Acetone	20 UJ	µg/L
L2193905	VOCs	EAST STORM WATER POND	13.4	10	Benzene	0.50 UJ	µg/L
L2193905	VOCs	EAST STORM WATER POND	13.4	10	Bromodichloromethane	1.0 UJ	µg/L
L2193905	VOCs	EAST STORM WATER POND	13.4	10	Bromoform	1.0 UJ	µg/L
L2193905	VOCs	EAST STORM WATER POND	13.4	10	Bromomethane (Methyl bromide)	0.50 UJ	µg/L
L2193905	VOCs	EAST STORM WATER POND	13.4	10	Carbon tetrachloride	0.50 UJ	µg/L
L2193905	VOCs	EAST STORM WATER POND	13.4	10	Chlorobenzene	0.50 UJ	µg/L
L2193905	VOCs	EAST STORM WATER POND	13.4	10	Chloroethane	1.0 UJ	µg/L
L2193905	VOCs	EAST STORM WATER POND	13.4	10	Chloroform (Trichloromethane)	1.0 UJ	µg/L
L2193905	VOCs	EAST STORM WATER POND	13.4	10	cis-1,2-Dichloroethene	0.50 UJ	µg/L
L2193905	VOCs	EAST STORM WATER POND	13.4	10	cis-1,3-Dichloropropene	0.50 UJ	µg/L
L2193905	VOCs	EAST STORM WATER POND	13.4	10	Dibromochloromethane	1.0 UJ	µg/L
L2193905	VOCs	EAST STORM WATER POND	13.4	10	Dichlorodifluoromethane (CFC-12)	1.0 UJ	µg/L

Table 4

**Qualified Sample Data Due To Insufficient Sample Preservation - Temperature
Surface Water Sampling Events
Clean Harbors Canada Inc.
Sarnia, Ontario
February to December 2018**

Lab Report #	Parameter	Associated Sample ID	Temp. Upon Receipt at Laboratory (°C)	Required Temperature (°C)	Analyte	Qualified Result	Units
L2193905	VOCs	EAST STORM WATER POND	13.4	10	Ethylbenzene	0.50 UJ	µg/L
L2193905	VOCs	EAST STORM WATER POND	13.4	10	Hexane	0.50 UJ	µg/L
L2193905	VOCs	EAST STORM WATER POND	13.4	10	m&p-Xylenes	1.0 UJ	µg/L
L2193905	VOCs	EAST STORM WATER POND	13.4	10	Methyl tert butyl ether (MTBE)	0.50 UJ	µg/L
L2193905	VOCs	EAST STORM WATER POND	13.4	10	Methylene chloride	2.0 UJ	µg/L
L2193905	VOCs	EAST STORM WATER POND	13.4	10	o-Xylene	0.50 UJ	µg/L
L2193905	VOCs	EAST STORM WATER POND	13.4	10	Styrene	0.50 UJ	µg/L
L2193905	VOCs	EAST STORM WATER POND	13.4	10	Tetrachloroethene	0.50 UJ	µg/L
L2193905	VOCs	EAST STORM WATER POND	13.4	10	Toluene	0.50 UJ	µg/L
L2193905	VOCs	EAST STORM WATER POND	13.4	10	trans-1,2-Dichloroethene	0.50 UJ	µg/L
L2193905	VOCs	EAST STORM WATER POND	13.4	10	trans-1,3-Dichloropropene	0.50 UJ	µg/L
L2193905	VOCs	EAST STORM WATER POND	13.4	10	Trichloroethene	0.50 UJ	µg/L
L2193905	VOCs	EAST STORM WATER POND	13.4	10	Trichlorofluoromethane (CFC-11)	1.0 UJ	µg/L
L2193905	VOCs	EAST STORM WATER POND	13.4	10	Vinyl chloride	0.50 UJ	µg/L
L2193905	VOCs	EAST STORM WATER POND	13.4	10	Trihalomethanes	2.0 UJ	µg/L
L2193905	VOCs	EAST STORM WATER POND	13.4	10	Xylenes (total)	1.1 UJ	µg/L
L2196113	Microtox	EQ POND DISCHARGE	10.9	10	EC 20 (15min)	>100 J	%
L2196113	Microtox	EQ POND DISCHARGE	10.9	10	EC 20 (5min)	>100 J	%
L2196113	Microtox	EQ POND DISCHARGE	10.9	10	EC 50 (15min)	>100 J	%
L2196113	Microtox	EQ POND DISCHARGE	10.9	10	EC 50 (5min)	>100 J	%

Notes:

- J - Estimated concentration
- UJ - Not detected; associated reporting limit is estimated
- R - Rejected
- Gen Chem - General Chemistry
- SVOCs - Semi-volatile Organic Compounds
- VOCs - Volatile Organic Compounds

**Qualified Sample Data Due To Headspace
Surface Water Sampling Events
Clean Harbors Canada Inc.
Sarnia, Ontario
February to December 2018**

Lab Report #	Parameter	Analyte	Associated Sample ID	Qualified Result	Units
L2060595	VOCs	1,1,1,2-Tetrachloroethane	EAST STORM WATER POND	0.50 UJ	µg/L
L2060595	VOCs	1,1,1-Trichloroethane	EAST STORM WATER POND	0.50 UJ	µg/L
L2060595	VOCs	1,1,2,2-Tetrachloroethane	EAST STORM WATER POND	0.50 UJ	µg/L
L2060595	VOCs	1,1,2-Trichloroethane	EAST STORM WATER POND	0.50 UJ	µg/L
L2060595	VOCs	1,1-Dichloroethane	EAST STORM WATER POND	0.50 UJ	µg/L
L2060595	VOCs	1,1-Dichloroethene	EAST STORM WATER POND	0.50 UJ	µg/L
L2060595	VOCs	1,2-Dibromoethane (Ethylene dibromide)	EAST STORM WATER POND	0.20 UJ	µg/L
L2060595	VOCs	1,2-Dichlorobenzene	EAST STORM WATER POND	0.50 UJ	µg/L
L2060595	VOCs	1,2-Dichloroethane	EAST STORM WATER POND	0.50 UJ	µg/L
L2060595	VOCs	1,2-Dichloropropane	EAST STORM WATER POND	0.50 UJ	µg/L
L2060595	VOCs	1,3-Dichlorobenzene	EAST STORM WATER POND	0.50 UJ	µg/L
L2060595	VOCs	1,4-Dichlorobenzene	EAST STORM WATER POND	0.50 UJ	µg/L
L2060595	VOCs	2-Butanone (Methyl ethyl ketone) (MEK)	EAST STORM WATER POND	20 UJ	µg/L
L2060595	VOCs	4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	EAST STORM WATER POND	20 UJ	µg/L
L2060595	VOCs	Acetone	EAST STORM WATER POND	20 UJ	µg/L
L2060595	VOCs	Benzene	EAST STORM WATER POND	0.50 UJ	µg/L
L2060595	VOCs	Bromodichloromethane	EAST STORM WATER POND	1.0 UJ	µg/L
L2060595	VOCs	Bromoform	EAST STORM WATER POND	1.0 UJ	µg/L
L2060595	VOCs	Bromomethane (Methyl bromide)	EAST STORM WATER POND	0.50 UJ	µg/L
L2060595	VOCs	Carbon tetrachloride	EAST STORM WATER POND	0.50 UJ	µg/L
L2060595	VOCs	Chlorobenzene	EAST STORM WATER POND	0.50 UJ	µg/L
L2060595	VOCs	Chloroethane	EAST STORM WATER POND	1.0 UJ	µg/L
L2060595	VOCs	Chloroform (Trichloromethane)	EAST STORM WATER POND	1.0 UJ	µg/L
L2060595	VOCs	cis-1,2-Dichloroethene	EAST STORM WATER POND	0.50 UJ	µg/L
L2060595	VOCs	cis-1,3-Dichloropropene	EAST STORM WATER POND	0.50 UJ	µg/L
L2060595	VOCs	Dibromochloromethane	EAST STORM WATER POND	1.0 UJ	µg/L
L2060595	VOCs	Dichlorodifluoromethane (CFC-12)	EAST STORM WATER POND	1.0 UJ	µg/L
L2060595	VOCs	Ethylbenzene	EAST STORM WATER POND	0.50 UJ	µg/L
L2060595	VOCs	Hexane	EAST STORM WATER POND	0.50 UJ	µg/L
L2060595	VOCs	m&p-Xylenes	EAST STORM WATER POND	1.0 UJ	µg/L
L2060595	VOCs	Methyl tert butyl ether (MTBE)	EAST STORM WATER POND	0.50 UJ	µg/L
L2060595	VOCs	Methylene chloride	EAST STORM WATER POND	2.0 UJ	µg/L

Table 5

**Qualified Sample Data Due To Headspace
Surface Water Sampling Events
Clean Harbors Canada Inc.
Sarnia, Ontario
February to December 2018**

Lab Report #	Parameter	Analyte	Associated Sample ID	Qualified Result	Units
L2060595	VOCs	o-Xylene	EAST STORM WATER POND	0.50 UJ	µg/L
L2060595	VOCs	Styrene	EAST STORM WATER POND	0.50 UJ	µg/L
L2060595	VOCs	Tetrachloroethene	EAST STORM WATER POND	0.50 UJ	µg/L
L2060595	VOCs	Toluene	EAST STORM WATER POND	0.50 UJ	µg/L
L2060595	VOCs	trans-1,2-Dichloroethene	EAST STORM WATER POND	0.50 UJ	µg/L
L2060595	VOCs	trans-1,3-Dichloropropene	EAST STORM WATER POND	0.50 UJ	µg/L
L2060595	VOCs	Trichloroethene	EAST STORM WATER POND	0.50 UJ	µg/L
L2060595	VOCs	Trichlorofluoromethane (CFC-11)	EAST STORM WATER POND	1.0 UJ	µg/L
L2060595	VOCs	Vinyl chloride	EAST STORM WATER POND	0.50 UJ	µg/L
L2083897	VOCs	1,1,1,2-Tetrachloroethane	EQ POND DISCHARGE	0.50 UJ	µg/L
L2083897	VOCs	1,1,1-Trichloroethane	EQ POND DISCHARGE	0.50 UJ	µg/L
L2083897	VOCs	1,1,2,2-Tetrachloroethane	EQ POND DISCHARGE	0.50 UJ	µg/L
L2083897	VOCs	1,1,2-Trichloroethane	EQ POND DISCHARGE	0.50 UJ	µg/L
L2083897	VOCs	1,1-Dichloroethane	EQ POND DISCHARGE	0.50 UJ	µg/L
L2083897	VOCs	1,1-Dichloroethene	EQ POND DISCHARGE	0.50 UJ	µg/L
L2083897	VOCs	1,2-Dibromoethane (Ethylene dibromide)	EQ POND DISCHARGE	0.20 UJ	µg/L
L2083897	VOCs	1,2-Dichlorobenzene	EQ POND DISCHARGE	0.50 UJ	µg/L
L2083897	VOCs	1,2-Dichloroethane	EQ POND DISCHARGE	0.50 UJ	µg/L
L2083897	VOCs	1,2-Dichloropropane	EQ POND DISCHARGE	0.50 UJ	µg/L
L2083897	VOCs	1,3-Dichlorobenzene	EQ POND DISCHARGE	0.50 UJ	µg/L
L2083897	VOCs	1,4-Dichlorobenzene	EQ POND DISCHARGE	0.50 UJ	µg/L
L2083897	VOCs	2-Butanone (Methyl ethyl ketone) (MEK)	EQ POND DISCHARGE	20 UJ	µg/L
L2083897	VOCs	4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	EQ POND DISCHARGE	20 UJ	µg/L
L2083897	VOCs	Acetone	EQ POND DISCHARGE	20 UJ	µg/L
L2083897	VOCs	Benzene	EQ POND DISCHARGE	0.50 UJ	µg/L
L2083897	VOCs	Bromodichloromethane	EQ POND DISCHARGE	1.0 UJ	µg/L
L2083897	VOCs	Bromoform	EQ POND DISCHARGE	1.0 UJ	µg/L
L2083897	VOCs	Bromomethane (Methyl bromide)	EQ POND DISCHARGE	0.50 UJ	µg/L
L2083897	VOCs	Carbon tetrachloride	EQ POND DISCHARGE	0.50 UJ	µg/L
L2083897	VOCs	Chlorobenzene	EQ POND DISCHARGE	0.50 UJ	µg/L

**Qualified Sample Data Due To Headspace
Surface Water Sampling Events
Clean Harbors Canada Inc.
Sarnia, Ontario
February to December 2018**

Lab Report #	Parameter	Analyte	Associated Sample ID	Qualified Result	Units
L2083897	VOCs	Chloroethane	EQ POND DISCHARGE	1.0 UJ	µg/L
L2083897	VOCs	Chloroform (Trichloromethane)	EQ POND DISCHARGE	1.0 UJ	µg/L
L2083897	VOCs	cis-1,2-Dichloroethene	EQ POND DISCHARGE	0.50 UJ	µg/L
L2083897	VOCs	cis-1,3-Dichloropropene	EQ POND DISCHARGE	0.50 UJ	µg/L
L2083897	VOCs	Dibromochloromethane	EQ POND DISCHARGE	1.0 UJ	µg/L
L2083897	VOCs	Dichlorodifluoromethane (CFC-12)	EQ POND DISCHARGE	1.0 UJ	µg/L
L2083897	VOCs	Ethylbenzene	EQ POND DISCHARGE	0.50 UJ	µg/L
L2083897	VOCs	Hexane	EQ POND DISCHARGE	0.50 UJ	µg/L
L2083897	VOCs	m&p-Xylenes	EQ POND DISCHARGE	1.0 UJ	µg/L
L2083897	VOCs	Methyl tert butyl ether (MTBE)	EQ POND DISCHARGE	0.50 UJ	µg/L
L2083897	VOCs	Methylene chloride	EQ POND DISCHARGE	2.0 UJ	µg/L
L2083897	VOCs	o-Xylene	EQ POND DISCHARGE	0.50 UJ	µg/L
L2083897	VOCs	Styrene	EQ POND DISCHARGE	0.50 UJ	µg/L
L2083897	VOCs	Tetrachloroethene	EQ POND DISCHARGE	0.50 UJ	µg/L
L2083897	VOCs	Toluene	EQ POND DISCHARGE	0.50 UJ	µg/L
L2083897	VOCs	trans-1,2-Dichloroethene	EQ POND DISCHARGE	0.50 UJ	µg/L
L2083897	VOCs	trans-1,3-Dichloropropene	EQ POND DISCHARGE	0.50 UJ	µg/L
L2083897	VOCs	Trichloroethene	EQ POND DISCHARGE	0.50 UJ	µg/L
L2083897	VOCs	Trichlorofluoromethane (CFC-11)	EQ POND DISCHARGE	1.0 UJ	µg/L
L2083897	VOCs	Vinyl chloride	EQ POND DISCHARGE	0.50 UJ	µg/L
L2083897	VOCs	1,1,1,2-Tetrachloroethane	WEST STORM WATER POND	0.50 UJ	µg/L
L2083897	VOCs	1,1,1-Trichloroethane	WEST STORM WATER POND	0.50 UJ	µg/L
L2083897	VOCs	1,1,2,2-Tetrachloroethane	WEST STORM WATER POND	0.50 UJ	µg/L
L2083897	VOCs	1,1,2-Trichloroethane	WEST STORM WATER POND	0.50 UJ	µg/L
L2083897	VOCs	1,1-Dichloroethane	WEST STORM WATER POND	0.50 UJ	µg/L
L2083897	VOCs	1,1-Dichloroethene	WEST STORM WATER POND	0.50 UJ	µg/L
L2083897	VOCs	1,2-Dibromoethane (Ethylene dibromide)	WEST STORM WATER POND	0.20 UJ	µg/L
L2083897	VOCs	1,2-Dichlorobenzene	WEST STORM WATER POND	0.50 UJ	µg/L
L2083897	VOCs	1,2-Dichloroethane	WEST STORM WATER POND	0.50 UJ	µg/L
L2083897	VOCs	1,2-Dichloropropane	WEST STORM WATER POND	0.50 UJ	µg/L

**Qualified Sample Data Due To Headspace
Surface Water Sampling Events
Clean Harbors Canada Inc.
Sarnia, Ontario
February to December 2018**

Lab Report #	Parameter	Analyte	Associated Sample ID	Qualified Result	Units
L2083897	VOCs	1,3-Dichlorobenzene	WEST STORM WATER POND	0.50 UJ	µg/L
L2083897	VOCs	1,4-Dichlorobenzene	WEST STORM WATER POND	0.50 UJ	µg/L
L2083897	VOCs	2-Butanone (Methyl ethyl ketone) (MEK)	WEST STORM WATER POND	20 UJ	µg/L
L2083897	VOCs	4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	WEST STORM WATER POND	20 UJ	µg/L
L2083897	VOCs	Acetone	WEST STORM WATER POND	20 UJ	µg/L
L2083897	VOCs	Benzene	WEST STORM WATER POND	0.50 UJ	µg/L
L2083897	VOCs	Bromodichloromethane	WEST STORM WATER POND	1.0 UJ	µg/L
L2083897	VOCs	Bromoform	WEST STORM WATER POND	1.0 UJ	µg/L
L2083897	VOCs	Bromomethane (Methyl bromide)	WEST STORM WATER POND	0.50 UJ	µg/L
L2083897	VOCs	Carbon tetrachloride	WEST STORM WATER POND	0.50 UJ	µg/L
L2083897	VOCs	Chlorobenzene	WEST STORM WATER POND	0.50 UJ	µg/L
L2083897	VOCs	Chloroethane	WEST STORM WATER POND	1.0 UJ	µg/L
L2083897	VOCs	Chloroform (Trichloromethane)	WEST STORM WATER POND	1.0 UJ	µg/L
L2083897	VOCs	cis-1,2-Dichloroethene	WEST STORM WATER POND	0.50 UJ	µg/L
L2083897	VOCs	cis-1,3-Dichloropropene	WEST STORM WATER POND	0.50 UJ	µg/L
L2083897	VOCs	Dibromochloromethane	WEST STORM WATER POND	1.0 UJ	µg/L
L2083897	VOCs	Dichlorodifluoromethane (CFC-12)	WEST STORM WATER POND	1.0 UJ	µg/L
L2083897	VOCs	Ethylbenzene	WEST STORM WATER POND	0.50 UJ	µg/L
L2083897	VOCs	Hexane	WEST STORM WATER POND	0.50 UJ	µg/L
L2083897	VOCs	m&p-Xylenes	WEST STORM WATER POND	1.0 UJ	µg/L
L2083897	VOCs	Methyl tert butyl ether (MTBE)	WEST STORM WATER POND	0.50 UJ	µg/L
L2083897	VOCs	Methylene chloride	WEST STORM WATER POND	2.0 UJ	µg/L
L2083897	VOCs	o-Xylene	WEST STORM WATER POND	0.50 UJ	µg/L
L2083897	VOCs	Styrene	WEST STORM WATER POND	0.50 UJ	µg/L
L2083897	VOCs	Tetrachloroethene	WEST STORM WATER POND	0.50 UJ	µg/L
L2083897	VOCs	Toluene	WEST STORM WATER POND	0.50 UJ	µg/L
L2083897	VOCs	trans-1,2-Dichloroethene	WEST STORM WATER POND	0.50 UJ	µg/L
L2083897	VOCs	trans-1,3-Dichloropropene	WEST STORM WATER POND	0.50 UJ	µg/L
L2083897	VOCs	Trichloroethene	WEST STORM WATER POND	0.50 UJ	µg/L
L2083897	VOCs	Trichlorofluoromethane (CFC-11)	WEST STORM WATER POND	1.0 UJ	µg/L
L2083897	VOCs	Vinyl chloride	WEST STORM WATER POND	0.50 UJ	µg/L

**Qualified Sample Data Due To Headspace
Surface Water Sampling Events
Clean Harbors Canada Inc.
Sarnia, Ontario
February to December 2018**

Lab Report #	Parameter	Analyte	Associated Sample ID	Qualified Result	Units
L2083897	VOCs	1,1,1,2-Tetrachloroethane	EAST STORM WATER POND	0.50 UJ	µg/L
L2083897	VOCs	1,1,1-Trichloroethane	EAST STORM WATER POND	0.50 UJ	µg/L
L2083897	VOCs	1,1,2,2-Tetrachloroethane	EAST STORM WATER POND	0.50 UJ	µg/L
L2083897	VOCs	1,1,2-Trichloroethane	EAST STORM WATER POND	0.50 UJ	µg/L
L2083897	VOCs	1,1-Dichloroethane	EAST STORM WATER POND	0.50 UJ	µg/L
L2083897	VOCs	1,1-Dichloroethene	EAST STORM WATER POND	0.50 UJ	µg/L
L2083897	VOCs	1,2-Dibromoethane (Ethylene dibromide)	EAST STORM WATER POND	0.20 UJ	µg/L
L2083897	VOCs	1,2-Dichlorobenzene	EAST STORM WATER POND	0.50 UJ	µg/L
L2083897	VOCs	1,2-Dichloroethane	EAST STORM WATER POND	0.50 UJ	µg/L
L2083897	VOCs	1,2-Dichloropropane	EAST STORM WATER POND	0.50 UJ	µg/L
L2083897	VOCs	1,3-Dichlorobenzene	EAST STORM WATER POND	0.50 UJ	µg/L
L2083897	VOCs	1,4-Dichlorobenzene	EAST STORM WATER POND	0.50 UJ	µg/L
L2083897	VOCs	2-Butanone (Methyl ethyl ketone) (MEK)	EAST STORM WATER POND	20 UJ	µg/L
L2083897	VOCs	4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	EAST STORM WATER POND	20 UJ	µg/L
L2083897	VOCs	Acetone	EAST STORM WATER POND	20 UJ	µg/L
L2083897	VOCs	Benzene	EAST STORM WATER POND	0.50 UJ	µg/L
L2083897	VOCs	Bromodichloromethane	EAST STORM WATER POND	1.0 UJ	µg/L
L2083897	VOCs	Bromoform	EAST STORM WATER POND	1.0 UJ	µg/L
L2083897	VOCs	Bromomethane (Methyl bromide)	EAST STORM WATER POND	0.50 UJ	µg/L
L2083897	VOCs	Carbon tetrachloride	EAST STORM WATER POND	0.50 UJ	µg/L
L2083897	VOCs	Chlorobenzene	EAST STORM WATER POND	0.50 UJ	µg/L
L2083897	VOCs	Chloroethane	EAST STORM WATER POND	1.0 UJ	µg/L
L2083897	VOCs	Chloroform (Trichloromethane)	EAST STORM WATER POND	1.0 UJ	µg/L
L2083897	VOCs	cis-1,2-Dichloroethene	EAST STORM WATER POND	0.50 UJ	µg/L
L2083897	VOCs	cis-1,3-Dichloropropene	EAST STORM WATER POND	0.50 UJ	µg/L
L2083897	VOCs	Dibromochloromethane	EAST STORM WATER POND	1.0 UJ	µg/L
L2083897	VOCs	Dichlorodifluoromethane (CFC-12)	EAST STORM WATER POND	1.0 UJ	µg/L
L2083897	VOCs	Ethylbenzene	EAST STORM WATER POND	0.50 UJ	µg/L
L2083897	VOCs	Hexane	EAST STORM WATER POND	0.50 UJ	µg/L
L2083897	VOCs	m&p-Xylenes	EAST STORM WATER POND	1.0 UJ	µg/L

**Qualified Sample Data Due To Headspace
Surface Water Sampling Events
Clean Harbors Canada Inc.
Sarnia, Ontario
February to December 2018**

Lab Report #	Parameter	Analyte	Associated Sample ID	Qualified Result	Units
L2083897	VOCs	Methyl tert butyl ether (MTBE)	EAST STORM WATER POND	0.50 UJ	µg/L
L2083897	VOCs	Methylene chloride	EAST STORM WATER POND	2.0 UJ	µg/L
L2083897	VOCs	o-Xylene	EAST STORM WATER POND	0.50 UJ	µg/L
L2083897	VOCs	Styrene	EAST STORM WATER POND	0.50 UJ	µg/L
L2083897	VOCs	Tetrachloroethene	EAST STORM WATER POND	0.50 UJ	µg/L
L2083897	VOCs	Toluene	EAST STORM WATER POND	0.50 UJ	µg/L
L2083897	VOCs	trans-1,2-Dichloroethene	EAST STORM WATER POND	0.50 UJ	µg/L
L2083897	VOCs	trans-1,3-Dichloropropene	EAST STORM WATER POND	0.50 UJ	µg/L
L2083897	VOCs	Trichloroethene	EAST STORM WATER POND	0.50 UJ	µg/L
L2083897	VOCs	Trichlorofluoromethane (CFC-11)	EAST STORM WATER POND	1.0 UJ	µg/L
L2083897	VOCs	Vinyl chloride	EAST STORM WATER POND	0.50 UJ	µg/L

Notes:

- UJ - Not detected; associated reporting limit is estimated
VOCs - Volatile Organic Compounds

**Qualified Sample Data Due To Outlying Laboratory Control Sample Results
Surface Water Sampling Events
Clean Harbors Canada Inc.
Sarnia, Ontario
February to December 2018**

Lab Report #	Parameter	Analyte	LCS % Recovery	Control Limits % Recovery	Associated Sample ID	Qualified Results	Units
L2060595	SVOCs	1,3-Dichlorobenzene	46.4	50-140	EQ POND DISCHARGE	0.40 UJ	µg/L
L2060595	SVOCs	1,3-Dichlorobenzene	46.4	50-140	WEST STORM WATER POND	0.40 UJ	µg/L
L2060595	SVOCs	1,3-Dichlorobenzene	46.4	50-140	EAST STORM WATER POND	0.40 UJ	µg/L

Notes:

- LCS - Laboratory Control Sample
- UJ - Not detected; associated reporting limit is estimated
- SVOCs - Semi-volatile Organic Compounds

**Qualified Sample Data Due To Total Calcium and
Magnesium Data Used For Hardness Calculation
Surface Water Sampling Events
Clean Harbors Canada Inc.
Sarnia, Ontario
February to December 2018**

Lab Report #	Parameter	Sample ID	Analyte	Qualified Result	Units
L2060595	Gen Chem	EQ POND DISCHARGE	Hardness	266 J	mg/L
L2060595	Gen Chem	WEST STORM WATER POND	Hardness	288 J	mg/L
L2060595	Gen Chem	EAST STORM WATER POND	Hardness	287 J	mg/L
L2060595	Gen Chem	STN 6A	Hardness	144 J	mg/L
L2083897	Gen Chem	EQ POND DISCHARGE	Hardness	277 J	mg/L
L2083897	Gen Chem	WEST STORM WATER POND	Hardness	271 J	mg/L
L2083897	Gen Chem	EAST STORM WATER POND	Hardness	244 J	mg/L
L2155268	Gen Chem	EQ POND DISCHARGE	Hardness	220 J	mg/L
L2155268	Gen Chem	WEST STORM WATER POND	Hardness	217 J	mg/L
L2155268	Gen Chem	EAST STORM WATER POND	Hardness	198 J	mg/L
L2193905	Gen Chem	EQ SAMPLE DISCHARGE	Hardness	226 J	mg/L
L2193905	Gen Chem	WEST STORM WATER POND	Hardness	244 J	mg/L
L2193905	Gen Chem	EAST STORM WATER POND	Hardness	251 J	mg/L
L2198864	Gen Chem	EQ POND DISCHARGE EQP	Hardness	238 J	mg/L
L2198864	Gen Chem	WEST STORM WATER POND WRP	Hardness	246 J	mg/L
L2198864	Gen Chem	EAST STORM WATER POND ERP	Hardness	231 J	mg/L
L2199505	Gen Chem	STN6	Hardness	382 J	mg/L
L2199505	Gen Chem	STN6A	Hardness	372 J	mg/L
L2211993	Gen Chem	EQ POND DISCHARGE	Hardness	279 J	mg/L
L2211993	Gen Chem	WEST STORM WATER POND	Hardness	278 J	mg/L
L2211993	Gen Chem	EAST STORM WATER POND	Hardness	298 J	mg/L

Notes:

J - Estimated concentration
Gen Chem - General Chemistry

Appendix D

CEP Declaration, Monitoring, and Screening Checklist

Appendix D-Monitoring and Screening Checklist General Information and Instructions

General Information: The checklist is to be completed, and submitted with the Monitoring Report.

Instructions: A complete checklist consists of:

- (a) a completed and signed checklist, including any additional pages of information which can be attached as needed to provide further details where indicated.
- (b) completed contact information for the Competent Environmental Practitioner (CEP)
- (c) self-declaration that CEP(s) meet(s) the qualifications as set out below and in Section 1.2 of the Technical Guidance Document.

Definition of Groundwater CEP:

For groundwater, the CEP must have expertise in hydrogeology and meet one of the following:

- (a) the person holds a licence, limited licence or temporary licence under the *Professional Engineers Act*; or
- (b) the person holds a certificate of registration under the *Professional Geoscientists Act, 2000* and is a practicing member, temporary, member or limited member of the Association of Professional Geoscientists of Ontario. O. Reg. 66/08, s. 2..

Definition of Surface water CEP:

A CEP for surface water assessments is a scientist, professional engineer or professional geoscientist as described in (a) and (b) above with demonstrated experience and post-secondary education, either a diploma or degree, in hydrology, aquatic ecology, limnology, aquatic biology, physical geography with specialization in surface water, and/or water resource management.

The type of scientific work that a CEP performs must be consistent with that person's education and experience. If an individual has appropriate training and credentials in both groundwater and surface water and is responsible for both areas of expertise, the CEP may then complete and validate both sections of the checklist.

Monitoring Report and Site Information

Waste Disposal Site Name	Clean Harbors Canada, Inc. - Lambton Facility
Location (e.g. street address, lot, concession)	4090 Telfer Road, R.R. #1, Corunna, Ontario, N0N 1G0
GPS Location (taken within the property boundary at front gate/ front entry)	NAD 83; Zone 17; Easting (m) 393726; Northing (m) 4748167; Horizontal Accuracy +/-3m
Municipality	Lambton County
Client and/or Site Owner	Clean Harbors Canada, Inc.
Monitoring Period (Year)	January 1 through December 31, 2018
This Monitoring Report is being submitted under the following:	
Certificate of Approval No.:	ECA A031806
Director's Order No.:	Not applicable
Provincial Officer's Order No.:	Not applicable
Other:	Document relates to surface water monitoring only

Report Submission Frequency	<input checked="" type="radio"/> Annual <input type="radio"/> Other	
The site is:	<input checked="" type="radio"/> Active <input type="radio"/> Inactive <input type="radio"/> Closed	
If closed, specify C of A, control or authorizing document closure date:		
Has the nature of the operations at the site changed during this monitoring period?	<input type="radio"/> Yes <input checked="" type="radio"/> No	
If yes, provide details:		
Have any measurements been taken since the last reporting period that indicate landfill gas volumes have exceeded the MOE limits for subsurface or adjacent buildings? (i.e. exceeded the LEL for methane)	<input type="radio"/> Yes <input checked="" type="radio"/> No	

Groundwater WDS Verification:

Based on all available information about the site and site knowledge, it is my opinion that:

Sampling and Monitoring Program Status:

<p>1) The monitoring program continues to effectively characterize site conditions and any groundwater discharges from the site. All monitoring wells are confirmed to be in good condition and are secure:</p>	<p><input type="radio"/> Yes <input checked="" type="radio"/> No</p>	<p>Not Applicable - Surface water report</p>
<p>2) All groundwater, leachate and WDS gas sampling and monitoring for the monitoring period being reported on was successfully completed as required by Certificate(s) of Approval or other relevant authorizing/control document(s):</p>	<p><input type="radio"/> Yes <input type="radio"/> No <input checked="" type="radio"/> Not Applicable</p>	<p>If no, list exceptions below or attach information.</p>

Groundwater Sampling Location	Description/Explanation for change (change in name or location, additions, deletions)	Date
Not Applicable		

<p>3) a) Some or all groundwater, leachate and WDS gas sampling and monitoring requirements have been established or defined outside of a ministry C of A, authorizing, or control document.</p>	<p><input type="radio"/> Yes <input type="radio"/> No <input checked="" type="radio"/> Not Applicable</p>	
<p>b) If yes, the sampling and monitoring identified under 3(a) for the monitoring period being reported on was successfully completed in accordance with established protocols, frequencies, locations, and parameters developed as per the Technical Guidance Document:</p>	<p><input type="radio"/> Yes <input type="radio"/> No <input checked="" type="radio"/> Not Applicable</p>	<p>If no, list exceptions below or attach additional information.</p>
<p>Groundwater Sampling Location</p>	<p>Description/Explanation for change (change in name or location, additions, deletions)</p>	<p>Date</p>
<p>Not Applicable</p>		
<p>4) All field work for groundwater investigations was done in accordance with standard operating procedures as established/outlined per the Technical Guidance Document (including internal/external QA/QC requirements) (Note: A SOP can be from a published source, developed internally by the site owner's consultant, or adopted by the consultant from another organization):</p>	<p><input type="radio"/> Yes <input type="radio"/> No</p>	<p>If no, specify (Type Here):</p>

Sampling and Monitoring Program Results/WDS Conditions and Assessment:

<p>5) The site has an adequate buffer, Contaminant Attenuation Zone (CAZ) and/or contingency plan in place. Design and operational measures, including the size and configuration of any CAZ, are adequate to prevent potential human health impacts and impairment of the environment.</p>	<p><input type="radio"/> Yes</p> <p><input type="radio"/> No</p>	<p>If no, the potential design and operational concerns/ exceptions are as follows (Type Here):</p>	
<p>6) The site meets compliance and assessment criteria.</p>	<p><input type="radio"/> Yes</p> <p><input type="radio"/> No</p>	<p>If no, list and explain exceptions (Type Here):</p>	
<p>7) The site continues to perform as anticipated. There have been no unusual trends/ changes in measured leachate and groundwater levels or concentrations.</p>	<p><input type="radio"/> Yes</p> <p><input type="radio"/> No</p>	<p>If no, list exceptions and explain reason for increase/change (Type Here):</p>	
<p>1) Is one or more of the following risk reduction practices in place at the site:</p> <p>(a) There is minimal reliance on natural attenuation of leachate due to the presence of an effective waste liner and active leachate collection/treatment; or</p> <p>(b) There is a predictive monitoring program in-place (modeled indicator concentrations projected over time for key locations); or</p> <p>(c) The site meets the following two conditions (typically achieved after 15 years or longer of site operation):</p> <p><i>i.</i> The site has developed stable leachate mound(s) and stable leachate plume geometry/concentrations; and</p> <p><i>ii.</i> Seasonal and annual water levels and water quality fluctuations are well understood.</p>	<p><input type="radio"/> Yes</p> <p><input type="radio"/> No</p>	<p><input type="checkbox"/> (a)</p> <p><input type="checkbox"/> (b)</p> <p><input type="checkbox"/> (c)</p>	<p>Note which practice(s):</p>
<p>9) Have trigger values for contingency plans or site remedial actions been exceeded (where they exist):</p>	<p><input type="radio"/> Yes</p> <p><input type="radio"/> No</p> <p><input type="radio"/> Not Applicable</p>	<p>If yes, list value(s) that are/have been exceeded and follow-up action taken (Type Here):</p>	

Groundwater CEP Declaration:

I am a licensed professional Engineer or a registered professional geoscientist in Ontario with expertise in hydrogeology, as defined in Appendix D under Instructions. Where additional expertise was needed to evaluate the site monitoring data, I have relied on individuals who I believe to be experts in the relevant discipline, who have co-signed the compliance monitoring report or monitoring program status report, and who have provided evidence to me of their credentials.

I have examined the applicable Certificate of Approval and any other environmental authorizing or control documents that apply to the site. I have read and followed the Monitoring and Reporting for Waste Disposal Sites Groundwater and Surface Water Technical Guidance Document (MOE, 2010, or as amended), and associated monitoring and sampling guidance documents, as amended from time to time. I have reviewed all of the data collected for the above-referenced site for the monitoring period(s) identified in this checklist. Except as otherwise agreed with the ministry for certain parameters, all of the analytical work has been undertaken by a laboratory which is accredited for the parameters analysed to *ISO/IEC 17025:2005 (E)- General requirements for the competence of testing and calibration laboratories*, or as amended from time to time by the ministry.

If any exceptions or potential concerns have been noted in the questions in the checklist attached to this declaration, it is my opinion that these exceptions and concerns are minor in nature and will be rectified for the next monitoring/reporting period. Where this is not the case, the circumstances concerning the exception or potential concern and my client's proposed action have been documented in writing to the Ministry of the Environment District Manager in a letter from me dated:

Select Date

Recommendations:




Based on my technical review of the monitoring results for the waste disposal site:

No changes to the monitoring program are recommended

The following change(s) to the monitoring program is/are recommended:

No Changes to site design and operation are recommended

The following change(s) to the site design and operation is/are recommended:

Name:			
Seal:	Add Image		
Signature:		Date:	
CEP Contact Information:			
Company:			
Address:			
Telephone No.:		Fax No. :	
E-mail Address:	Type Here		
Co-signers for additional expertise provided:			
Signature:		Date:	
Signature:		Date:	

Surface Water WDS Verification:

Provide the name of surface water body/bodies potentially receiving the WDS effluent and the approximate distance to the waterbody (including the nearest surface water body/bodies to the site):

Name (s)	The WDS effluent drains into the Telfer Road drainage ditch and associated drains with eventually discharge to Bear Creek
Distance(s)	Approximately +/-10 km from Site to Bear Creek

Based on all available information and site knowledge, it is my opinion that:

Sampling and Monitoring Program Status:

1) The current surface water monitoring program continues to effectively characterize the surface water conditions, and includes data that relates upstream/background and downstream receiving water conditions:	<input checked="" type="radio"/> Yes <input type="radio"/> No	If no, identify issues (Type Here):
2) All surface water sampling for the monitoring period being reported was successfully completed in accordance with the Certificate(s) of Approval or relevant authorizing/control document(s) (if applicable):	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not applicable (No C of A, authorizing / control document applies)	If no, specify below or provide details in an attachment.

Surface Water Sampling Location	Description/Explanation for change (change in name or location, additions, deletions)	Date

<p>3) a) Some or all surface water sampling and monitoring program requirements for the monitoring period have been established outside of a ministry C of A or authorizing/control document.</p>	<p><input type="radio"/> Yes <input checked="" type="radio"/> No <input type="radio"/> Not Applicable</p>	
<p>b) If yes, all surface water sampling and monitoring identified under 3 (a) was successfully completed in accordance with the established program from the site, including sampling protocols, frequencies, locations and parameters) as developed per the Technical Guidance Document:</p>	<p><input type="radio"/> Yes <input type="radio"/> No <input checked="" type="radio"/> Not Applicable</p>	<p>If no, specify below or provide details in an attachment.</p>
<p>Surface Water Sampling Location</p>	<p>Description/Explanation for change (change in name or location, additions, deletions)</p>	<p>Date</p>
<p>4) All field work for surface water investigations was done in accordance with standard operating procedures, including internal/external QA/QC requirements, as established/ outlined as per the Technical Guidance Document, MOE 2010, or as amended. (Note: A SOP can be from a published source, developed internally by the site owner's consultant, or adopted by the consultant from another organization):</p>	<p><input checked="" type="radio"/> Yes <input type="radio"/> No</p>	<p>If no, specify (Type Here):</p>

Sampling and Monitoring Program Results/WDS Conditions and Assessment:

5) The receiving water body meets surface water-related compliance criteria and assessment criteria: i.e., there are no exceedances of criteria, based on MOE legislation, regulations, Water Management Policies, Guidelines and Provincial Water Quality Objectives and other assessment criteria (e.g., CWQGs, APVs), as noted in Table A or Table B in the Technical Guidance Document (Section 4.6):

- Yes
 No

If no, list parameters that exceed criteria outlined above and the amount/percentage of the exceedance as per the table below or provide details in an attachment:

Parameter	Compliance or Assessment Criteria or Background	Amount by which Compliance or Assessment Criteria or Background Exceeded
e.g. Nickel	e.g. C of A limit, PWQO, background	e.g. X% above PWQO

6) In my opinion, any exceedances listed in Question 5 are the result of non-WDS related influences (such as background, road salting, sampling site conditions)?

- Yes
 No

<p>7) All monitoring program surface water parameter concentrations fall within a stable or decreasing trend. The site is not characterized by historical ranges of concentrations above assessment and compliance criteria.</p>	<p><input checked="" type="radio"/> Yes</p> <p><input type="radio"/> No</p>	<p>If no, list parameters and stations that is outside the expected range. Identify whether parameter concentrations show an increasing trend or are within a high historical range (Type Here)</p>
<p>8) For the monitoring program parameters, does the water quality in the groundwater zones adjacent to surface water receivers exceed assessment or compliance criteria (e.g., PWQOs, CWQGs, or toxicity values for aquatic biota (APVs)):</p>	<p><input type="radio"/> Yes</p> <p><input type="radio"/> No</p> <p><input type="radio"/> Not Known</p> <p><input checked="" type="radio"/> Not Applicable</p>	<p>If yes, provide details and whether remedial measures are necessary (Type Here)</p>
<p>9) Have trigger values for contingency plans or site remedial actions been exceeded (where they exist):</p>	<p><input type="radio"/> Yes</p> <p><input checked="" type="radio"/> No</p> <p><input type="radio"/> Not Applicable</p>	<p>If yes, list value(s) that are/have been exceeded and follow-up action taken (Type Here)</p>

Surface Water CEP Declaration:

I, the undersigned hereby declare that I am a Competent Environmental Practitioner as defined in Appendix D under Instructions, holding the necessary level of experience and education to design surface water monitoring and sampling programs, conduct appropriate surface water investigations and interpret the related data as it pertains to the site for this monitoring period.

I have examined the applicable Certificate of Approval and any other environmental authorizing or control documents that apply to the site. I have read and followed the Monitoring and Reporting for Waste Disposal Sites Groundwater and Surface Water Technical Guidance Document (MOE, 2010, or as amended) and associated monitoring and sampling guidance documents, as amended from time to time. I have reviewed all of the data collected for the above-referenced site for the monitoring period(s) identified in this checklist. Except as otherwise agreed with the ministry for certain parameters, all of the analytical work has been undertaken by a laboratory which is accredited for the parameters analysed to *ISO/IEC 17025:2005 (E)- General requirements for the competence of testing and calibration laboratories*, or as amended from time to time by the ministry.

If any exceptions or potential concerns have been noted in the questions in the checklist attached to this declaration, it is my opinion that these exceptions and concerns are minor in nature or will be rectified for future monitoring events. Where this is not the case, the circumstances concerning the exception or potential concern and my client's proposed action have been documented in writing to the Ministry of the Environment District Manager in a letter from me dated:

Recommendations:

Based on my technical review of the monitoring results for the waste disposal site:

<p><input checked="" type="radio"/> No Changes to the monitoring program are recommended</p> <p><input type="radio"/> The following change(s) to the monitoring program is/are recommended:</p>	
<p><input checked="" type="radio"/> No changes to the site design and operation are recommended</p> <p><input type="radio"/> The following change(s) to the site design and operation is/are recommended:</p>	

CEP Signature		
Relevant Discipline	Professional Engineer	
Date:	24-Jan-19	
CEP Contact Information:	Mr. James Yardley, P.Eng.	
Company:	GHD	
Address:	455 Phillip St., Waterloo, Ontario N2L 3X2	
Telephone No.:	519-340-4265	
Fax No. :	519-884-0525	
E-mail Address:	Jim.Yardley@ghd.com	
Save As		Print Form



about GHD

GHD is one of the world's leading professional services companies operating in the global markets of water, energy and resources, environment, property and buildings, and transportation. We provide engineering, environmental, and construction services to private and public sector clients.

Jim Yardley
jim.yardley@ghd.com
519-884-0510

Diana Ball
diana.ball@ghd.com
519-884-0510

www.ghd.com