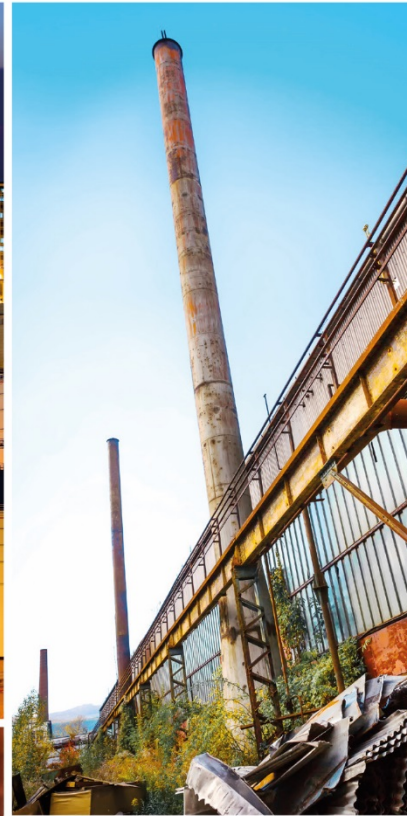
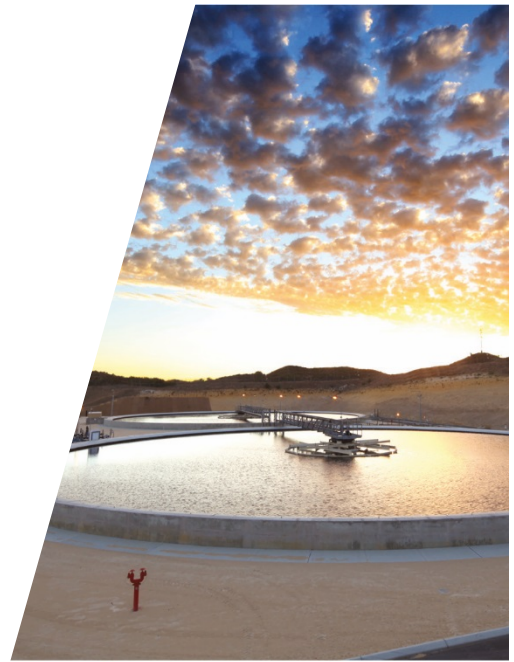




# 2019 Annual Surface Water Quality Monitoring Report

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 “2019 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). In October of 2018, Clean Harbors applied for an amendment to the surface water management system to alter the on-site surface water ditches and ponds. Environmental Compliance Approval No. 2985-B9KKP2 dated September 9, 2019 (SW ECA) is a new ECA for the surface water management system. The SW ECA replaces ECA No. 1065-9VVJSW dated October 19, 2015. Both the Waste ECA and SW ECA have conditions that relate to surface water monitoring requirements. Copies of the Waste ECA and SW ECA are provided in the 2019 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 former ECA No. 1065-9VVJSW required 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. SW ECA includes the characterization program approved by the MECP Regional Director on March 29, 2016.

The SW ECA requires the following items to be conducted by March 9, 2020:

- Condition 4 (1) – Prepare and submit a Contingency and Remedial Action Plan for the stormwater works
- Condition 8 (4) – Prepare a revised operations manual for the stormwater works
- Condition 10 (1) – Prepare and submit a financial assurance for the specified works
- Condition 15 (1) – Prepare an assessment of the process wastewater treatment plant

As well, Condition 18 (2) requires notification of MECP one month prior to commencing construction of the stormwater ponds.

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 <sup>(1)</sup>	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 2019 annual monitoring program. The Competent Environmental Practitioner (CEP) who reviewed the 2019 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 19-2. 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 and the most recent ECA amendment. During the 2019 reporting period:

- a) Sub-cell 19-2B-1 to 7 were constructed
- b) Disposal occurred in Sub-cells 19-2A, 19-2B-1 to 3
- c) Interim Cover was installed on Subcells 19-1-C, 19-2A, and portions of 19-2B-1 to 2
- d) Final Cover installation commenced on the 6 ha area of Cell 19-1. In 2019, the final cover installation included the grading of the 0.6 m of clay cover, the installation of the geosynthetic clay liner, the 80 mil HDPE liner, and the drainage layer, as well as portions of the protective clay cover. In 2020, the remainder of the protective clay cover will be installed, as well as the topsoil and vegetation, and the anchor trench installed once the toe of the cell has been adjusted as part of the stormwater pond installation.

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 amended surface water management system is presented in the October 3, 2018 report Surface Water Management Amendment prepared by GHD. 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. The construction of the revised surface water management system is proposed to commence in 2020. The SW ECA addresses the amendments and the transition time period required to address the various items.

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). The revised surface water management system will consist of four ponds identified as Pond A, B, C, and D. The four ponds will be located in the southern portion of the Site and will incorporate portions of the East and West Ponds. The ponds are linked and will operate as one large pond from a surface water point of view. The perimeter surface water ditches will discharge to the ponds.

During the transition period, pumps will be used to manage the surface water in the construction area and to bypass the construction 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 (m<sup>3</sup>/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 m<sup>3</sup> of 0.3 mm of silica sand and 3.2 m<sup>3</sup> 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 m<sup>3</sup> of 20 mm clear crushed stone and 14.2 m<sup>3</sup> 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 5 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. Likewise, if during operating mode and daily effluent criteria are exceeded, the SWTP is switched to recirculation mode.

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 and 8 million L of process water for the spray dryer. 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 2019 monitoring period, the following maintenance was conducted on the SWTP:

- The sand and carbon filters were backwashed on the following dates:
  - May 21, September 6, and December 6
- Treated effluent was recirculated at the SWTP on the following dates:
  - March 15, 18, 30, and 31, April 15, and July 15
- Maintenance consisted of the following:
  - Cleared obstruction in drain to Equalization Pond – January 15
  - Removal of carbon from the SWTP – May 11, 13, and 17
  - Installed new carbon in the SWTP – May 22
  - Replaced plate in between the two vaults in the SWTP – May 13
  - Replaced 150 mm (6-inch) gate valve to the Equalization Pond – May 16

## **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 a 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 2019 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 SW ECA and is consistent with the letter prepared by GHD titled "Surface Water Monitoring Program and Surface Water Characterization Program, Lambton Facility, Corunna, Ontario" dated December 9, 2015.

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 below.

**Table 4 Effluent Discharge Limits**

Effluent Parameter	Concentration Limit (mg/L)
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	

**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. The locations for the two sample locations were slightly adjusted due to physical hazards and ponding of water in 2019 and to be consistent with the rationale for the points.

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 5 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 5-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 5-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.

### **3.4 Provincial Officer's Order No. 2681-BCPKUJ**

Provincial Officer's Order No. 2681-BCPKUJ (Order) was issued on June 5, 2019. A copy of the Order and related correspondence is provided in Appendix B. The Order relates to a report of a seep from the leachate collection system (LCS) at the Site in to the south perimeter ditch. Upon identification of the seep, the immediate seep area was isolated and additional temporary dams were installed within the south ditch at the east and west ends, and at the entrance to the West Pond. The initial work was conducted in accordance with Provincial Officer's Order No. 8210-BBCPS2 which was replaced with Provincial Officer's Order No. 2681-BCPKUJ. Subsequent to the initial work, Clean Harbors continued to commence water control activities to minimize the capture area of the impacted area, installation of temporary piping works to transfer surface water around the zone of concern, to install temporary water treatment, and assess the



conduct maintenance on the surface water treatment plant. As well, the Clean Harbors South Ditch, Water and Leachate Management Plan was developed that outlined the remediation work and water control required to address the seep and the impacted area.

From a surface water quality perspective, additional water quality monitoring was implemented to confirm that water entering from the potential seep area was not impacted with leachate, and any treated water from the impacted area was confirmed to be non-impacted prior to discharge to the surface water management ponds. This information was presented weekly to MECP as per the Order and is not included in this report. The additional testing confirmed that the surface water released from the site did not indicate an impact from leachate or the remediation efforts at the Site.

## **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: January 1 to 29, 2019
- Period 2: March 21 to April 3, 2019
- Period 3: May 30 to June 27, 2019
- Period 4: July 16 to 19, 2019
- Period 5: August 20 to September 17, 2019
- Period 6: November 5 to December 12, 2019

Data for all parameters regularly analyzed is available for Periods 1 to 6. There was an exceedance of the 15.0 mg/L limit for TSS specified in the ECA on the following dates:

- March 14 (55 mg/L), 15 (33 mg/L), 18 (21.7 mg/L), and 30 (15.8 mg/L)

The SWTP was put in recirculation mode on the above dates until the measured concentration of TSS was found to be back in compliance with the limit specified in the ECA.

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.

### **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 C. An analytical data verification memo summarizing GHD's assessment of sample supporting quality assurance/quality control (QA/QC) procedures is included in Appendix D. 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 January 22, March 25, April 30, May 29, July 15, August 21, November 4, and December 9, 2019 from the Equalization Pond. Samples were taken at intervals in compliance with the SW ECA.

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:

- Total phenolics above the objective of 0.001 mg/L on January 22 (0.0025), March 25 (0.0026), April 30 (0.0015), May 29 (0.0022J-), July 15 (0.0055J-), August 21 (0.0024J-), and December 9 (0.0013)
- Phosphorus above the objective of 0.01 mg/L on January 22 (0.0243), March 25 (0.0295), April 30 (0.0809), May 29 (0.0201J-), July 15 (0.0136J-), August 21 (0.0391J-), November 4 (0.0196J-), and December 9 (0.0266)
- Unionized ammonia above the objective of 0.02 mg/L on April 30 (0.0563) and May 29 (0.0318J-)
- Aluminum above the objective of 0.075 mg/L on January 22 (0.364), March 25 (0.566), April 30 (0.54), August 21 (0.186), November 4 (0.107), and December 9 (0.281)
- Cadmium above the objective of 0.0002 mg/L on March 25 (result below detection limit with reporting limit of 0.00030) and April 30 (0.000232)
- Cobalt above the objective of 0.0009 mg/L on March 25 (0.00186)
- Iron above the objective of 0.3 mg/L on January 22 (0.351), March 25 (0.587), and April 30 (0.502)
- Molybdenum above the objective of 0.04 mg/L on January 22 (0.132), March 25 (0.082), April 30 (0.0636), May 29 (0.0762), July 15 (0.0796), August 21 (0.0714), November 4 (0.0635), and December 9 (0.0734)
- Thallium above the objective of 0.0003 mg/L on March 25 (0.000372), May 29 (0.00152), and July 15 (0.000514)

The qualifier of 'J-' following a result in Table 6 indicates an estimated value where the result may be biased low. The rationale for the qualification of a result is provided in the associated QA/QC memorandum provided in Appendix D.

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 9 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. Cobalt is elevated over the PWQO for only one of the eight results. Unionized ammonia and cadmium are elevated over the PWQO for only two of the eight results. Iron and thallium are elevated over the PWQO for only three of the eight results.

#### **4.2.2 Toxicity Monitoring**

Toxicity monitoring samples from the Equalization Pond were taken on January 22, March 25, April 30, May 29, July 15, August 20, November 4, and December 9, 2019.

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 20, June 18, September 10, and November 25, 2019 including of the surface water management system. The presence of live fish in the Equalization Pond was confirmed during the second and third quarterly inspections. No fish were observed in the equalization pond at the time of the first or fourth quarterly inspections. Water levels in the Equalization Pond were noted to be moderate to high during the first inspection and high during the second, 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 January 22, March 25, April 30, May 29, July 15, August 21, November 4, and December 9, 2019. 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:

- Chromium VI (hexavalent) above the objective of 0.001 mg/L on August 21 (0.00162J-)
- Total phenolics above the objective of 0.001 mg/L on January 22 (0.0016), March 25 (0.0024), April 30 (0.0013), May 29 (0.0020J-), July 15 (0.0036J-), August 21 (0.0155J-), November 4 (0.0016J-), and December 9 (0.0023)
- Phosphorus above the objective of 0.01 mg/L on January 22 (0.0388), March 25 (0.0475), April 30 (0.0288), May 29 (0.0670J-), July 15 (0.0604J-), August 21 (0.113J-), November 4 (0.0696J-), and December 9 (0.0511)
- Unionized ammonia above the objective of 0.02 mg/L on April 30 (0.0446)



- Aluminum above the objective of 0.075 mg/L on January 22 (0.534), March 25 (0.802), April 30 (0.499), May 29 (1.15), July 15 (0.41), August 21 (2.2), November 4 (1.28), and December 9 (0.538)
- Cadmium above the objective of 0.0002 mg/L on March 25 (result below detection limit with reporting limit of 0.00070), April 30 (0.00056), August 21 (result below detection limit with reporting limit of 0.0030), November 4 (result below detection limit with reporting limit of 0.00080), and December 9 (result below detection limit with reporting limit of 0.00030)
- Cobalt above the objective of 0.0009 mg/L on March 25 (0.0017), May 29 (0.00159), August 21 (0.00331), November 4 (0.00165), and December 9 (0.00102)
- Copper above the objective of 0.005 mg/L on August 21 (0.0063)
- Iron above the objective of 0.3 mg/L on January 22 (0.765), March 25 (1.2), April 30 (0.472), May 29 (1.56), July 15 (0.521), August 21 (2.92), November 4 (1.51), and December 9 (0.551)
- Lead above the objective of 0.005 mg/L on August 21 (0.00616)
- Molybdenum above the objective of 0.04 mg/L on January 22 (0.16), March 25 (0.0958), April 30 (0.0802), May 29 (0.0855), July 15 (0.071), August 21 (0.0998), November 4 (0.0846), and December 9 (0.0796)
- Thallium above the objective of 0.0003 mg/L on March 25 (0.000773), April 30 (0.00294), May 29 (0.00142), July 15 (0.000797), and August 21 (0.000801)

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

- Total phenolics above the objective of 0.001 mg/L on January 22 (0.0018), March 25 (0.0046), April 30 (0.0021), May 29 (0.0013J-), July 15 (0.0060J-), August 21 (0.0028J-), November 4 (0.0025J-), and December 9 (0.0045)
- Phosphorus above the objective of 0.01 mg/L on January 22 (0.0298), March 25 (0.0395), April 30 (0.0166), May 29 (0.0236J-), July 15 (0.0224J-), August 21 (0.0261J-), November 4 (0.0325J-), and December 9 (0.0276)
- Unionized ammonia above the objective of 0.02 mg/L on April 30 (0.0784) and May 29 (0.0481J-)
- Aluminum above the objective of 0.075 mg/L on January 22 (0.346), March 25 (0.767), April 30 (0.215), May 29 (0.193), July 15 (0.133), August 21 (0.36), November 4 (0.432), and December 9 (0.322)
- Cadmium above the objective of 0.0002 mg/L on March 25 (result below detection limit with reporting limit of 0.00030) and April 30 (0.000251)
- Cobalt above the objective of 0.0009 mg/L on March 25 (0.00244) and April 30 (0.00164)
- Iron above the objective of 0.3 mg/L on January 22 (0.339), March 25 (0.859), August 21 (0.37), and November 4 (0.502)
- Molybdenum above the objective of 0.04 mg/L on January 22 (0.127), March 25 (0.0817), April 30 (0.0637), May 29 (0.0581), July 15 (0.0645), August 21 (0.0602), November 4 (0.0588), and December 9 (0.0744)



- Thallium above the objective of 0.0003 mg/L on March 25 (0.000678), April 30 (0.000576), May 29 (0.000303), and July 15 (0.000357)
- Toluene above the objective of 0.8 µg/L on March 25 (1.16)

The qualifier of 'J-' following a result in Tables 8 and 9 indicates an estimated value where the result may be biased low. The rationale for the qualification of a result is provided in the associated QA/QC memorandum provided in Appendix D.

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 for the East and West Ponds to the Equalization Pond and off-Site monitoring locations discussed in Section 4.3 indicates the following:

- The analytical results for total phenolics and phosphorus 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.
- Individual concentrations of metals including aluminum and iron are generally higher in the East Pond as well as the off-site monitoring locations, with no discernable trend at this time.
- The East Pond had a single reported result for chromium VI (hexavalent), unionized ammonia, and lead above the PWQOs during the reporting period.
- The West Pond had two reported results for unionized ammonia and cadmium 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 June 18, 2019 and for both STN6 and STN6A on November 25, 2019. 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 25 (0.0334)
- Phosphorus above the objective of 0.01 mg/L on November 25 (0.042)
- Aluminum above the objective of 0.075 mg/L on November 25 (0.479)
- Iron above the objective of 0.3 mg/L on November 25 (0.352)



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 June 18 (0.0019) and November 25 (0.0023)
- Phosphorus above the objective of 0.01 mg/L on June 18 (0.132) and November 25 (0.084)
- Aluminum above the objective of 0.075 mg/L on June 18 (0.791) and November 25 (0.537)
- Iron above the objective of 0.3 mg/L on June 18 (0.819) and November 25 (0.426)

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 2019 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.

A completed copy of the MECP's Appendix D-Monitoring and Screening Checklist is included in Appendix E.

## 6. References

- GHD. 2018 Annual Surface Water Report, Clean Harbors Lambton Facility. January 24, 2019.
- GHD. Letter to Erica Carabott re: Surface Water Monitoring Program and Surface Water Characterization Program, Lambton Facility, Corunna, Ontario. December 9, 2015.
- GHD (Formerly Conestoga-Rovers and Associates). Engineering and Design, Existing Conditions Report. October 2014.
- Ontario Ministry of the Environment, Conservation, and Parks (MECP). Amended Environmental Compliance Approval No. 2985-KKP2 dated September 9, 2019.
- Ontario MECP. Amended Environmental Compliance Approval No. A031806 (Waste ECA) dated October 20, 2016.
- Ontario MECP. Amended Environmental Compliance Approval No. 1065-9VVJSW dated October 19, 2015.
- 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

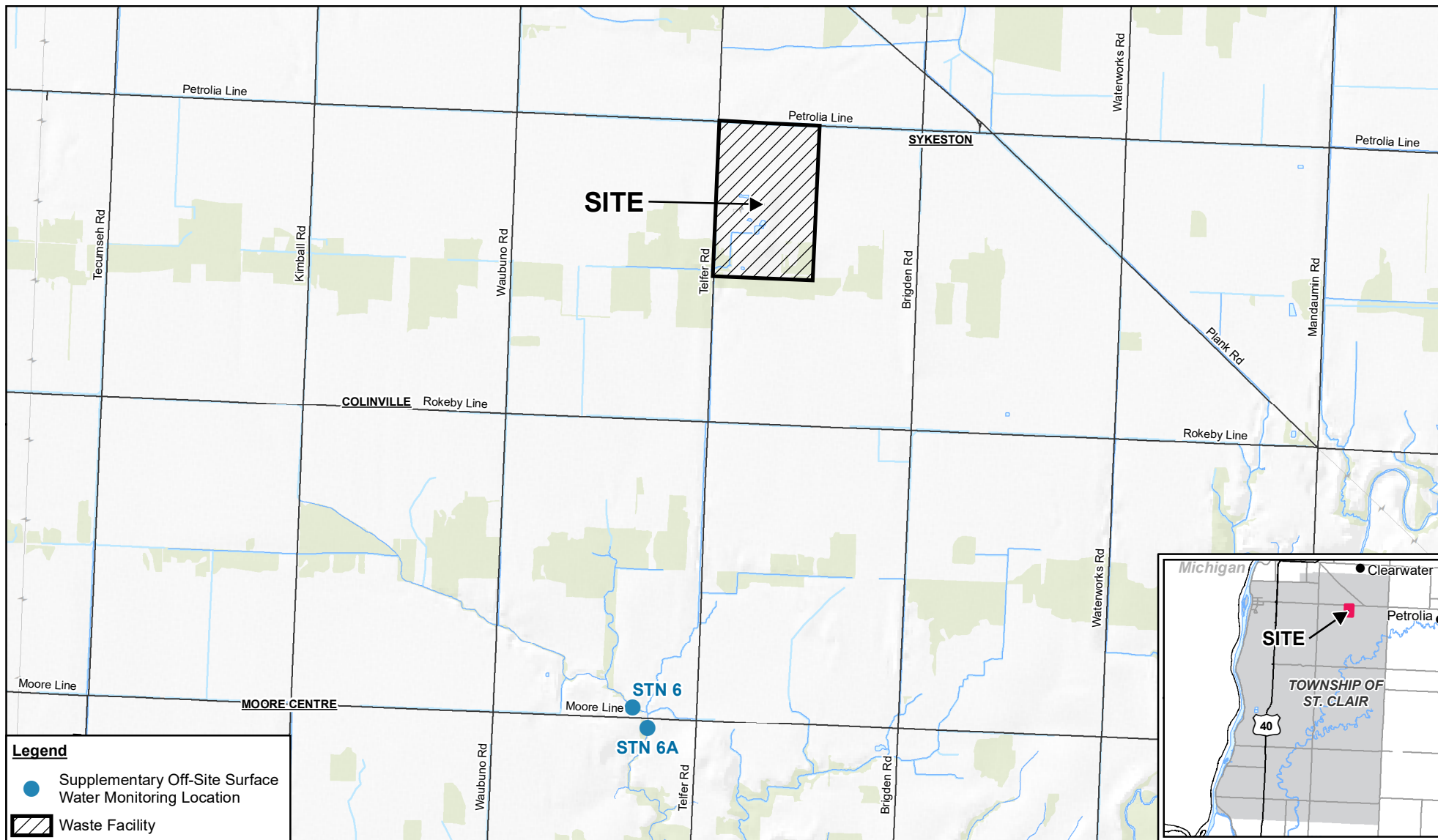
*Diana Ball*

Diana M. Ball, P. Eng.

*James R. Yardley*

A circular professional seal for a Licensed Professional Engineer in the Province of Ontario. The seal contains the text "LICENSED PROFESSIONAL ENGINEER" around the top inner edge and "PROVINCE OF ONTARIO" around the bottom inner edge. In the center, the name "J. R. YARDLEY" is printed. A blue ink signature, "James R. Yardley", is written across the seal.

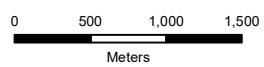
James R. Yardley, P. Eng.



**Legend**

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

Source: MNRF NRVIS, 2017. Produced by GHD under licence from Ontario Ministry of Natural Resources and Forestry, © Queen's Printer 2019.



Coordinate System:  
NAD 1983 UTM Zone 17N



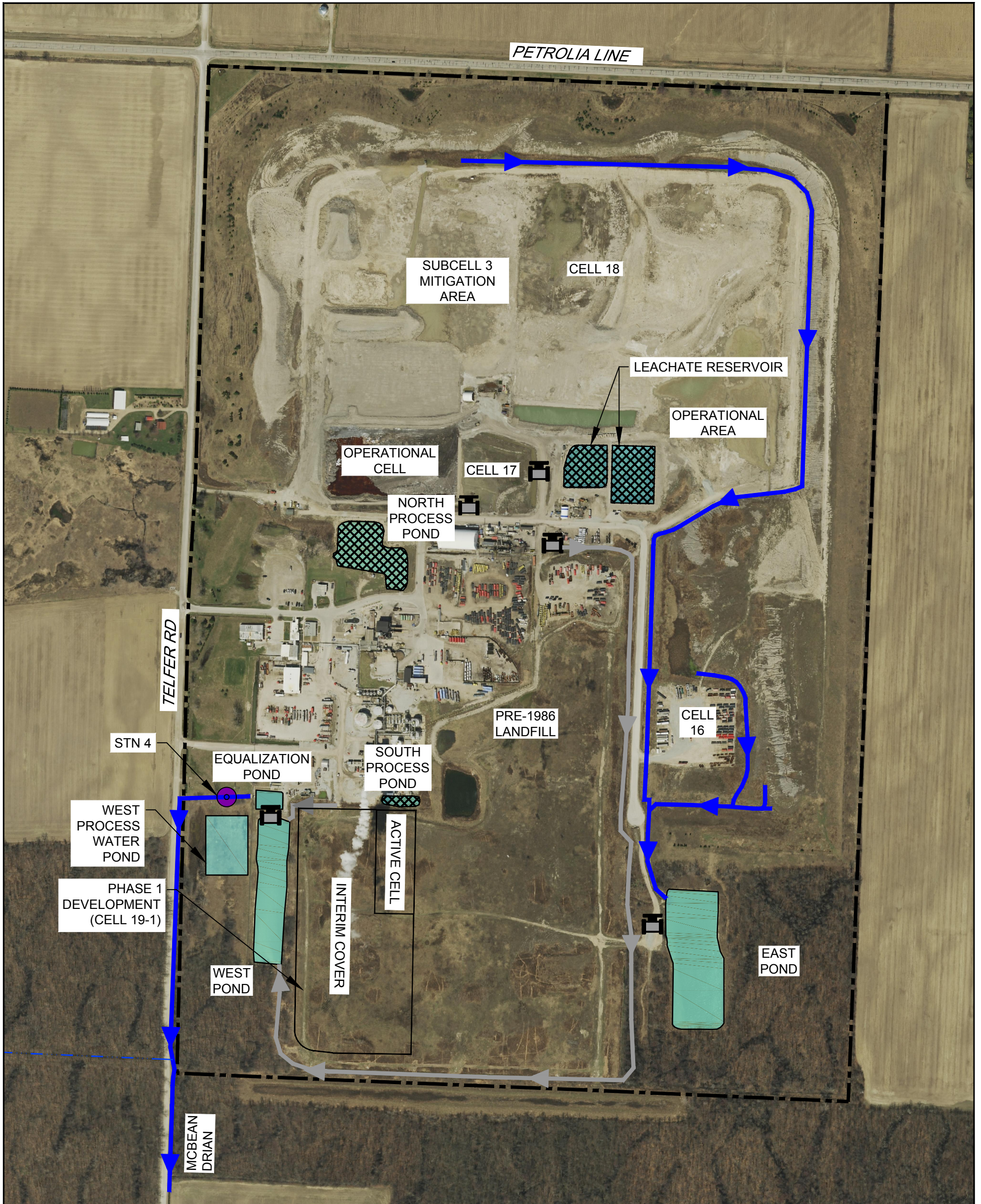
CLEAN HARBORS CANADA INC.  
LAMBTON COUNTY, ONTARIO

**SUPPLEMENTARY OFF-SITE MONITORING LOCATIONS AND  
SITE LOCATION MAP**

44985-20  
Oct 24, 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.



**Surface Water Monitoring Program  
2019 Annual Surface Water Quality Monitoring Report  
Lambton Facility  
Clean Harbors Canada Inc.**

Monitoring Location	Previous SW ECA <sup>(1)(3)</sup>	Current SW ECA <sup>(2)(3)</sup>	Proposed Surface Water Sampling Program		
			Daily Discharge	Monthly Discharge	Spring and late Summer/Fall
<b>Equalization Reservoir Discharge</b>	pH, Conductivity, TSS, Total Phenols, Chloride, Solvent Extractables - Microtox General Chemistry Metals VOCs sVOCs	TSS, Solvent Extractables, Phenols, pH Solvent Extractables Microtox General Chemistry Metals VOCs sVOCs	■	■ <sup>(4)</sup> ■ <sup>(4)</sup> ■ <sup>(4)</sup> ■ <sup>(4)</sup> ■ <sup>(4)</sup> ■ <sup>(4)</sup>	
<b>Equalization Reservoir</b>	Fish Presence	Fish Presence		■	
<b>West Pond or Pond D</b>	General Chemistry Metals VOCs sVOCs	General Chemistry Metals VOCs sVOCs		■ ■ ■ ■	
<b>East Pond or Pond A</b>	General Chemistry Metals VOCs sVOCs	General Chemistry Metals VOCs sVOCs		■ ■ ■ ■	
<b>STN6 (off-site background)</b>	General Chemistry Metals	General Chemistry Metals			■ <sup>(5)</sup> ■ <sup>(5)</sup>
<b>STN6A (off-site downstream)</b>	General Chemistry Metals	General Chemistry Metals			■ <sup>(5)</sup> ■ <sup>(5)</sup>

Notes:

1. Source: Letter to Erica Carabott, Clean Harbors Canada Inc. re: Surface Water Monitoring Program and Surface Water Characterization Program, Lambton Facility, dated December 9, 2015.
  2. Source: Amended Environmental Compliance Approval No. 2985-B9KKP2 dated September 9, 2019 (Current SW ECA), Table 3.
  3. General Chemistry, metals, VOC, and sVOC parameters as per detailed list provided in Table 3 of this annual report.
  4. Previous SW ECA indicates that samples are to be collected prior to discharge from the Equalization Pond.  
Current SW ECA indicates that samples are to be collected during a discharge event from the Equalization Pond within 25-35 days after the previous samples were collected.
  5. 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**  
**2019 Annual Surface Water Quality Monitoring Report**  
**Lambton Facility**  
**Clean Harbors Canada Inc.**

Parameter	Analytes
General Chemistry Parameters	Alkalinity (total as CaCO <sub>3</sub> ), 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, 1,2-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

## Source:

1. Source: Letter to Erica Carabott, Clean Harbors Canada Inc. re: Surface Water Monitoring Program and Surface Water Characterization Program, Lambton Facility, dated December 9, 2015.
2. Amended Environmental Compliance Approval No. 2985-B9KKP2 dated September 9, 2019 (Current SW ECA), Table 4.



**Daily Chemical Analysis - Equalization Pond**  
**2019 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
1/1/19	7.60	0.670	13.8	<0.001	<5	NA	NA	1222	1,759,680	
1/2/19	7.52	0.670	7.5	<0.001	<5	NA	NA	1227	1,766,880	
1/3/19	7.43	0.610	7.1	<0.001	<5	NA	NA	1250	1,800,000	
1/4/19	7.79	0.750	4.9	<0.001	<5	NA	NA	1188	1,710,720	
1/5/19	7.80	0.781	4.3	<0.001	<5	NA	NA	1194	1,719,360	
1/6/19	7.54	0.782	6	<0.001	<5	NA	NA	1211	1,743,840	
1/7/19	7.47	0.770	4.6	<0.001	<5	NA	NA	1244	1,791,360	
1/8/19	7.71	0.750	5.5	0.0014	<5	NA	NA	1220	1,756,800	
1/9/19	7.70	0.670	5.1	0.0019	<5	NA	NA	1250	1,800,000	
1/10/19	7.76	0.650	3.3	0.0019	<5	NA	NA	1260	1,814,400	
1/11/19	7.58	0.862	8	0.0015	<5	NA	NA	1224	1,762,560	
1/12/19	7.74	0.829	4	0.0012	<5	NA	NA	1218	1,753,920	
1/13/19	7.85	0.815	7	0.001	<5	NA	NA	1217	1,752,480	
1/14/19	7.67	0.670	4.4	<0.001	<5	NA	NA	1250	1,800,000	
1/15/19	7.53	0.610	6.3	0.0011	<5	NA	NA	1275	1,836,000	
1/16/19	7.81	0.840	4.4	0.0016	<5	NA	NA	1250	1,800,000	
1/17/19	7.85	0.886	2.9	0.0011	<5	NA	NA	1200	1,728,000	
1/18/19	7.74	0.868	4.6	<0.001	<5	NA	NA	1200	1,728,000	
1/19/19	7.90	0.878	7.2	-	<5	NA	NA	1297	1,867,680	See Note 1 for Phenol
1/20/19	7.81	0.810	4.6	<0.001	<5	NA	NA	1235	1,778,400	See Note 2 for Phenol
1/21/19	8.06	0.790	3.9	<0.001	<5	NA	NA	1200	1,728,000	
1/22/19	7.96	0.680	4.2	<0.001	<5	NA	NA	1246	1,794,240	
1/23/19	7.76	0.915	4	<0.001	<5	NA	NA	1217	1,752,480	
1/24/19	7.84	0.924	3	0.001	<5	NA	NA	1200	1,728,000	
1/25/19	7.18	0.821	4	<0.001	<5	NA	NA	1225	1,764,000	
1/26/19	7.66	0.690	4.3	0.0012	<5	NA	NA	1230	1,771,200	
1/27/19	7.40	0.610	2.3	0.0011	<5	NA	NA	1255	1,807,200	
1/28/19	7.77	0.700	5.4	0.001	<5	NA	NA	1230	1,771,200	
1/29/19	7.90	0.919	2.8	<0.001	<5	NA	NA	1197	1,723,680	
3/14/19	7.12	0.994	55	-	<5	97	273	0	0	EQ Pond iced over. Sample taken at carbon bed inlet
3/15/19	7.57	0.820	33	-	<5			0	0	TSS still too high
3/18/19			21.7	0.0013				0	0	TSS still too high
3/19/19	7.59	0.836	6.1	0.0011	<5	82	252	0	0	Ok to start discharging
3/20/19	7.53	0.889	11.2	0.0013	<5	94	273	0	0	
3/21/19	7.48	0.690	5.6	0.002	<5	NA	NA	908	1,307,520	
3/22/19	7.59	0.790	11.2	0.0017	<5	NA	NA	908	1,307,520	
3/23/19	7.49	0.670	5.5	0.0018	<5	NA	NA	840	1,209,600	
3/24/19	7.88	0.862	8.8	0.0013	<5	95	247	821	1,182,240	
3/25/19	7.52	0.848	8	0.0016	<5	95	244	825	1,188,000	
3/26/19	7.46	0.881	9	0.0015	<5	97	248	1025	1,476,000	
3/27/19	7.44	0.820	9	0.0016	<5	NA	NA	1178	1,696,320	
3/28/19	7.85	0.883	13.2	0.0017	<5	89	236	1166	1,679,040	
3/29/19	8.14	0.880	12.2	<0.001	<5	NA	NA	1133	1,631,520	
3/30/19	7.66	0.880	15.8	<0.001	<5	92	226	1119	1,611,360	TSS too high for discharge. Moved to RECIRC
3/31/19	7.48	0.865	12.9	<0.001	<5	98	241	0	0	Ok to start discharging
4/1/19	7.44	0.879	11.2	0.0016	<5	98	241	1050	1,512,000	
4/2/19	7.75	0.760	10.2	0.0016	<5	NA	NA	1044	1,503,360	
4/3/19	7.40	0.730	10.7	0.0012	<5	NA	NA	1138	1,638,720	
4/4/19	7.72	0.750	8.9	0.0012	<5	NA	NA	RECIRC	0	
4/27/19	8.30	0.720	11	0.0012	<5	NA	NA	RECIRC	0	
4/28/19	8.10	0.660	10.7	<0.001	<5	NA	NA	RECIRC	0	
4/29/19	8.31	0.796	5.4	<0.001	5.7	65	121	RECIRC	0	
4/30/19	8.13	0.738	10	<0.001	<5	64	125	RECIRC	0	
5/1/19	7.82	0.756	13	<0.001	<5	62	133	RECIRC	0	
5/2/19	7.44	0.740	10.9	<0.001	<5	NA	NA	RECIRC	0	
5/3/19	7.50	0.720	10.6	<0.001	<5	NA	NA	RECIRC	0	
5/4/19	7.71	0.650	10.8	<0.001	<5	NA	NA	RECIRC	0	
5/5/19	7.73	0.747	5.5	<0.001	<5	51	120	RECIRC	0	
5/6/19	7.90	0.749	6.9	<0.001	<5	53	125	RECIRC	0	
5/7/19	7.64	0.731	12	<0.001	<5	51	125	RECIRC	0	
5/8/19	7.67	0.710	7.6	<0.001	<5	NA	NA	RECIRC	0	
5/9/19	7.76	0.650	8	<0.001	<5	NA	NA	RECIRC	0	
5/10/19	7.55	0.630	8.4	0.0012	<5	NA	NA	RECIRC	0	
5/11/19	7.98	0.746	8	0.001	<5	53	135	RECIRC	0	
5/12/19	7.63	0.720	9	0.001	<5	51	127	RECIRC	0	
5/13/19	7.86	0.740	10	<0.001	<5	50	127	RECIRC	0	

**Daily Chemical Analysis - Equalization Pond**  
**2019 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
5/14/19	6.98	0.770	10.4	<0.001	<5	NA	NA	RECIRC	0	
5/15/19	7.30	0.750	6.8	<0.001	<5	NA	NA	RECIRC	0	
5/16/19	7.49	0.720	7.2	0.001	<5	NA	NA	RECIRC	0	
5/17/19	7.40	0.760	5.9	<0.001	<5	55	127	RECIRC	0	
5/18/19	7.45	0.765	4	<0.001	<5	55	130	RECIRC	0	
5/19/19	7.79	0.770	7.3	0.0012	<5	56	132	RECIRC	0	
5/20/19	7.36	0.710	5.4	0.0017	<5	NA	NA	RECIRC	0	
5/21/19	7.54	0.660	7.3	0.0019	<5	NA	NA	RECIRC	0	
5/22/19	7.58	0.640	8.1	0.0017	<5	NA	NA	RECIRC	0	
5/23/19	7.28	0.772	7.28	0.0017	<5	58	132	RECIRC	0	
5/24/19	7.36	0.756	7	0.002	<5	58	132	RECIRC	0	
5/25/19	7.70	0.769	3	<0.001	<5	56	129	RECIRC	0	SWTP shut off
5/29/19	7.46	0.765	1.4	0.0016	<5	53	114	RECIRC	0	Ok to start discharging
5/30/19	7.69	0.778	3.2	0.0016	<5	62	116	997	1,435,680	
5/31/19	7.89	0.797	3.9	<0.001	<5	69	114	950	1,368,000	
6/1/19	7.79	0.785	<1	<0.001	<5	70	113	1040	1,497,600	
6/2/19	7.52	0.730	5.9	0.0016	<5	NA	NA	980	1,411,200	
6/3/19	7.93	0.690	4.3	0.0011	5.3	NA	NA	900	1,296,000	Assumed 900 LPM Rate
6/4/19	7.83	0.789	3.1	<0.001	<5	68	109	1055	1,519,200	
6/5/19	7.77	0.788	5	0.002	<5	73	117	1007	1,450,080	
6/6/19	7.34	0.799	6	<0.001	<5	73	117	1043	1,501,920	
6/7/19	7.68	0.750	5.2	<0.001	<5	NA	NA	1040	1,497,600	
6/8/19	7.55	0.730	4.6	<0.001	<5	NA	NA	1062	1,529,280	
6/10/19	7.69	0.769	3.2	0.002	<5	71	112	945	1,360,800	
6/11/19	7.54	0.785	4.3	0.001	<5	72	116	904	1,301,760	
6/12/19	7.44	0.799	5.4	<0.001	<5	72	116	897	1,291,680	
6/13/19	7.71	0.730	2.6	0.0014	<5	NA	NA	930	1,339,200	
6/14/19	7.61	0.720	4.9	0.0018	<5	NA	NA	930	1,339,200	
6/15/19	7.79	0.740	5.8	0.0019	<5	NA	NA	1003	1,444,320	
6/16/19	7.76	0.770	6	0.0024	<5	72	108	996	1,434,240	
6/17/19	7.61	0.780	3	<0.001	5.7	70	112	1043	1,501,920	
6/18/19	7.64	0.781	7	<0.001	<5	71	114	1040	1,497,600	
6/19/19	7.82	0.800	5.8	<0.001	<5	NA	NA	1065	1,533,600	
6/20/19	7.59	0.790	7.1	<0.001	<5	NA	NA	1084	1,560,960	
6/21/19	7.59	0.781	5.6	0.0024	<5	76	121	1097	1,579,680	
6/22/19	7.82	0.817	2.4	0.0019	<5	74	120	1111	1,599,840	
6/23/19	7.65	0.812	7.6	0.0018	<5	73	119	1051	1,513,440	
6/24/19	7.61	0.820	6.5	0.0022	<5	75	120	1000	1,440,000	
6/25/19	7.68	0.820	4.2	0.0024	<5	NA	NA	930	1,339,200	
6/26/19	7.78	0.820	3.7	0.0022	6.2	NA	NA	430	619,200	
6/27/19	7.64	0.790	4.1	0.0028	<5	NA	NA	980	1,411,200	
7/15/19	8.16	0.760	4.6	0.0015	<5	NA	NA	RECIRC	0	
7/16/19	7.60	0.775	3.4	0.0013	<5	73	116	929	1,337,760	
7/17/19	7.50	0.815	5.7	0.0018	<5	67	118	975	1,404,000	
7/18/19	7.76	0.796	6.2	0.0014	<5	69	120	1268	1,825,920	
7/19/19	7.88	0.800	4.5	0.0013	<5	NA	NA	1240	1,785,600	
8/16/19	7.75	0.753	11	0.0013	<5	73	118	RECIRC	0	
8/19/19	8.00	0.690	3.1	<0.001	<5	NA	NA	RECIRC	0	
8/20/19	7.63	0.740	4.1	<0.001	<5	NA	NA	1061	1,527,840	
8/21/19	7.58	0.719	9.4	<0.001	<5	70	106	1007	1,450,080	
8/22/19	7.42	0.712	4.6	0.0016	<5	77	115	1044	1,503,360	
8/23/19	7.41	0.715	3.6	0.0012	<5	82	122	1040	1,497,600	
8/24/19	7.64	0.740	5	<0.001	<5	NA	NA	960	1,382,400	
8/25/19	7.61	0.830	10.5	0.0012	<5	NA	NA	985	1,418,400	
8/26/19	7.74	0.940	9.3	0.0012	<5	NA	NA	983	1,415,520	
8/27/19	7.51	1.080	4	0.0016	<5	149	129	1027	1,478,880	
8/28/19	7.34	1.100	6	0.0032	<5	158	126	1017	1,464,480	
8/29/19	7.29	1.160	5	0.0011	<5	177	127	1017	1,464,480	
8/30/19	7.51	1.170	6.3	0.0022	<5	NA	NA	987	1,421,280	
8/31/19	7.46	1.120	6.1	0.0015	<5	NA	NA	947	1,363,680	
9/1/19	7.75	1.120	7.7	0.0015	<5	NA	NA	1003	1,444,320	
9/2/19	7.75	1.190	3.8	0.0015	<5	196	131	940	1,353,600	
9/3/19	7.63	1.210	2.3	0.0013	<5	182	145	897	1,291,680	
9/4/19	7.50	1.190	2	0.0013	<5	147	113	900	1,296,000	Assumed 900 LPM Rate
9/5/19	7.92	1.120	7.2	0.0022	<5	NA	NA	910	1,310,400	
9/6/19	7.55	1.100	6.7	0.0021	<5	NA	NA	880	1,267,200	

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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
9/7/19	7.66	1.070	7.3	0.0017	<5	NA	NA	1200	1,728,000	
9/8/19	7.69	0.920	4.8	0.0021	<5	NA	NA	1122	1,615,680	
9/9/19	7.82	1.010	5	0.0017	<5	NA	NA	1102	1,586,880	
9/10/19	7.80	0.980	2.1	0.0014	<5	NA	NA	1110	1,598,400	
9/11/19	7.87	0.990	2.6	0.0017	<5	NA	NA	1190	1,713,600	
9/12/19	7.99	0.970	3.6	0.0028	<5	NA	NA	948	1,365,120	
9/13/19	7.95	0.920	3	0.0021	<5	NA	NA	938	1,350,720	
9/14/19	7.71	0.954	3	0.0013	<5	NA	NA	900	1,296,000	Assumed 900 LPM Rate
9/15/19	7.65	0.925	1.2	0.0013	<5	NA	NA	900	1,296,000	Assumed 900 LPM Rate
9/16/19	7.91	0.894	3.9	<0.001	<5	NA	NA	919	1,323,360	
9/17/19	7.85	0.870	3.4	0.0015	<5	NA	NA	870	1,252,800	
11/4/19	7.76	0.750	0.35	0.001	<5	NA	NA	0	0	
11/5/19	7.70	0.740	7.2	<0.001	<5	NA	NA	1096	1,578,240	
11/6/19	7.77	0.720	5	0.0013	<5	NA	NA	1094	1,575,360	
11/7/19	7.85	0.715	2	0.0011	5.2	NA	NA	1088	1,566,720	
11/8/19	7.43	0.773	3	0.0014	<5	90	101	1056	1,520,640	
11/9/19	7.69	0.810	3	0.0011	<5	82	101	1010	1,454,400	
11/10/19	7.96	0.820	9.9	0.0013	<5	NA	NA	1005	1,447,200	
11/11/19	7.79	0.730	7.9	0.0012	<5	NA	NA	665	957,600	
11/12/19	7.94	0.800	6.8	0.0011	<5	NA	NA	620	892,800	
11/13/19	7.50	0.810	<1	<0.001	<5	NA	NA	980	1,411,200	
11/14/19	7.39	0.806	2.2	0.0014	<5	NA	NA	1000	1,440,000	
11/15/19	7.58	0.822	5.3	0.0013	<5	NA	NA	1022	1,471,680	
11/16/19	7.69	0.660	3.8	0.0017	<5	NA	NA	985	1,418,400	
11/17/19	7.53	0.630	3.7	0.0013	<5	NA	NA	967	1,392,480	
11/18/19	7.49	0.670	6.9	0.0016	<5	NA	NA	984	1,416,960	
11/19/19	6.98	0.805	5	0.0014	<5	81	120	946	1,362,240	
11/20/19	7.96	0.828	5	0.0012	<5	82	121	1021	1,470,240	
11/21/19	7.70	0.767	5	0.0013	<5	82	121	1047	1,507,680	
11/22/19	7.50	0.700	8.3	0.0013	<5	NA	NA	1130	1,627,200	
11/23/19	7.46	0.798	8.2	0.0014	<5	NA	NA	1125	1,620,000	
11/24/19	7.39	0.790	8.7	0.0013	<5	NA	NA	1112	1,601,280	
11/25/19	7.61	0.820	6.3	0.0014	<5	NA	NA	1175	1,692,000	
11/26/19	7.62	0.750	5.5	0.0012	<5	79.9	124	1150	1,656,000	
11/27/19	7.67	0.800	6.6	0.0019	<5	77	123	1160	1,670,400	
11/28/19	7.59	0.650	8.3	<0.001	<5	NA	NA	1054	1,517,760	
11/29/19	7.43	0.670	4.9	0.0013	5.4	NA	NA	1050	1,512,000	
11/30/19	7.59	0.790	8.4	0.0011	<5	NA	NA	1065	1,533,600	
12/1/19	7.85	0.826	10	0.0011	<5	79	134	1025	1,476,000	
12/2/19	8.16	0.771	3	0.0013	<5	79	133	1019	1,467,360	
12/3/19	8.18	0.738	2	0.0011	<5	79	133	984	1,416,960	
12/4/19	7.68	0.820	6.6	0.0011	<5	NA	NA	1050	1,512,000	
12/5/19	7.49	0.810	5.7	0.0012	<5	NA	NA	970	1,396,800	
12/6/19	7.75	0.750	1.4	0.0015	<5	NA	NA	952	1,370,880	
12/7/19	7.54	0.833	6	0.0014	<5	78	132	1066	1,535,040	
12/8/19	7.73	0.870	8.7	0.0012	<5	64	112	1161	1,671,840	
12/9/19	7.81	0.850	3.1	0.0015	<5	80	142	1157	1,666,080	
12/10/19	7.49	0.870	5.1	0.0014	<5	NA	NA	1040	1,497,600	
12/11/19	7.65	0.710	5.2	0.0017	<5	NA	NA	1112	1,601,280	
12/12/19	7.64	0.660	1.2	0.0016	<5	NA	NA	1150	1,656,000	

## Notes:

- Sample for Phenol taken January 19, 2019 froze and broke container. No sample available.
- Sample for Phenol taken January 20, 2019 was sent out partially frozed in a plastic container. Upon receipt sample was thawed by exposing outer container to warm water. The sample was then poured off into an appropriate container. Results may be biased.

Data and comments provided by Clean Harbours Canada Inc.

TSS - Total Suspended Solids

LPM - litres per minute

Phenol - Total Phenols

ppm - parts per million

Table 6

**Monthly Discharge Chemical Monitoring – Equalization Pond, General Chemistry, Metals, and VOCs/sVOCs  
2019 Annual Surface Water Quality Monitoring Report  
Lambton Facility  
Clean Harbors Canada Inc.**

Sample Location:		EQ Pond	EQ Pond	EQ Pond	EQ Pond	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:		1/22/2019	3/25/2019	4/30/2019	5/29/2019	7/15/2019	8/21/2019	11/4/2019	12/9/2019
Parameters	Units PWQO								
<b>General Chemistry</b>									
Alkalinity, total (as CaCO3)	mg/L -	171	170	158	157 J-	134 J-	125 J-	133 J-	163
Ammonia-N	mg/L -	0.152	1.32	2.77	2.69 J-	0.20 J-	0.069 J-	0.096 J-	0.29
Bromide	mg/L -	1.85	3.27	1.49	1.26 J-	2.78 J-	2.47 J-	8.50 J-	2.85
Chemical oxygen demand (COD)	mg/L -	19	29	17	ND (10) J	18 J-	ND (10) J	13 J-	17
Chloride	mg/L -	85	91.8	70.3	60.8 J-	74.4 J-	70.4 J-	125 J-	82.2
Chromium VI (hexavalent)	mg/L 0.001	0.00087	ND (0.00050)	ND (0.00050)	ND (0.00050) J	ND (0.00050) J	ND (0.00050) J	ND (0.00050) J	ND (0.00050)
Conductivity	umhos/cm -	895	876	764	765 J-	720 J-	706 J-	968 J-	848
Cyanide (total)	mg/L 0.005	ND (0.0020)	ND (0.0020)	ND (0.0020)	ND (0.0020) J	ND (0.0020) J	ND (0.0020) J	ND (0.0020) J	ND (0.0020)
Dissolved organic carbon (DOC) (dissolved)	mg/L -	5.28	6.6	2.29	5.00 J-	4.90 J-	3.62 J-	4.85 J-	6.3
Fluoride	mg/L -	0.867	0.619	0.645	0.586 J-	0.584 J-	0.583 J-	0.661 J-	0.756
Hardness	mg/L -	319 J+	284 J+	264 J+	274 J+	244 J+	217 J+	218 J+	284 J+
Nitrate (as N)	mg/L -	0.376	0.394	0.164	0.073 J-	ND (0.020) J	0.028 J-	0.200 J-	0.159
Nitrite (as N)	mg/L -	0.011	ND (0.010)	ND (0.010)	ND (0.010) J	ND (0.010) J	ND (0.010) J	ND (0.010) J	ND (0.010)
pH, lab	s.u. 6.5-8.5	8	7.94	8.09	8.20 J	8.43 J	8.10 J	8.20 J	7.96
Phenolics (total)	mg/L 0.001	0.0025	0.0026	0.0015	0.0022 J-	0.0055 J-	0.0024 J-	ND (0.0010) J	0.0013
Phosphorus	mg/L 0.01	0.0243	0.0295	0.0809	0.0201 J-	0.0136 J-	0.0391 J-	0.0196 J-	0.0266
Sulfate	mg/L -	175	144	145	141 J-	130 J-	119 J-	126 J-	155
Total dissolved solids (TDS)	mg/L -	556	520	472	451 J-	449 J-	427 J-	544 J-	523
Total kjeldahl nitrogen (TKN)	mg/L -	0.86	1.88	3.41	3.03 J-	0.46 J-	0.50 J-	0.51 J-	0.97
Total suspended solids (TSS)	mg/L -	3.3	7.2	8.7	2.6 J-	3.7 J-	4.6 J-	5.4 J-	4.7
Un-ionized ammonia	mg/L 0.02	0.0015	0.00583	0.0563	0.0318 J-	0.020 J-	0.00282 J-	0.00124 J-	0.00357
<b>Field Parameters</b>									
pH, field	s.u. 6.5-8.5	7.96	7.5	8.1	7.49	8.16	7.58	7.76	7.81
Temperature, field	deg C -	1	4	6	17	26.5	32	10	8
<b>Metals</b>									
Aluminum	mg/L 0.075	0.364	0.566	0.54	0.074	0.043	0.186	0.107	0.281
Antimony	mg/L 0.02	0.00095	0.00065	0.00067	0.00045	0.00051	0.00042	0.00048	0.00043
Arsenic	mg/L 0.005	0.00161	0.00139	0.00178	0.00126	0.00225	0.0022	0.0014	0.00155
Barium	mg/L -	0.0672	0.0599	0.0404	0.0379	0.0452	0.0454	0.0582	0.0618
Beryllium	mg/L 0.011	ND (0.00010)	ND (0.00010)	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)	ND (0.000050)	ND (0.000050)
Boron	mg/L 0.2	0.128	0.156	0.081	0.096	0.108	0.197	0.174	0.12
Cadmium	mg/L 0.0002	ND (0.00020)	ND (0.00030)	0.000232	ND (0.00010)	ND (0.000040)	ND (0.000070)	0.174	ND (0.000020)
Calcium	mg/L -	87.5	76.9	69.8	72.3	61.1	52.6	55	77.9
Cobalt	mg/L 0.0009	0.00048	0.00186	0.00067	0.00025	0.00028	0.0003	0.00031	0.00066
Copper	mg/L 0.005	0.0027	0.0025	0.0011	ND (0.0010)	0.0013	0.001	0.002	0.0023
Iron	mg/L 0.3	0.351	0.587	0.502	0.065	ND (0.050)	0.172	0.138	0.235
Lead	mg/L 0.005	0.00051	0.00059	0.00108	0.00016	ND (0.00010)	0.0002	0.00018	0.00043
Magnesium	mg/L -	24.3	22.2	21.8	22.8	22.3	20.7	19.6	21.7
Manganese	mg/L -	0.0211	0.128	0.0561	0.0186	0.0188	0.0433	0.0234	0.0266
Mercury	mg/L 0.0002	ND (0.000010)	ND (0.000010)	0.000011	ND (0.000010)	ND (0.000010)	ND (0.0000050)	ND (0.0000050)	0.0000054
Molybdenum	mg/L 0.04	0.132	0.082	0.0636	0.0762	0.0796	0.0714	0.0635	0.0734
Nickel	mg/L 0.025	0.00811	0.013	0.00439	0.00325	0.00535	0.00458	0.0117	0.00663
Potassium	mg/L -	23.4	16.7	15	16.7	15	12.9	24.7	22.4
Selenium	mg/L 0.1	0.00291	0.00202	0.00136	0.00103	0.00133	0.00105	0.00115	0.00144
Silicon	mg/L -	2.93	3.08	2.78	1.26	1.35	1.48	1.74	1.41
Silver	mg/L 0.0001	ND (0.000050)	ND (0.000050)	ND (0.000050)	ND (0.000050)	ND (0.000050)	ND (0.000050)	ND (0.000050)	ND (0.000050)
Sodium	mg/L -	51.4	55.2	44.1	40.8	51	48.1	86.1	64.2
Strontium	mg/L -	0.718	0.569	0.535	0.608	0.554	0.514	0.556	0.628
Thallium	mg/L 0.0003	0.000148	0.000372	0.000209	0.00152	0.000514	0.000295	0.000059	0.000163
Tin	mg/L -	ND (0.00010)	ND (0.00010)	ND (0.00010)	ND (0.00010)	0.00017	ND (0.00010)	ND (0.00010)	0.00017
Vanadium	mg/L 0.006	0.00108	0.00151	0.00227	0.0005	0.00053	0.00089	0.00053	0.00072
Zinc	mg/L 0.03	0.0059	0.0063	0.0075	ND (0.0030)	ND (0.0030)	ND (0.0030)	0.0036	0.0039
<b>Volatiles</b>									
1,1,1,2-Tetrachloroethane	ug/L 20	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50)
1,1,1-Trichloroethane	ug/L 10	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50)
1,1,2,2-Tetrachloroethane	ug/L 70	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50)
1,1,2-Trichloroethane	ug/L 800	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50)

Table 6

**Monthly Discharge Chemical Monitoring – Equalization Pond, General Chemistry, Metals, and VOCs/sVOCs  
2019 Annual Surface Water Quality Monitoring Report  
Lambton Facility  
Clean Harbors Canada Inc.**

Sample Location:			EQ Pond	EQ Pond	EQ Pond	EQ Pond	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:			1/22/2019	3/25/2019	4/30/2019	5/29/2019	7/15/2019	8/21/2019	11/4/2019	12/9/2019
Parameters	Units	PWQO								
1,1-Dichloroethane	ug/L	200	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50)
1,1-Dichloroethene	ug/L	40	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50)
1,2-Dibromoethane (Ethylene dibromide)	ug/L	5	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20) J	ND (0.20) J	ND (0.20) J	ND (0.20) J	ND (0.20)
1,2-Dichlorobenzene	ug/L	2.5	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50)
1,2-Dichloroethane	ug/L	100	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50)
1,2-Dichloropropane	ug/L	0.7	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50)
1,3-Dichlorobenzene	ug/L	2.5	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50)
1,4-Dichlorobenzene	ug/L	4	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50)
2-Butanone (Methyl ethyl ketone) (MEK)	ug/L	400	ND (20)	69	ND (20)	ND (20) J	ND (20) J	ND (20) J	ND (20) J	ND (20)
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	ug/L	-	ND (20)	ND (20)	ND (20)	ND (20) J	ND (20) J	ND (20) J	ND (20) J	ND (20)
Acetone	ug/L	-	ND (20)	283	ND (20)	ND (20) J	ND (20) J	ND (20) J	ND (20) J	ND (20)
Benzene	ug/L	100	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50)
Bromodichloromethane	ug/L	200	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0) J	ND (1.0) J	ND (1.0) J	ND (1.0) J	ND (1.0)
Bromoform	ug/L	60	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0) J	ND (1.0) J	ND (1.0) J	ND (1.0) J	ND (1.0)
Bromomethane (Methyl bromide)	ug/L	0.9	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50)
Carbon tetrachloride	ug/L	-	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50)
Chlorobenzene	ug/L	15	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50)
Chloroethane	ug/L	-	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0) J	ND (1.0) J	ND (1.0) J	ND (1.0) J	ND (1.0)
Chloroform (Trichloromethane)	ug/L	-	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0) J	ND (1.0) J	ND (1.0) J	ND (1.0) J	ND (1.0)
cis-1,2-Dichloroethene	ug/L	200	ND (0.50)	1.25	ND (0.50)	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50)
cis-1,3-Dichloropropene	ug/L	-	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50)
Dibromochloromethane	ug/L	40	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0) J	ND (1.0) J	ND (1.0) J	ND (1.0) J	ND (1.0)
Dichlorodifluoromethane (CFC-12)	ug/L	-	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0) J	ND (1.0) J	ND (1.0) J	ND (1.0) J	ND (1.0)
Ethylbenzene	ug/L	8	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50)
Hexane	ug/L	-	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50)
m&p-Xylenes	ug/L	2	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0) J	ND (1.0) J	ND (1.0) J	ND (1.0) J	ND (1.0)
Methyl tert butyl ether (MTBE)	ug/L	200	ND (0.50)	1.28	ND (0.50)	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50)
Methylene chloride	ug/L	100	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0) J	ND (2.0) J	ND (2.0) J	ND (2.0) J	ND (2.0)
o-Xylene	ug/L	40	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50)
Styrene	ug/L	4	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50)
Tetrachloroethene	ug/L	50	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50)
Toluene	ug/L	0.8	ND (0.50)	0.61	ND (0.50)	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50)
trans-1,2-Dichloroethene	ug/L	200	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50)
trans-1,3-Dichloropropene	ug/L	7	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50)
Trichloroethene	ug/L	20	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50)
Trichlorofluoromethane (CFC-11)	ug/L	-	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0) J	ND (1.0) J	ND (1.0) J	ND (1.0) J	ND (1.0)
Trihalomethanes	ug/L	-	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0) J	ND (2.0) J	ND (2.0) J	ND (2.0) J	ND (2.0)
Vinyl chloride	ug/L	600	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50)
Xylenes (total)	ug/L	-	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1) J	ND (1.1) J	ND (1.1) J	ND (1.1) J	ND (1.1)
<b>Semi-Volatiles</b>										
1,2,4-Trichlorobenzene	ug/L	0.5	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40) J	ND (0.40) J	ND (0.40) J	ND (0.40) J	ND (0.40)
1,2-Dichlorobenzene	ug/L	2.5	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40) J	ND (0.40) J	ND (0.40) J	ND (0.40) J	ND (0.40)
1,3-Dichlorobenzene	ug/L	2.5	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40) J	ND (0.40) J	ND (0.40) J	ND (0.40) J	ND (0.40)
1,4-Dichlorobenzene	ug/L	4	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40) J	ND (0.40) J	ND (0.40) J	ND (0.40) J	ND (0.40)
1-Methylnaphthalene	ug/L	2	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40) J	ND (0.40) J	ND (0.40) J	ND (0.40) J	ND (0.40)
2,3,4,5-Tetrachlorophenol	ug/L	-	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50)
2,3,4,6-Tetrachlorophenol	ug/L	-	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50)
2,3,6-Trichlorophenol	ug/L	-	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50)
2,4,5-Trichlorophenol	ug/L	18	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50)
2,4,6-Trichlorophenol	ug/L	18	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50)
2,4-Dichlorophenol	ug/L	0.2	ND (0.30)	ND (0.30)	ND (0.30)	ND (0.30) J	ND (0.30) J	ND (0.30) J	ND (0.30) J	ND (0.30)
2,4-Dimethylphenol	ug/L	10	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50)
2,4-Dinitrophenol	ug/L	-	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0) J	ND (1.0) J	ND (1.0) J	ND (1.0) J	ND (1.0)
2,4-Dinitrotoluene	ug/L	4	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40) J	ND (0.40) J	ND (0.40) J	ND (0.40) J	ND (0.40)
2,6-Dinitrotoluene	ug/L	6	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40) J	ND (0.40) J	ND (0.40) J	ND (0.40) J	ND (0.40)
2-Chlorophenol	ug/L	7	ND (0.30)	ND (0.30)	ND (0.30)	ND (0.30) J	ND (0.30) J	ND (0.30) J	ND (0.30) J	ND (0.30)
2-Methylnaphthalene	ug/L	2	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40) J	ND (0.40) J	ND (0.40) J	ND (0.40) J	ND (0.40)
3,3'-Dichlorobenzidine	ug/L	0.6	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40) J	ND (0.40) J	ND (0.40) J	ND (0.40) J	ND (0.40)
4-Chloroaniline	ug/L	-	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40) J	ND (0.40) J	ND (0.40) J	ND (0.40) J	ND (0.40)
Acenaphthene	ug/L	-	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20) J	ND (0.20) J	ND (0.20) J	ND (0.20) J	ND (0.20)
Acenaphthylene	ug/L	-	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20) J	ND (0.20) J	ND (0.20) J	ND (0.20) J	ND (0.20)

Table 6

**Monthly Discharge Chemical Monitoring – Equalization Pond, General Chemistry, Metals, and VOCs/sVOCs  
2019 Annual Surface Water Quality Monitoring Report  
Lambton Facility  
Clean Harbors Canada Inc.**

Sample Location:	EQ Pond	EQ Pond	EQ Pond	EQ Pond	EQ Pond	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	EQ POND DISCHARGE	
Sample Date:	1/22/2019	3/25/2019	4/30/2019	5/29/2019	7/15/2019	8/21/2019	11/4/2019	12/9/2019		
Parameters	Units	PWQO								
Anthracene	ug/L	0.0008	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20) J	ND (0.20) J	ND (0.20) J	ND (0.20) J	ND (0.20)
Benzo(a)anthracene	ug/L	0.0004	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20) J	ND (0.20) J	ND (0.20) J	ND (0.20) J	ND (0.20)
Benzo(a)pyrene	ug/L	-	ND (0.050)	ND (0.050)	ND (0.050)	ND (0.050) J	ND (0.050) J	ND (0.050) J	ND (0.050) J	ND (0.050)
Benzo(b)fluoranthene	ug/L	-	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20) J	ND (0.20) J	ND (0.20) J	ND (0.20) J	ND (0.20)
Benzo(g,h,i)perylene	ug/L	2E-05	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20) J	ND (0.20) J	ND (0.20) J	ND (0.20) J	ND (0.20)
Benzo(k)fluoranthene	ug/L	0.0002	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20) J	ND (0.20) J	ND (0.20) J	ND (0.20) J	ND (0.20)
bis(2-Chloroethyl)ether	ug/L	200	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40) J	ND (0.40) J	ND (0.40) J	ND (0.40) J	ND (0.40)
bis(2-Ethylhexyl)phthalate (DEHP)	ug/L	0.6	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0) J	ND (2.0) J	ND (2.0) J	ND (2.0) J	ND (2.0)
Chrysene	ug/L	0.0001	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20) J	ND (0.20) J	ND (0.20) J	ND (0.20) J	ND (0.20)
Dibenz(a,h)anthracene	ug/L	0.002	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20) J	ND (0.20) J	ND (0.20) J	ND (0.20) J	ND (0.20)
Diethyl phthalate	ug/L	-	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20) J	ND (0.20) J	ND (0.20) J	ND (0.20) J	ND (0.20)
Dimethyl phthalate	ug/L	-	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20) J	ND (0.20) J	ND (0.20) J	ND (0.20) J	ND (0.20)
Fluoranthene	ug/L	0.0008	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20) J	ND (0.20) J	ND (0.20) J	ND (0.20) J	ND (0.20)
Fluorene	ug/L	0.2	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20) J	ND (0.20) J	ND (0.20) J	ND (0.20) J	ND (0.20)
Hexachlorobenzene	ug/L	0.0065	ND (0.040)	ND (0.040)	ND (0.040)	ND (0.040) J	ND (0.040) J	ND (0.040) J	ND (0.040) J	ND (0.040)
Hexachlorobutadiene	ug/L	0.009	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20) J	ND (0.20) J	ND (0.20) J	ND (0.20) J	ND (0.20)
Indeno(1,2,3-cd)pyrene	ug/L	-	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20) J	ND (0.20) J	ND (0.20) J	ND (0.20) J	ND (0.20)
Naphthalene	ug/L	7	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20) J	ND (0.20) J	ND (0.20) J	ND (0.20) J	ND (0.20)
Pentachlorophenol	ug/L	0.5	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50)
Perylene	ug/L	7E-05	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20) J	ND (0.20) J	ND (0.20) J	ND (0.20) J	ND (0.20)
Phenanthrene	ug/L	0.03	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20) J	ND (0.20) J	ND (0.20) J	ND (0.20) J	ND (0.20)
Pyrene	ug/L	-	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20) J	ND (0.20) J	ND (0.20) J	ND (0.20) J	ND (0.20)

Notes:

- 0.01 Analytical results above the Provincial Water Quality Objectives (PWQO).
- ND = Not detected at the associated reporting limit.
- J = Estimated concentration.
- J+ = The result is an estimated quantity, but the result may be biased high.
- J- = The result is an estimated quantity, but the result may be biased low.
- = Not applicable.

Table 7

**Monthly Discharge Chemical Monitoring – Equalization Pond, Microtox  
2019 Annual Surface Water Quality Monitoring Report  
Lambton Facility  
Clean Harbors Canada Inc.**

Sample Location:	EQ Pond	EQ Pond	EQ Pond	EQ Pond	EQ Pond	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	EQ POND DISCHARGE
Sample Date:	1/22/2019	3/25/2019	4/30/2019	5/29/2019	7/15/2019	8/20/2019	11/4/2019	12/9/2019	
Parameters	Units								
Clarification	min	None	-	None	-	30	-	None	None
Color (true)	none	Colourless	Colourless	Colourless	Colourless	Clear	Clear	Colourless	Colourless
EC 20 (15min)	%	100	81.9	100	81.9 J	-	-	100	100
EC 20 (5min)	%	100	81.9	100	81.9 J	-	-	100	100
EC 50 (15min)	%	100	81.9	100	81.9 J	81.9 J	81.9	100	100
EC 50 (5min)	%	100	81.9	100	81.9 J	--	--	100	100
Final pH	s.u.	7.9	-	8.2	-	8.04	7.93	8.1	7.8
Initial pH	s.u.	7.9	7.6	8.2	7.7	8.04	7.93	8.1	7.8
Interpretation	none	Non Toxic	-	Non Toxic	-	-	-	Non Toxic	Non Toxic
Turbidity	NTU	N/A	None	N/A	None	3.6	1.1	N/A	N/A

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



**Table 8**  
**Surface Water Characterization – East Pond**  
**2019 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	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	EAST STORM WATER POND	EAST STORM WATER POND	EAST STORM WATER POND	
Sample Date:		1/22/2019	3/25/2019	4/30/2019	5/29/2019	7/15/2019	8/21/2019	11/4/2019	12/9/2019	
Parameters	Units	PWQO								
<b>General Chemistry</b>										
Alkalinity, total (as CaCO3)	mg/L	-	169	183	147	166 J-	176 J-	114 J-	148 J-	186
Ammonia-N	mg/L	-	0.12	1.24	4.01	2.51 J-	ND (0.10) J	0.477 J-	0.315 J-	0.318
Bromide	mg/L	-	2.08	1.52	0.85	1.09 J-	1.85 J-	7.65 J-	2.70 J-	2.02
Chemical oxygen demand (COD)	mg/L	-	25	25	22	24 J-	39 J-	48 J-	28 J-	31
Chloride	mg/L	-	80.4	77.5	56.9	59.8 J-	75.6 J-	130 J-	78.0 J-	86.4
Chromium VI (hexavalent)	mg/L	0.001	ND (0.00050)	ND (0.00050)	0.00052	ND (0.00050) J	ND (0.00050) J	0.00162 J-	ND (0.00050) J	ND (0.00050)
Conductivity	umhos/cm	-	898	881	726	787 J-	782 J-	974 J-	847 J-	971
Cyanide (total)	mg/L	0.005	ND (0.0020)	ND (0.0020)	ND (0.0020)	ND (0.0020) J	ND (0.0020) J	0.0050 J-	0.0045 J-	ND (0.0020)
Dissolved organic carbon (DOC) (dissolved)	mg/L	-	5.72	5.75	6.25	6.23 J-	7.27 J-	8.35 J-	7.29 J-	7.1
Fluoride	mg/L	-	0.993	0.68	0.581	0.629 J-	0.655 J-	0.750 J-	0.893 J-	0.783
Hardness	mg/L	-	324 J+	296 J+	263 J+	288 J+	269 J+	233 J+	238 J+	357 J+
Nitrate (as N)	mg/L	-	0.19	0.062	0.136	0.030 J-	ND (0.020) J	0.044 J-	0.059 J-	0.089
Nitrite (as N)	mg/L	-	ND (0.010)	ND (0.010)	ND (0.010)	ND (0.010) J	ND (0.010) J	0.030 J-	ND (0.010) J	ND (0.010)
pH, lab	s.u.	6.5-8.5	7.91	7.56	7.99	7.81 J	7.85 J	7.80 J	8.04 J	8.14
Phenolics (total)	mg/L	0.001	0.0016	0.0024	0.0013	0.0020 J-	0.0036 J-	0.0155 J-	0.0016 J-	0.0023
Phosphorus	mg/L	0.01	0.0388	0.0475	0.0288	0.0670 J-	0.0604 J-	0.113 J-	0.0696 J-	0.0511
Sulfate	mg/L	-	189	159	150	144 J-	129 J-	155 J-	141 J-	204
Total dissolved solids (TDS)	mg/L	-	551	529	448	481 J-	481 J-	615 J-	511 J-	609
Total kjeldahl nitrogen (TKN)	mg/L	-	0.78	1.75	5.02	2.85 J-	1.81 J-	1.32 J-	1.32 J-	1.12
Total suspended solids (TSS)	mg/L	-	7.5	10.7	5.8	23.0 J-	15.5 J-	91.5 J-	15.7 J-	13
Un-ionized ammonia	mg/L	0.02	0.000122	0.00433	0.0446	0.0192 J-	ND (0.0012) J	0.00619 J-	0.00281 J-	0.0037
<b>Field Parameters</b>										
pH, field	s.u.	6.5-8.5	6.97	7.4	7.8	7.3	7.33	7.31	7.5	7.89
Temperature, field	deg C	-	1	4	7	17	22	24	13	5
<b>Metals</b>										
Aluminum	mg/L	0.075	0.534	0.802	0.499	1.15	0.41	2.2	1.28	0.538
Antimony	mg/L	0.02	0.0011	0.00051	0.0005	0.00046	0.00041	0.00091	0.00055	0.00049
Arsenic	mg/L	0.005	0.00183	0.0024	0.00151	0.00284	0.00394	0.00426	0.00278	0.0016
Barium	mg/L	-	0.07	0.0624	0.0451	0.0551	0.0585	0.0725	0.0722	0.0704
Beryllium	mg/L	0.011	ND (0.00010)	ND (0.00010)	ND (0.00010)	ND (0.00010)	ND (0.00010)	0.00012	ND (0.00010)	ND (0.00010)
Bismuth	mg/L	-	ND (0.000050)	ND (0.000050)	ND (0.000050)	ND (0.000050)	ND (0.000050)	0.000079	0.000058	ND (0.000050)
Boron	mg/L	0.2	0.126	0.1	0.084	0.107	0.138	0.182	0.124	0.127
Cadmium	mg/L	0.0002	ND (0.00020)	ND (0.00070)	0.00056	ND (0.000040)	ND (0.00020)	ND (0.00030)	ND (0.00080)	ND (0.00030)
Calcium	mg/L	-	87.4	79.3	70.7	76.2	69.4	63.7	64.3	97.4
Cobalt	mg/L	0.0009	0.00067	0.0017	0.00054	0.00159	0.00087	0.00331	0.00165	0.00102
Copper	mg/L	0.005	0.0031	0.0023	0.002	0.0024	0.0016	0.0063	0.0045	0.0024
Iron	mg/L	0.3	0.765	1.2	0.472	1.56	0.521	2.92	1.51	0.551
Lead	mg/L	0.005	0.00085	0.0025	0.0014	0.00304	0.00108	0.00616	0.00478	0.00124
Magnesium	mg/L	-	25.6	23.9	21.1	23.7	23.2	18.1	18.8	27.7
Manganese	mg/L	-	0.04	0.368	0.0444	0.334	0.224	0.184	0.0705	0.0975
Mercury	mg/L	0.0002	0.000013	0.000028	0.000012	0.000037	0.000013	0.0000264	0.0000389	0.0000128
Molybdenum	mg/L	0.04	0.16	0.0958	0.0802	0.0855	0.071	0.0998	0.0846	0.0796
Nickel	mg/L	0.025	0.00996	0.00714	0.00411	0.00714	0.00608	0.0201	0.00961	0.00675
Potassium	mg/L	-	30.5	20	16.3	17	16.4	36.7	25.9	24.7
Selenium	mg/L	0.1	0.00366	0.00161	0.00167	0.00119	0.00121	0.00668	0.00183	0.0016
Silicon	mg/L	-	3.46	4.06	2.42	3.44	2.18	5.6	3.1	2.34
Silver	mg/L	0.0001	ND (0.000050)	ND (0.000050)	ND (0.000050)	ND (0.000050)	ND (0.000050)	ND (0.000050)	ND (0.000050)	ND (0.000050)
Sodium	mg/L	-	49.7	45.5	35.5	39.7	52.5	86	65.7	63.7
Strontium	mg/L	-	0.766	0.665	0.614	0.657	0.661	0.531	0.566	0.778
Thallium	mg/L	0.0003	0.00029	0.000773	0.00294	0.00142	0.000797	0.000801	0.000287	0.000168
Tin	mg/L	-	ND (0.00010)	ND (0.00010)	ND (0.00010)	ND (0.00010)	ND (0.00010)	0.00039	0.00023	ND (0.00010)
Vanadium	mg/L	0.006	0.00158	0.00201	0.00132	0.0027	0.00147	0.0051	0.00307	0.00133
Zinc	mg/L	0.03	0.0116	0.02	0.0116	0.0154	0.0055	0.0257	0.0182	0.0074

**Table 8**  
**Surface Water Characterization – East Pond**  
**2019 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	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	EAST STORM WATER POND	EAST STORM WATER POND	EAST STORM WATER POND
Sample Date:			1/22/2019	3/25/2019	4/30/2019	5/29/2019	7/15/2019	8/21/2019	11/4/2019	12/9/2019
Parameters	Units	PWQO								
<b>Volatiles</b>										
1,1,1,2-Tetrachloroethane	ug/L	20	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50)
1,1,1-Trichloroethane	ug/L	10	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50)
1,1,2,2-Tetrachloroethane	ug/L	70	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50)
1,1,2-Trichloroethane	ug/L	800	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50)
1,1-Dichloroethane	ug/L	200	ND (0.50)	0.74	ND (0.50)	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50)
1,1-Dichloroethene	ug/L	40	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50)
1,2-Dibromoethane (Ethylene dibromide)	ug/L	5	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20) J	ND (0.20) J	ND (0.20) J	ND (0.20) J	ND (0.20)
1,2-Dichlorobenzene	ug/L	2.5	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50)
1,2-Dichloroethane	ug/L	100	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50)
1,2-Dichloropropane	ug/L	0.7	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50)
1,3-Dichlorobenzene	ug/L	2.5	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50)
1,4-Dichlorobenzene	ug/L	4	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50)
2-Butanone (Methyl ethyl ketone) (MEK)	ug/L	400	ND (20)	ND (20)	ND (20)	ND (20) J	ND (20) J	53 J-	ND (20) J	ND (20)
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	ug/L	-	ND (20)	ND (20)	ND (20)	ND (20) J	ND (20) J	ND (20) J	ND (20) J	ND (20)
Acetone	ug/L	-	ND (20)	ND (20)	ND (20)	ND (20) J	ND (20) J	209 J-	ND (20) J	ND (20)
Benzene	ug/L	100	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50)
Bromodichloromethane	ug/L	200	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0) J	ND (1.0) J	ND (1.0) J	ND (1.0) J	ND (1.0)
Bromoform	ug/L	60	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0) J	ND (1.0) J	ND (1.0) J	ND (1.0) J	ND (1.0)
Bromomethane (Methyl bromide)	ug/L	0.9	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50)
Carbon tetrachloride	ug/L	-	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50)
Chlorobenzene	ug/L	15	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50)
Chloroethane	ug/L	-	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0) J	ND (1.0) J	ND (1.0) J	ND (1.0) J	ND (1.0)
Chloroform (Trichloromethane)	ug/L	-	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0) J	ND (1.0) J	ND (1.0) J	ND (1.0) J	ND (1.0)
cis-1,2-Dichloroethene	ug/L	200	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50)
cis-1,3-Dichloropropene	ug/L	-	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50)
Dibromochloromethane	ug/L	40	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0) J	ND (1.0) J	ND (1.0) J	ND (1.0) J	ND (1.0)
Dichlorodifluoromethane (CFC-12)	ug/L	-	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0) J	ND (1.0) J	ND (1.0) J	ND (1.0) J	ND (1.0)
Ethylbenzene	ug/L	8	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50)
Hexane	ug/L	-	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50)
m&p-Xylenes	ug/L	2	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0) J	ND (1.0) J	ND (1.0) J	ND (1.0) J	ND (1.0)
Methyl tert butyl ether (MTBE)	ug/L	200	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50)
Methylene chloride	ug/L	100	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0) J	ND (2.0) J	ND (2.0) J	ND (2.0) J	ND (2.0)
o-Xylene	ug/L	40	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50)
Styrene	ug/L	4	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50)
Tetrachloroethene	ug/L	50	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50)
Toluene	ug/L	0.8	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50) J	ND (0.50) J	0.56 J-	ND (0.50) J	ND (0.50)
trans-1,2-Dichloroethene	ug/L	200	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50)
trans-1,3-Dichloropropene	ug/L	7	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50)
Trichloroethene	ug/L	20	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50)
Trichlorofluoromethane (CFC-11)	ug/L	-	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0) J	ND (1.0) J	ND (1.0) J	ND (1.0) J	ND (1.0)
Trihalomethanes	ug/L	-	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0) J	ND (2.0) J	ND (2.0) J	ND (2.0) J	ND (2.0)
Vinyl chloride	ug/L	600	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50)
Xylenes (total)	ug/L	-	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1) J	ND (1.1) J	ND (1.1) J	ND (1.1) J	ND (1.1)
<b>Semi-Volatiles</b>										
1,2,4-Trichlorobenzene	ug/L	0.5	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40) J	ND (0.40) J	ND (0.40) J	ND (0.40) J	ND (0.40)
1,2-Dichlorobenzene	ug/L	2.5	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40) J	ND (0.40) J	ND (0.40) J	ND (0.40) J	ND (0.40)
1,3-Dichlorobenzene	ug/L	2.5	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40) J	ND (0.40) J	ND (0.40) J	ND (0.40) J	ND (0.40)
1,4-Dichlorobenzene	ug/L	4	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40) J	ND (0.40) J	ND (0.40) J	ND (0.40) J	ND (0.40)
1-Methylnaphthalene	ug/L	2	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40) J	ND (0.40) J	ND (0.40) J	ND (0.40) J	ND (0.40)
2,3,4,5-Tetrachlorophenol	ug/L	-	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50)
2,3,4,6-Tetrachlorophenol	ug/L	-	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50)
2,3,6-Trichlorophenol	ug/L	-	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50)
2,4,5-Trichlorophenol	ug/L	18	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50)
2,4,6-Trichlorophenol	ug/L	18	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50)
2,4-Dichlorophenol	ug/L	0.2	ND (0.30)	ND (0.30)	ND (0.30)	ND (0.30) J	ND (0.30) J	ND (0.30) J	ND (0.30) J	ND (0.30)
2,4-Dimethylphenol	ug/L	10	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50)
2,4-Dinitrophenol	ug/L	-	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0) J	ND (1.0) J	ND (1.0) J	ND (1.0) J	ND (1.0)
2,4-Dinitrotoluene	ug/L	4	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40) J	ND (0.40) J	ND (0.40) J	ND (0.40) J	ND (0.40)
2,6-Dinitrotoluene	ug/L	6	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40) J	ND (0.40) J	ND (0.40) J	ND (0.40) J	ND (0.40)
2-Chlorophenol	ug/L	7	ND (0.30)	ND (0.30)	ND (0.30)	ND (0.30) J	ND (0.30) J	ND (0.30) J	ND (0.30) J	ND (0.30)
2-Methylnaphthalene	ug/L	2	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40) J	ND (0.40) J	ND (0.40) J	ND (0.40) J	ND (0.40)
3,3'-Dichlorobenzidine	ug/L	0.6	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40) J	ND (0.40) J	ND (0.40) J	ND (0.40) J	ND (0.40)
4-Chloroaniline	ug/L	-	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40) J	ND (0.40) J	ND (0.40) J	ND (0.40) J	ND (0.40)
Acenaphthene	ug/L	-	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20) J	ND (0.20) J	ND (0.20) J	ND (0.20) J	ND (0.20)
Acenaphthylene	ug/L	-	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20) J	ND (0.20) J	ND (0.20) J	ND (0.20) J	ND (0.20)
Anthracene	ug/L	0.0008	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20) J	ND (0.20) J	ND (0.20) J	ND (0.20) J	ND (0.20)
Benzo(a)anthracene	ug/L	0.0004	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20) J	ND (0.20) J	ND (0.20) J	ND (0.20) J	ND (0.20)

**Table 8**  
**Surface Water Characterization – East Pond**  
**2019 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	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	EAST STORM WATER POND	EAST STORM WATER POND	EAST STORM WATER POND
Sample Date:		1/22/2019	3/25/2019	4/30/2019	5/29/2019	7/15/2019	8/21/2019	11/4/2019	12/9/2019
Parameters	Units PWQO								
Benzo(a)pyrene	ug/L -	ND (0.050)	ND (0.050)	ND (0.050)	ND (0.050) J	ND (0.050) J	ND (0.050) J	ND (0.050) J	ND (0.050)
Benzo(b)fluoranthene	ug/L -	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20) J	ND (0.20) J	ND (0.20) J	ND (0.20) J	ND (0.20)
Benzo(g,h,i)perylene	ug/L 2E-05	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20) J	ND (0.20) J	ND (0.20) J	ND (0.20) J	ND (0.20)
Benzo(k)fluoranthene	ug/L 0.0002	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20) J	ND (0.20) J	ND (0.20) J	ND (0.20) J	ND (0.20)
bis(2-Chloroethyl)ether	ug/L 200	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40) J	ND (0.40) J	ND (0.40) J	ND (0.40) J	ND (0.40)
bis(2-Ethylhexyl)phthalate (DEHP)	ug/L 0.6	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0) J	ND (2.0) J	ND (2.0) J	ND (2.0) J	ND (2.0)
Chrysene	ug/L 0.0001	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20) J	ND (0.20) J	ND (0.20) J	ND (0.20) J	ND (0.20)
Dibenz(a,h)anthracene	ug/L 0.002	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20) J	ND (0.20) J	ND (0.20) J	ND (0.20) J	ND (0.20)
Diethyl phthalate	ug/L -	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20) J	ND (0.20) J	ND (0.20) J	ND (0.20) J	ND (0.20)
Dimethyl phthalate	ug/L -	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20) J	ND (0.20) J	0.28 J-	ND (0.20) J	ND (0.20)
Fluoranthene	ug/L 0.0008	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20) J	ND (0.20) J	ND (0.20) J	ND (0.20) J	ND (0.20)
Fluorene	ug/L 0.2	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20) J	ND (0.20) J	ND (0.20) J	ND (0.20) J	ND (0.20)
Hexachlorobenzene	ug/L 0.0065	ND (0.040)	ND (0.040)	ND (0.040)	ND (0.040) J	ND (0.040) J	ND (0.040) J	ND (0.040) J	ND (0.040)
Hexachlorobutadiene	ug/L 0.009	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20) J	ND (0.20) J	ND (0.20) J	ND (0.20) J	ND (0.20)
Indeno(1,2,3-cd)pyrene	ug/L -	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20) J	ND (0.20) J	ND (0.20) J	ND (0.20) J	ND (0.20)
Naphthalene	ug/L 7	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20) J	ND (0.20) J	ND (0.20) J	ND (0.20) J	ND (0.20)
Pentachlorophenol	ug/L 0.5	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50)
Perylene	ug/L 7E-05	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20) J	ND (0.20) J	ND (0.20) J	ND (0.20) J	ND (0.20)
Phenanthrene	ug/L 0.03	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20) J	ND (0.20) J	ND (0.20) J	ND (0.20) J	ND (0.20)
Pyrene	ug/L -	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20) J	ND (0.20) J	ND (0.20) J	ND (0.20) J	ND (0.20)

Notes:  
0.01 Analytical results above the Provincial Water Quality Objectives (PWQO).  
 ND = Not detected at the associated reporting limit.  
 J = Estimated concentration.  
 J+ = The result is an estimated quantity, but the result may be biased high  
 J- = The result is an estimated quantity, but the result may be biased low  
 - = Not applicable.

**Table 9**  
**Surface Water Characterization – West Pond**  
**2019 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	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	WEST STORM WATER POND	WEST STORM WATER POND	WEST STORM WATER POND
Sample Date:			1/22/2019	3/25/2019	4/30/2019	5/29/2019	7/15/2019	8/21/2019	11/4/2019	12/9/2019
Parameters	Units	PWQO								
<b>General Chemistry</b>										
Alkalinity, total (as CaCO3)	mg/L	-	173	170	160	155 J-	177 J-	114 J-	133 J-	169
Ammonia-N	mg/L	-	1.64	0.399	3.85	4.46 J-	0.15 J-	0.051 J-	0.233 J-	0.849
Bromide	mg/L	-	1.93	3.52	3.75	3.32 J-	2.50 J-	2.43 J-	5.18 J-	2.66
Chemical oxygen demand (COD)	mg/L	-	24	32	17	18 J-	14 J-	19 J-	19 J-	22
Chloride	mg/L	-	85	90.7	86.8	81.8 J-	69.3 J-	69.2 J-	91.1 J-	82.6
Chromium VI (hexavalent)	mg/L	0.001	0.00081	ND (0.00050)	ND (0.00050)	ND (0.00050) J	ND (0.00050) J	ND (0.00050) J	ND (0.00050) J	ND (0.00050)
Conductivity	umhos/cm	-	899	869	802	810 J-	756 J-	681 J-	825 J-	872
Cyanide (total)	mg/L	0.005	ND (0.0020)	ND (0.0020)	ND (0.0020)	ND (0.0020) J	ND (0.0020) J	ND (0.0020) J	ND (0.0020) J	ND (0.0020)
Dissolved organic carbon (DOC) (dissolved)	mg/L	-	5.64	7.49	5.9	4.99 J-	6.04 J-	4.64 J-	9.88 J-	6.97
Fluoride	mg/L	-	0.871	0.608	0.52	0.521 J-	0.536 J-	0.596 J-	0.650 J-	0.786
Hardness	mg/L	-	312 J+	283 J+	262 J+	264 J+	279 J+	206 J+	215 J+	294 J+
Nitrate (as N)	mg/L	-	0.309	0.297	0.289	0.252 J-	ND (0.020) J	0.049 J-	0.055 J-	0.073
Nitrite (as N)	mg/L	-	ND (0.010)	ND (0.010)	ND (0.010)	ND (0.010) J	ND (0.010) J	ND (0.010) J	ND (0.010) J	ND (0.010)
pH, lab	s.u.	6.5-8.5	8.04	7.89	8.18	8.10 J	8.06 J	8.10 J	8.19 J	8.12
Phenolics (total)	mg/L	0.001	0.0018	0.0046	0.0021	0.0013 J-	0.0060 J-	0.0028 J-	0.0025 J-	0.0045
Phosphorus	mg/L	0.01	0.0298	0.0395	0.0166	0.0236 J-	0.0261 J-	0.0261 J-	0.0325 J-	0.0276
Sulfate	mg/L	-	177	139	130	125 J-	124 J-	117 J-	114 J-	165
Total dissolved solids (TDS)	mg/L	-	552	517	482	484 J-	470 J-	418 J-	474 J-	540
Total kjeldahl nitrogen (TKN)	mg/L	-	1.79	1.46	1.14	4.94 J-	0.97 J-	0.91 J-	0.91 J-	1.37
Total suspended solids (TSS)	mg/L	-	3.9	10.1	6.1	5.6 J-	7.6 J-	5.1 J-	9.3 J-	7.4
Un-ionized ammonia	mg/L	0.02	0.0011	0.00221	0.0784	0.0481 J-	0.0037 J-	0.00148 J-	0.00353 J-	0.00656
<b>Field Parameters</b>										
pH, field	s.u.	6.5-8.5	6.79	7.6	8.1	7.45	7.62	7.6	7.73	7.71
Temperature, field	deg C	-	1	4	6	17	23.5	26	13	5
<b>Metals</b>										
Aluminum	mg/L	0.075	0.346	0.767	0.215	0.193	0.133	0.36	0.432	0.322
Antimony	mg/L	0.02	0.00095	0.00064	0.00046	0.00046	0.0005	0.00046	0.00043	0.00044
Arsenic	mg/L	0.005	0.00155	0.00145	0.00161	0.00141	0.00262	0.00244	0.0019	0.00151
Barium	mg/L	-	0.0655	0.0628	0.0565	0.0593	0.0544	0.0456	0.0638	0.0629
Beryllium	mg/L	0.011	ND (0.00010)	ND (0.00010)	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)	ND (0.000050)	ND (0.000050)
Boron	mg/L	0.2	0.141	0.153	0.138	0.129	0.127	0.136	0.148	0.129
Cadmium	mg/L	0.0002	ND (0.00020)	ND (0.00030)	0.000251	ND (0.000020)	ND (0.00010)	ND (0.00020)	ND (0.000020)	ND (0.00030)
Calcium	mg/L	-	85.1	76.9	71.8	71.2	75.3	49.3	56.9	81.1
Cobalt	mg/L	0.0009	0.0005	0.00244	0.00164	0.00088	0.00042	0.00043	0.00059	0.00076
Copper	mg/L	0.005	0.0029	0.003	0.002	0.0017	0.0019	0.0024	0.0033	0.0022
Iron	mg/L	0.3	0.339	0.859	0.182	0.286	0.173	0.37	0.502	0.271
Lead	mg/L	0.005	0.00054	0.00083	0.00023	0.00048	0.0004	0.00044	0.00058	0.0006
Magnesium	mg/L	-	24.3	22	20.1	21.1	22.2	20.1	17.8	22.3
Manganese	mg/L	-	0.0241	0.246	0.0262	0.0312	0.0396	0.0249	0.0292	0.0556
Mercury	mg/L	0.0002	ND (0.000010)	ND (0.000010)	ND (0.000010)	ND (0.000010)	ND (0.000010)	ND (0.000050)	ND (0.000050)	0.000067
Molybdenum	mg/L	0.04	0.127	0.0817	0.0637	0.0581	0.0645	0.0602	0.0588	0.0744
Nickel	mg/L	0.025	0.00842	0.014	0.0125	0.0105	0.00623	0.00475	0.0104	0.00667
Potassium	mg/L	-	24.6	16	14.1	13.3	12.4	19.6	19.6	22.1
Selenium	mg/L	0.1	0.00356	0.00182	0.00152	0.00133	0.0012	0.00132	0.00117	0.0015
Silicon	mg/L	-	2.86	3.13	1.99	1.87	1.67	1.63	1.82	1.53
Silver	mg/L	0.0001	ND (0.000050)	ND (0.000050)	ND (0.000050)	ND (0.000050)	ND (0.000050)	ND (0.000050)	ND (0.000050)	ND (0.000050)
Sodium	mg/L	-	53	54.9	53.4	52.6	47.1	47.2	64.6	61.8
Strontium	mg/L	-	0.697	0.574	0.499	0.512	0.568	0.496	0.52	0.657
Thallium	mg/L	0.0003	0.000202	0.000678	0.000576	0.000303	0.000357	0.000149	0.000102	0.000184
Tin	mg/L	-	ND (0.00010)	ND (0.00010)	ND (0.00010)	0.00016	0.00039	ND (0.00010)	0.00013	ND (0.00010)
Vanadium	mg/L	0.006	0.00105	0.00198	0.00096	0.00085	0.00063	0.00123	0.00122	0.00083
Zinc	mg/L	0.03	0.0077	0.0078	ND (0.0030)	ND (0.0030)	0.0051	0.003	0.0056	0.0048
<b>Volatiles</b>										
1,1,1,2-Tetrachloroethane	ug/L	20	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50)
1,1,1-Trichloroethane	ug/L	10	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50)
1,1,2,2-Tetrachloroethane	ug/L	70	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50)
1,1,2-Trichloroethane	ug/L	800	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50)
1,1-Dichloroethane	ug/L	200	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50)
1,1-Dichloroethene	ug/L	40	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50)
1,2-Dibromoethane (Ethylene dibromide)	ug/L	5	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20) J	ND (0.20) J	ND (0.20) J	ND (0.20) J	ND (0.20)
1,2-Dichlorobenzene	ug/L	2.5	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50)
1,2-Dichloroethane	ug/L	100	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50)
1,2-Dichloropropane	ug/L	0.7	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50)
1,3-Dichlorobenzene	ug/L	2.5	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50)

**Table 9**  
**Surface Water Characterization – West Pond**  
**2019 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	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	WEST STORM WATER POND	WEST STORM WATER POND	WEST STORM WATER POND
Sample Date:		1/22/2019	3/25/2019	4/30/2019	5/29/2019	7/15/2019	8/21/2019	11/4/2019	12/9/2019
Parameters	Units	PWQO							
1,4-Dichlorobenzene	ug/L	4	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50) J
2-Butanone (Methyl ethyl ketone) (MEK)	ug/L	400	ND (20)	87	ND (20)	ND (20) J	ND (20) J	ND (20) J	ND (20) J
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	ug/L	-	ND (20)	ND (20)	ND (20)	ND (20) J	ND (20) J	ND (20) J	ND (20) J
Acetone	ug/L	-	ND (20)	298	59	ND (20) J	ND (20) J	ND (20) J	ND (20) J
Benzene	ug/L	100	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50) J
Bromodichloromethane	ug/L	200	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0) J	ND (1.0) J	ND (1.0) J	ND (1.0) J
Bromoform	ug/L	60	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0) J	ND (1.0) J	ND (1.0) J	ND (1.0) J
Bromomethane (Methyl bromide)	ug/L	0.9	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50) J
Carbon tetrachloride	ug/L	-	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50) J
Chlorobenzene	ug/L	15	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50) J
Chloroethane	ug/L	-	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0) J	ND (1.0) J	ND (1.0) J	ND (1.0) J
Chloroform (Trichloromethane)	ug/L	-	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0) J	ND (1.0) J	ND (1.0) J	ND (1.0) J
cis-1,2-Dichloroethene	ug/L	200	ND (0.50)	2.33	ND (0.50)	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50) J
cis-1,3-Dichloropropene	ug/L	-	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50) J
Dibromochloromethane	ug/L	40	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0) J	ND (1.0) J	ND (1.0) J	ND (1.0) J
Dichlorodifluoromethane (CFC-12)	ug/L	-	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0) J	ND (1.0) J	ND (1.0) J	ND (1.0) J
Ethylbenzene	ug/L	8	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50) J
Hexane	ug/L	-	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50) J
m&p-Xylenes	ug/L	2	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0) J	ND (1.0) J	ND (1.0) J	ND (1.0) J
Methyl tert butyl ether (MTBE)	ug/L	200	ND (0.50)	1.36	ND (0.50)	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50) J
Methylene chloride	ug/L	100	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0) J	ND (2.0) J	ND (2.0) J	ND (2.0) J
o-Xylene	ug/L	40	ND (0.50)	0.58	ND (0.50)	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50) J
Styrene	ug/L	4	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50) J
Tetrachloroethene	ug/L	50	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50) J
Toluene	ug/L	0.8	ND (0.50)	1.16	ND (0.50)	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50) J
trans-1,2-Dichloroethene	ug/L	200	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50) J
trans-1,3-Dichloropropene	ug/L	7	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50) J
Trichloroethene	ug/L	20	ND (0.50)	0.97	ND (0.50)	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50) J
Trichlorofluoromethane (CFC-11)	ug/L	-	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0) J	ND (1.0) J	ND (1.0) J	ND (1.0) J
Trihalomethanes	ug/L	-	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0) J	ND (2.0) J	ND (2.0) J	-
Vinyl chloride	ug/L	600	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50) J
Xylenes (total)	ug/L	-	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1) J	ND (1.1) J	ND (1.1) J	ND (1.1) J
<b>Semi-Volatiles</b>									
1,2,4-Trichlorobenzene	ug/L	0.5	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40) J	ND (0.40) J	ND (0.40) J	ND (0.40) J
1,2-Dichlorobenzene	ug/L	2.5	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40) J	ND (0.40) J	ND (0.40) J	ND (0.40) J
1,3-Dichlorobenzene	ug/L	2.5	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40) J	ND (0.40) J	ND (0.40) J	ND (0.40) J
1,4-Dichlorobenzene	ug/L	4	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40) J	ND (0.40) J	ND (0.40) J	ND (0.40) J
1-Methylnaphthalene	ug/L	2	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40) J	ND (0.40) J	ND (0.40) J	ND (0.40) J
2,3,4,5-Tetrachlorophenol	ug/L	-	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50) J
2,3,4,6-Tetrachlorophenol	ug/L	-	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50) J
2,3,6-Trichlorophenol	ug/L	-	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50) J
2,4,5-Trichlorophenol	ug/L	18	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50) J
2,4,6-Trichlorophenol	ug/L	18	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50) J
2,4-Dichlorophenol	ug/L	0.2	ND (0.30)	ND (0.30)	ND (0.30)	ND (0.30) J	ND (0.30) J	ND (0.30) J	ND (0.30) J
2,4-Dimethylphenol	ug/L	10	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50) J
2,4-Dinitrophenol	ug/L	-	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0) J	ND (1.0) J	ND (1.0) J	ND (1.0) J
2,4-Dinitrotoluene	ug/L	4	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40) J	ND (0.40) J	ND (0.40) J	ND (0.40) J
2,6-Dinitrotoluene	ug/L	6	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40) J	ND (0.40) J	ND (0.40) J	ND (0.40) J
2-Chlorophenol	ug/L	7	ND (0.30)	ND (0.30)	ND (0.30)	ND (0.30) J	ND (0.30) J	ND (0.30) J	ND (0.30) J
2-Methylnaphthalene	ug/L	2	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40) J	ND (0.40) J	ND (0.40) J	ND (0.40) J
3,3'-Dichlorobenzidine	ug/L	0.6	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40) J	ND (0.40) J	ND (0.40) J	ND (0.40) J
4-Chloroaniline	ug/L	-	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40) J	ND (0.40) J	ND (0.40) J	ND (0.40) J
Acenaphthene	ug/L	-	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20) J	ND (0.20) J	ND (0.20) J	ND (0.20) J
Acenaphthylene	ug/L	-	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20) J	ND (0.20) J	ND (0.20) J	ND (0.20) J
Anthracene	ug/L	0.0008	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20) J	ND (0.20) J	ND (0.20) J	ND (0.20) J
Benzo(a)anthracene	ug/L	0.0004	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20) J	ND (0.20) J	ND (0.20) J	ND (0.20) J
Benzo(a)pyrene	ug/L	-	ND (0.050)	ND (0.050)	ND (0.050)	ND (0.050) J	ND (0.050) J	ND (0.050) J	ND (0.050) J
Benzo(b)fluoranthene	ug/L	-	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20) J	ND (0.20) J	ND (0.20) J	ND (0.20) J
Benzo(g,h,i)perylene	ug/L	2E-05	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20) J	ND (0.20) J	ND (0.20) J	ND (0.20) J
Benzo(k)fluoranthene	ug/L	0.0002	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20) J	ND (0.20) J	ND (0.20) J	ND (0.20) J
bis(2-Chloroethyl)ether	ug/L	200	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40) J	ND (0.40) J	ND (0.40) J	ND (0.40) J
bis(2-Ethylhexyl)phthalate (DEHP)	ug/L	0.6	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0) J	ND (2.0) J	ND (2.0) J	ND (2.0) J
Chrysene	ug/L	0.0001	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20) J	ND (0.20) J	ND (0.20) J	ND (0.20) J
Dibenz(a,h)anthracene	ug/L	0.002	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20) J	ND (0.20) J	ND (0.20) J	ND (0.20) J
Diethyl phthalate	ug/L	-	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20) J	ND (0.20) J	ND (0.20) J	ND (0.20) J
Dimethyl phthalate	ug/L	-	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20) J	ND (0.20) J	ND (0.20) J	ND (0.20) J
Fluoranthene	ug/L	0.0008	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20) J	ND (0.20) J	ND (0.20) J	ND (0.20) J
Fluorene	ug/L	0.2	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20) J	ND (0.20) J	ND (0.20) J	ND (0.20) J

**Table 9**  
**Surface Water Characterization – West Pond**  
**2019 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	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	WEST STORM WATER POND	WEST STORM WATER POND	WEST STORM WATER POND
Sample Date:		1/22/2019	3/25/2019	4/30/2019	5/29/2019	7/15/2019	8/21/2019	11/4/2019	12/9/2019
Parameters	Units	PWQO							
Hexachlorobenzene	ug/L	0.0065	ND (0.040)	ND (0.040)	ND (0.040)	ND (0.040) J	ND (0.040) J	ND (0.040) J	ND (0.040) J
Hexachlorobutadiene	ug/L	0.009	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20) J	ND (0.20) J	ND (0.20) J	ND (0.20) J
Indeno(1,2,3-cd)pyrene	ug/L	-	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20) J	ND (0.20) J	ND (0.20) J	ND (0.20) J
Naphthalene	ug/L	7	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20) J	ND (0.20) J	ND (0.20) J	ND (0.20) J
Pentachlorophenol	ug/L	0.5	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50) J	ND (0.50) J	ND (0.50) J	ND (0.50) J
Perylene	ug/L	7E-05	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20) J	ND (0.20) J	ND (0.20) J	ND (0.20) J
Phenanthrene	ug/L	0.03	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20) J	ND (0.20) J	ND (0.20) J	ND (0.20) J
Pyrene	ug/L	-	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20) J	ND (0.20) J	ND (0.20) J	ND (0.20) J

Notes:  
0.01 Analytical results above the Provincial Water Quality Objectives (PWQO).  
 ND - Not detected at the associated reporting limit.  
 J = Estimated concentration.  
 J+ = The result is an estimated quantity, but the result may be biased high  
 J- = The result is an estimated quantity, but the result may be biased low  
 - = Not applicable.

**Supplementary Chemical Monitoring – Off-Site Monitoring Locations  
2019 Annual Surface Water Quality Monitoring Report  
Lambton Facility  
Clean Harbors Canada Inc.**

Sample Location:	STN6	STN6A	STN6A
Sample ID:	STN6	SW-44985-061819-NS-STN6A	STN6A
Sample Date:	11/25/2019	6/18/2019	11/25/2019
Parameters	Units	PWQO	
<b>General Chemistry</b>			
Alkalinity, total (as CaCO3)	mg/L	- 319	284 301
Ammonia-N	mg/L	- 0.06	0.124 0.117
Bromide	mg/L	- ND (0.10)	0.17 0.29
Chemical oxygen demand (COD)	mg/L	- ND (10)	27 ND (10)
Chloride	mg/L	- 36.4	32.4 41.7
Chromium VI (hexavalent)	mg/L	0.001 ND (0.00050)	ND (0.00050) ND (0.00050)
Conductivity	umhos/cm	- 863	769 853
Cyanide (total)	mg/L	0.005 ND (0.0020)	ND (0.0020) ND (0.0020)
Dissolved organic carbon (DOC) (dissolved)	mg/L	- 5.53	7.19 1.24
Fluoride	mg/L	- 0.263	0.251 0.325
Hardness	mg/L	- 445 J+	365 J+ 420 J+
Nitrate (as N)	mg/L	- 4.4	6.1 3.45
Nitrite (as N)	mg/L	- ND (0.010)	0.057 ND (0.010)
pH, lab	s.u.	6.5-8.5 8.45	8.25 8.33
Phenolics (total)	mg/L	0.001	<b>0.0334</b> <b>0.0019</b> <b>0.0023</b>
Phosphorus	mg/L	0.01	<b>0.042</b> <b>0.132</b> <b>0.084</b>
Sulfate	mg/L	- 118	76.7 116
Total dissolved solids (TDS)	mg/L	- 556	466 546
Total kjeldahl nitrogen (TKN)	mg/L	- 0.72	0.95 0.66
Total suspended solids (TSS)	mg/L	- 4.4	13.4 12.9
Un-ionized ammonia	mg/L	- -	- -
<b>Field Parameters</b>			
pH, field			
Temperature, field			
<b>Metals</b>			
Aluminum	mg/L	0.075	<b>0.479</b> <b>0.791</b> <b>0.537</b>
Antimony	mg/L	0.02	0.0001 0.00015 0.00014
Arsenic	mg/L	0.005	0.00049 0.00111 0.00062
Barium	mg/L	-	0.0328 0.0347 0.0373
Beryllium	mg/L	0.011	ND (0.00010) ND (0.00010) ND (0.00010)
Bismuth	mg/L	-	ND (0.000050) ND (0.000050) ND (0.000050)
Boron	mg/L	0.2	0.041 0.047 0.048
Cadmium	mg/L	0.0002	0.000016 0.0000354 0.000027
Calcium	mg/L	-	96.8 83.4 94.7
Cobalt	mg/L	0.0009	0.0002 0.00047 0.00027
Copper	mg/L	0.005	0.0018 0.0021 0.0019
Iron	mg/L	0.3	<b>0.352</b> <b>0.819</b> <b>0.426</b>
Lead	mg/L	0.005	0.00022 0.000429 0.00025
Magnesium	mg/L	-	49.3 38.2 44.6
Manganese	mg/L	-	0.00896 0.0251 0.0151
Mercury	mg/L	0.0002	ND (0.000050) ND (0.00010) ND (0.000050)
Molybdenum	mg/L	0.04	0.00512 0.00931 0.0123
Nickel	mg/L	0.025	0.00129 0.00239 0.002
Potassium	mg/L	-	1.95 3.11 4.36
Selenium	mg/L	0.1	0.00158 0.00088 0.0012
Silicon	mg/L	-	4.37 5.72 4.3
Silver	mg/L	0.0001	ND (0.000050) ND (0.000050) ND (0.000050)
Sodium	mg/L	-	23.7 20.2 26.9
Strontium	mg/L	-	0.477 0.389 0.488
Thallium	mg/L	0.0003	0.000011 0.000036 0.00002
Tin	mg/L	-	ND (0.00010) ND (0.00010) 0.00013
Vanadium	mg/L	0.006	0.00166 0.00253 0.00173
Zinc	mg/L	0.03	ND (0.0030) 0.0041 ND (0.0030)

Notes:

**0.01**

ND = Not detected at the associated reporting limit.

J = Estimated concentration.

J+ = The result is an estimated quantity, but the result may be biased high

J- = The result is an estimated quantity, but the result may be biased low

- = Not applicable.



# Appendices

**Appendix A**  
**Letter to Erica Carabott from GHD Re: Surface**  
**Water Monitoring Program and Surface Water**  
**Characterization Program d**  
**ted 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 that reads "James R. Yardley". The signature is fluid and cursive, with the first name "James" and last name "Yardley" clearly legible.

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
<b>EQ Pond Discharge</b>	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"> <li>■</li> <li>■</li> </ul>	<ul style="list-style-type: none"> <li>■ consecutive day samples</li> <li>■ consecutive day samples</li> <li>■</li> <li>■</li> <li>■ consecutive day samples</li> <li>■ consecutive day samples</li> </ul>	<ul style="list-style-type: none"> <li>■ consecutive day samples</li> <li>■ consecutive day samples</li> <li>■ consecutive day samples</li> <li>■ consecutive day samples</li> </ul>
<b>EQ Pond</b>	Benthic Invertebrates Fish Presence Dissolved Oxygen Profile Secchi depth profile		<ul style="list-style-type: none"> <li>■</li> <li>■</li> <li>■</li> <li>■</li> </ul>	
<b>Effluent from SWTP</b>	General Chemistry (1) Metals sVOCs Pesticides		<ul style="list-style-type: none"> <li>■</li> <li>■</li> <li>■</li> <li>■</li> </ul>	<ul style="list-style-type: none"> <li>■</li> <li>■</li> <li>■</li> <li>■</li> </ul>
<b>Influent to SWTP</b>	General Chemistry (1) Metals sVOCs Pesticides		<ul style="list-style-type: none"> <li>■</li> <li>■</li> <li>■</li> <li>■</li> </ul>	<ul style="list-style-type: none"> <li>■</li> <li>■</li> <li>■</li> <li>■</li> </ul>
<b>STN6 (off-site background)</b>	General Chemistry (1) Metals		<ul style="list-style-type: none"> <li>■</li> <li>■</li> </ul>	<ul style="list-style-type: none"> <li>■</li> <li>■</li> </ul>
<b>STN6A (off-site downstream)</b>	General Chemistry (1) Metals		<ul style="list-style-type: none"> <li>■</li> <li>■</li> </ul>	<ul style="list-style-type: none"> <li>■</li> <li>■</li> </ul>

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
<b>EQ Pond Discharge</b>	pH, conductivity, TSS, Total phenols, chloride, solvent extractables Microtox General Chemistry Metals VOCs sVOCs	■	■ (2) ■ (2) ■ (2) ■ (2) ■ (2)	
<b>EQ Pond</b>	Fish Presence		■	
<b>West Storm Water Pond</b>	General Chemistry Metals VOCs sVOCs		■ ■ ■ ■	
<b>East Storm Water Pond</b>	General Chemistry Metals VOCs sVOCs		■ ■ ■ ■	
<b>STN6 (off-site background)</b>	General Chemistry Metals			■ (3) ■ (3)
<b>STN6A (off-site downstream)</b>	General Chemistry Metals			■ (3) ■ (3)

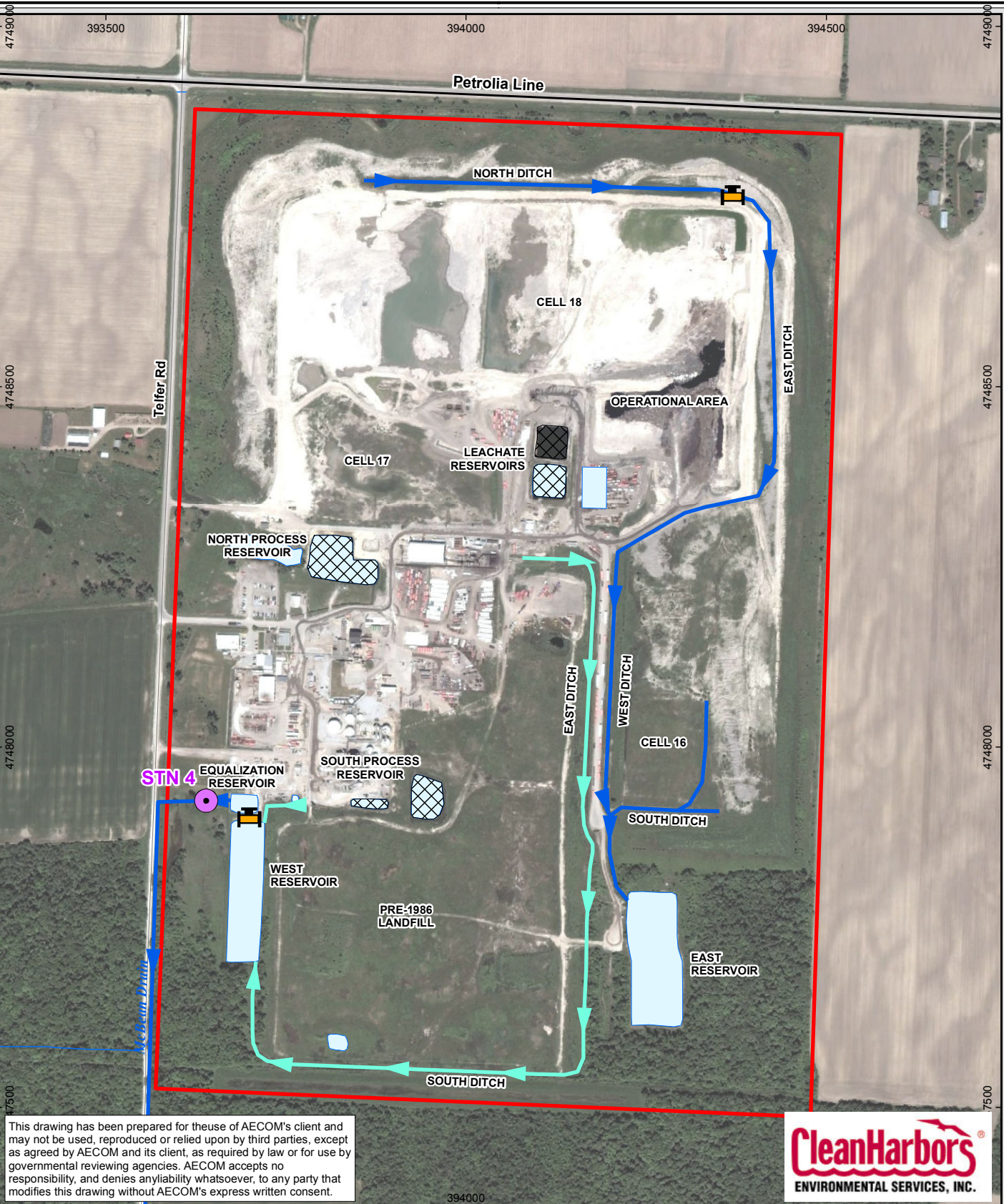
Notes:

- (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**

<b>Parameter</b>	<b>Analytes</b>
General Chemistry Parameters	Alkalinity (total as CaCO <sub>3</sub> ), 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

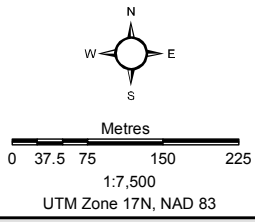
# Attachment A



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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**

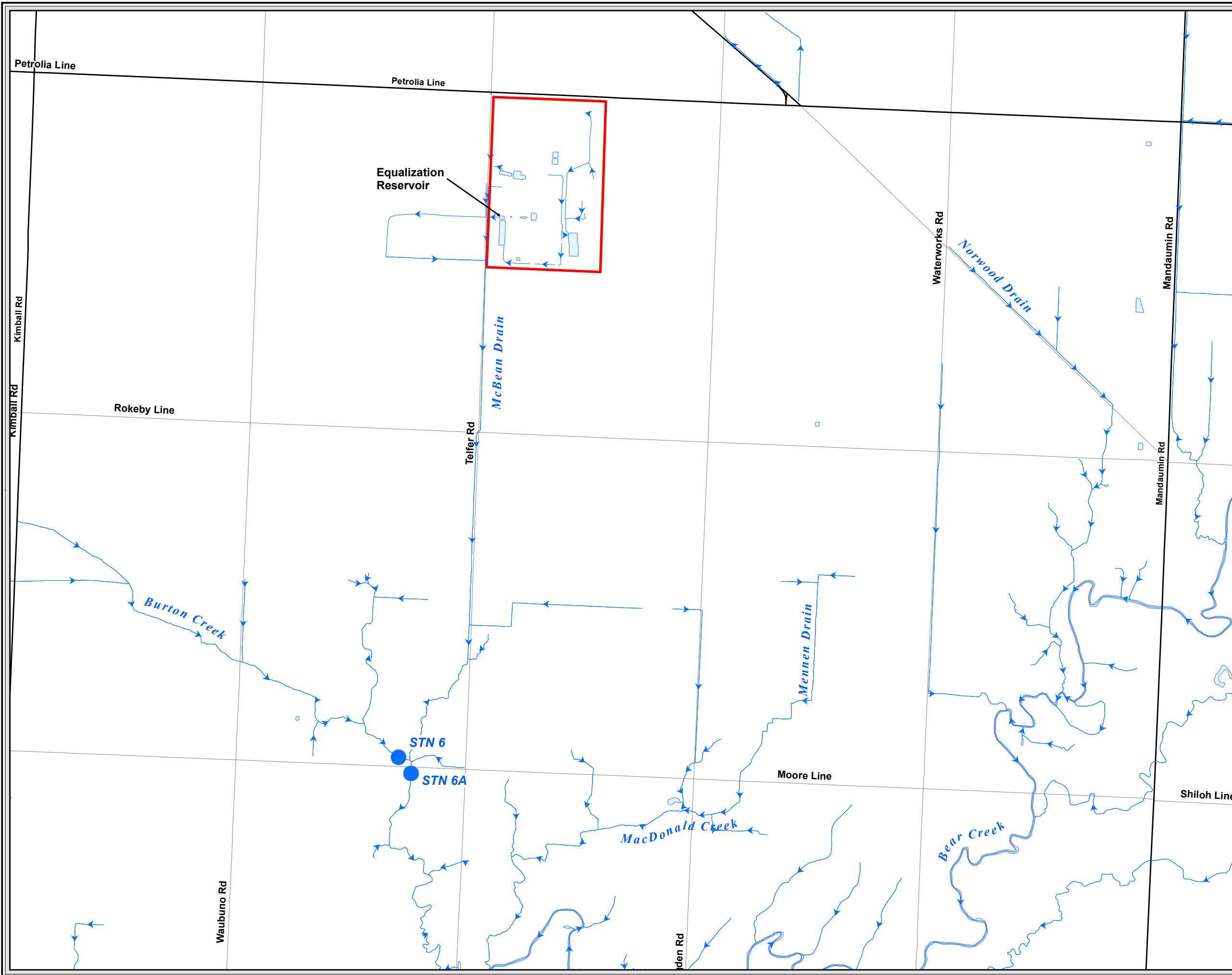
October 2014  
60316888



Figure 3



Path: P:\60272902\000-CADD\050-GIS WIP\Maps\Working\EA Report - 2014\60316888\_Fig4\_SurfQuality\_Monitoring\loc.mxd



**Legend**

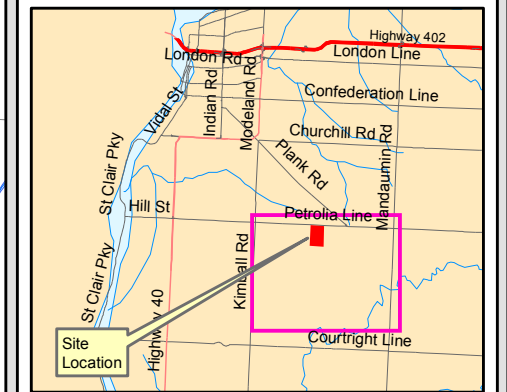
- Supplementary Off-Site Surface Water Monitoring Locations
- Waste Facility

**Roads**

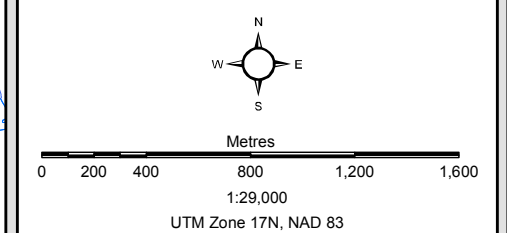
- Major Road
- Local Road

**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**  
**Provincial Officer's Order No. 2681 BCPKUJ**



## Provincial Officer's Order

Environmental Protection Act, R.S.O. 1990, c. E.19 (EPA)  
Ontario Water Resources Act, R.S.O. 1990, c. O.40 (OWRA)  
Pesticides Act, R.S.O. 1990, c. P.11 (PA)  
Safe Drinking Water Act, 2002, S.O. 2002, c.32 (SDWA)  
Nutrient Management Act, 2002, S.O. 2002, c.4 (NMA)

**Order Number**  
2681-BCPKUJ

**Incident Report No.**  
5210-BAWQQ3

**To:** Clean Harbors Canada Inc.  
4090 Telfer Rd  
St. Clair, Ontario, N0N 1G0  
Canada

**Site:** 4090 Telfer Rd  
St. Clair, County of Lambton

Pursuant to my authority under OWRA Section 16.2, I order you to do the following:

### Work Ordered

Item No. 1	Compliance Date	2019/06/06 (YYYY/MM/DD)
------------	-----------------	----------------------------

Upon service of this Order, implement the Updated Leachate Management Plan, in accordance with the timelines specified therein.

Item No. 2	Compliance Date	2019/11/01 (YYYY/MM/DD)
------------	-----------------	----------------------------

By June 7, 2019, and continuing for the duration of this Order, submit to the Provincial Officer a written report every seven (7) days that includes, but is not limited to, the following:

- (a) a description of all work related to the Updated Leachate Management Plan performed in the previous seven days;
- (b) a description of any work to be carried out in relation to the Updated Leachate Management Plan during the next seven days; and
- (c) a summary of all available sampling results taken in the previous seven days; and
- (d) a description and rationale for any proposed change or modification to the Updated Leachate Management Plan.

Item No. 3	Compliance Date	2019/11/01
------------	-----------------	------------

(YYYY/MM/DD)

Upon service of this Order, no modifications, amendments or variation to the work described in the Updated Leachate Management Plan shall be implemented without prior written consent of the Provincial Officer.

**Item No. 4**

**Compliance Date**

2019/11/01

(YYYY/MM/DD)

Upon service of this Order, written notice shall be provided forthwith to the Provincial Officer upon receiving any sampling results from the Equalization Pond that indicate that any treatment system is not adequately managing leachate as described in the Updated Leachate Management Plan.

**Item No. 5**

**Compliance Date**

2019/11/01

(YYYY/MM/DD)

Upon service of this Order, copies of all documents, records and information required under this Order shall immediately be made available to the Provincial Officer or the District Manager upon request.

- A. While this Order is in effect, a copy or copies of this order shall be posted in a conspicuous place.
- B. While this Order is in effect, report in writing, to the District or Area office, any significant changes of operation, emission, ownership, tenancy or other legal status of the facility or operation.
- C. Unless otherwise specified, all requirements of this Order are effective upon service of this Order.

This Order is being issued for the reasons set out in the annexed Provincial Officers Report which forms part of this Order.

Issued at Sarnia this 5th day of June, 2019.



Maisa Fumagalli  
Badge No:  
Sarnia District Office  
Tel: (519) 336-4743

## REQUEST FOR REVIEW

You may request that this Order be reviewed by a Director.

Your request must be made (i) in writing (or if made orally, with written confirmation) and (ii) served on the Director at the address below within seven (7) calendar days after being served with a copy of this Order.

In the written request or written confirmation of an oral request, you must include:

- (a) the portions of the Order in respect of which the review is requested;
- (b) any submissions that you wish the Director to consider; and
- (c) an address for service to be used by the Director.

In response to your request for review, the Director may confirm, alter or revoke this Order and will serve you with a copy of the Director's decision or Order.

A request for review does not automatically stay this Order. If you wish to have the Director stay the Order you must also include this in your request and the Order is not stayed unless the Director makes an order granting a stay.

### DEEMED CONFIRMATION OF THIS ORDER

If you do not receive oral or written notice of the Director's decision on your request for review within (7) calendar days of receipt of your request, and the Director has not stayed the Order, this Order shall be deemed to be confirmed by order of the Director and deemed to be served upon you.

In the case of a deemed confirmation, you may require a hearing before the Environmental Review Tribunal (Tribunal), if, within fifteen (15) calendar days from the deemed date of service of the Director's order, you serve written notice of your appeal on the Tribunal and the Director. Your notice must state:

- (a) the portion(s) of the Order in respect of which the hearing is required; and
- (b) the grounds on which you intend to rely at the hearing.

Except with leave of the Tribunal, you are not entitled to appeal a portion of the Order or to rely on a ground that is not stated in the notice requiring the hearing. Unless stayed by the Tribunal, the Order remains in effect from the date of service.

Written notice requiring a hearing can be served upon:

The Secretary  
Environmental Review Tribunal  
655 Bay Street, 15th Floor  
Toronto ON  
M5G 1E5  
Fax: (416) 326-5370  
Email: ERTTribunalsecretary@ontario.ca

and

Director  
Ministry of the Environment, Conservation and Parks  
Sarnia District Office  
1094 London Rd  
Sarnia ON N7S 1P1  
Fax: (519) 336-4280  
Tel: (519)336-4030

Further information on the Tribunal and requirements for an appeal can be obtained directly from the Tribunal by:

Tel: (416) 212-6349 or 1(866) 448-2248  
TTY 1-800-855-1155 via Bell Relay

Fax: (416) 326-5370 or 1(844) 213-3474  
Web: [www.ert.gov.on.ca](http://www.ert.gov.on.ca)

### FOR YOUR INFORMATION

The following is for your information:

Service of the documentation referred to above can be made personally, by mail, by fax, by commercial courier or by email in accordance with the legislation under which the Order is made and any corresponding Service Regulation. Further information can be obtained from e-Laws at [www.e-laws.gov.on.ca](http://www.e-laws.gov.on.ca). Please note that choosing service by mail does not extend any of the above mentioned timelines.

Unless stayed, this Order is effective from the date of service. Non-compliance with the requirements of this Order constitutes an offence.

The requirements of this Order are minimum requirements only and do not relieve you from complying with the following:

- (a) any applicable federal legislation,
- (b) any applicable provincial legislation or requirements that are not addressed in this Order, and
- (c) any applicable municipal law.

The requirements of this Order are severable. If any requirement of this Order or the application of any requirement to any circumstances is held invalid, the application of such requirement to other circumstances and the remainder of the Order are not affected.

Further orders may be issued in accordance with the legislation as circumstances require.

The procedures and other information provided above are intended as a guide. The legislation and/or regulations should be consulted for additional details and accurate reference.



**Clean Harbors - Consolidated Management Plan (June 4, 2019).pdf**

## Provincial Officer's Report

**Order Number**  
2681-BCPKUJ

Clean Harbors Canada Inc.  
4090 Telfer Rd  
St. Clair, Ontario, N0N 1G0  
Canada

**Site**  
4090 Telfer Rd  
St. Clair, County of Lambton

### **Observations**

#### PROVINCIAL OFFICER'S REPORT

##### 1. Authority to Issue Order

I have authority as a provincial officer to issue Orders under the EPA to further the purpose of the EPA, namely, to provide for the protection and conservation of the natural environment. I also have authority as a provincial officer to issue Orders under the OWRA, to further the purpose of the OWRA, namely, to provide for the conservation, protection and management of Ontario's waters.

##### 2. Definitions

For the purposes of this Order, the following terms shall have the meanings described below:

“Adverse effect” has the same meaning as in the EPA.

“Company” means Clean Harbors Canada, Inc.

“Design and Operations Report” means the report entitled “Revised Design and Operations Report – Lambton Landfill Expansion, Clean Harbors Canada Inc.” authored by Tetra Tech and

dated October 8, 2015. This report is included as Item 26 of Schedule A of Landfill ECA Amendment No. 9, issued October 19, 2015.

“ECA” means an Environmental Compliance Approval (formerly known as a Certificate of Approval) issued under Part II.1 of the EPA.

“EPA” means the Environmental Protection Act, R.S.O. 1990, c. E 19, as amended.

“Equalization Pond” refers to the Equalization Pond that is part of the Surface Water System and has the same meaning as that term is described in the Sewage Works ECA.

“Fractionalization Tank” or “Frac Tank” means a fractionalization tank brought to the Site to temporarily store leachate or leachate contaminated water; or water from the south ditch for batch treatment.

“Incinerator ECA” means Amended ECA No. 8-1030-94-006 issued April 19, 1994, and includes the Operating Manual referenced in Condition 11, as required by section 9 of the EPA.

“Landfill” means the waste disposal site authorized in Amended Environmental Compliance Approval No. A031806, dated September 5, 1997 and last amended September 22, 2017, including the landfill pre-treatment system and temporary storage and transfer activities as described therein.

“Landfill ECA” means Amended ECA No. A031806 issued September 5, 1997 and last amended September 22, 2017, as required by section 27 of the EPA.

"LDR" means Land Disposal Restrictions and has the same meaning as in the Landfill ECA.

“LDR Storage Report” means the weekly report required by Condition 23v of the Landfill ECA.

“Leachate Collection System” means all components and equipment for the collection and management of leachate approved under the Landfill ECA.

“Leachate Pond Cover ECA” means ECA No. 2005-8RHJL6 issued February 27, 2012, as required by section 53 of the OWRA.

“Maintenance Yard” means the yard area immediately outside the Vehicle Maintenance Building.

“Ministry” or “MECP” means the Ontario Ministry of the Environment, Conservation and Parks.

“Mobile Sewage ECA” means ECA No. 2423-B6CN2D issued December 19, 2018, as required by section 53 of the OWRA.

“Mobile Treatment Unit” means the mobile sewage works and related equipment approved under



the Mobile Sewage ECA.

“Order” means this Provincial Officer’s Order Number No. 2681-BCPKUJ, as may be amended, or 8210-BBCPS2.

“Provincial Officer” means the undersigned Provincial Officer, or in the event the undersigned person is unable to act, any other provincial officer with the MECP Sarnia District Office authorized to act under the EPA and OWRA. Any document that is required to be submitted to the Provincial Officer under this Order shall be sent to the attention of Maisa Fumagalli, either via email to Maisa.Fumagalli@ontario.ca or via mail to the MECP Sarnia District Office, 1094 London Road, Sarnia ON N7S 1P1.

“Provincial Officer’s Report” means this Provincial Officer’s Report, which comprises part of this Order.

“Regulation 347” means General – Waste Management, R.R.O. 1990, Regulation 347 under the EPA.

“Sewage Works ECA” means Amended ECA No. 1065-9VVJSW, issued October 19, 2015, as required by section 53 of the OWRA.

“Site” means the property legally described as Part of Lots 8 and 9, Concession 10, and Part of Lots 8 and 9, Concession 9, formerly Township of Moore and now part of Township of St. Clair, County of Lambton, Ontario and being all of PINS 43293-0053, 43293-0055, 43293-0056, 43293-0065 and 43293-0066; and municipally known as 4090 Telfer Road, Rural Route No. 1, Corunna, St. Clair Township, County of Lambton, Ontario N0N 1G0.

“South Ditch” means the Waste Dump Ditch and the Southwest Perimeter Ditch as those terms are described in the Sewage Works ECA, both of which are part of the Surface Water System.

"Surface Water System" means the contact stormwater collection, management, and treatment system approved in the Sewage Works ECA, and includes the Waste Dump Ditch, Southwest Perimeter Ditch, West Pond, East Pond, Equalization Pond, and Wastewater Treatment Plant as those terms are described in the Sewage Works ECA.

“Tribunal” means the Environmental Review Tribunal.

“Updated Leachate Management Plan” means the document entitled “Clean Harbors South Ditch, Water and Leachate Management Plan,” originally dated May 23, 2019, amended on June 4, 2019; and prepared by Clean Harbors; a copy of the most recent Plan is attached to this Order as Schedule “A”.

### 3. Site Description

#### **Site Description**

The Company owns and operates an integrated hazardous waste management facility site consisting of a secure landfill and a liquid waste incinerator. Waste disposal operations have been carried out at the Site since the early 1960s under a series of successive owners. The Company acquired the Site in 2002.

The land adjacent to the Site is primarily used for agriculture. The Site's north drainage outlet drains to Perch Creek, which in turn drains to Lake Huron. The south drainage outlet drains to Bear Creek, which in turn drains to the Sydenham River and Lake St. Clair. The natural environment at and surrounding the Site includes fish and amphibian habitat, and woodlots which provide habitat for wildlife.

### **Surface Water Management**

The Sewage Works ECA authorizes an industrial sewage works for the collection, treatment and disposal of contact stormwater, process wastewater, and sanitary sewage from the Site. The works consists of the Surface Water System, a non-contact stormwater management system, a process wastewater treatment system, and a sanitary sewage system.

The Surface Water System includes the Waste Dump Ditch, Southwest Perimeter Ditch, West Pond, East Pond, Equalization Pond, and Wastewater Treatment Plant all as described in the Sewage Works ECA.

The Surface Water System discharges offsite from the Equalization Pond through an outlet into the Telfer Side Road ditch. The ditch drains into the watercourse Bear Creek, which then drains into Sydenham River and Lake St. Clair.

### **Leachate Management**

The existing Leachate Collection System (LCS) is authorized by the Landfill ECA. Pursuant to the Landfill ECA, leachate is captured in a perimeter leachate collection trench. Sumps equipped with pumps transfer leachate collected in the perimeter trench via a forcemain to a leachate pumping station and central storage unit. The leachate pumping station in turn pumps the accumulated leachate to an above ground storage tank and three leachate storage ponds.

The three ponds are covered with floating membranes that can be vented pursuant to the Leachate Pond Cover ECA. Discharge from the vents is sent to a scrubber to remove harmful compounds, followed by an activated carbon bed for treatment. The treated discharge from the carbon bed exhausts into the atmosphere through a stack.

Leachate is transferred from the active disposal areas to the leachate ponds primarily by pumping through an underground pipeline. Leachate is transferred from the covered ponds to an incinerator for disposal through an underground pipeline.

#### **4. Events Leading to the Provincial Officer's Order**

I have been the assigned Environmental Officer for Clean Harbors since May 2019. Provincial Officer Don Hayes was previously assigned to conduct inspections of the Site and reported weather and other conditions that resulted in the generation of hazardous waste leachate at a rate of approximately 35 liters per minute. The Site's incinerator is currently able to incinerate leachate generated by the landfill at a rate of 20 to 30 liters per minute. Since 2015, the rate of leachate generation at the Site has outpaced the rate at which it could be disposed of. These conditions have led to the Site's leachate storage ponds nearing maximum storage capacity.

On April 4, 2019 the Company reported that a seep from the Leachate Collection System was allowing landfill leachate to enter the Surface Water System. On April 5, 2019, the Company reported that the leachate levels within the Leachate Collection System perimeter trench were measured at 201.3 meters above sea level ("mASL"). In accordance with the Design and Operations Report, the maximum leachate level for the Leachate Collection System is 196 mASL. The presence of leachate exceeding 196 mASL results in a risk that the leachate will be discharged to the natural environment.

The Landfill ECA allows for a total leachate storage capacity at the Site of 41,159,610 litres, comprised of specifically approved storage containers. As of March 31, 2019, Officer Hayes notes that the Ministry was aware that the Site's leachate storage contained well over 90% of its approved storage capacity. On May 2, 2019, a meeting was held at the Site and attended by six Ministry officials, including myself and representatives for the Company. Officer Hayes noted that the Company's consultant, Jim Yardley, reported that the Leachate Collection System was not being operated in accordance with the Design and Operations Report. The notes continue that an additional 4 to 5 million litres of previously unreported leachate is currently being stored within the Leachate Collection System. This additional leachate is the reason that the leachate level within the system was measured to be 201.3 mASL in April 2019.

Pursuant to Regulation 347, landfill leachate is a designated hazardous waste. Officer Hayes reports that the Ministry has conducted sampling of the leachate from the Site which indicated that the leachate contains high levels of volatile organic compounds, hydrogen sulphides, and other harmful chemicals. Seepage of the leachate into the Surface Water System may result in the discharge of material onsite and potentially offsite, that may impair the quality of water.

In addition, the Equalization Pond and West Pond that make up part of the Surface Water System contain aquatic organisms including fish. Currently, there is no evidence of any adverse impacts to aquatic organisms, however, the risk of impairment exists if leachate continues to seep into the Surface Water System.

To prevent leachate seeps from the Leachate Collection System into the Surface Water System, the leachate levels within the Leachate Collection System must be lowered, as required under the Company's approvals. To prevent or reduce the risk of a discharge from the Leachate Collection System to the natural environment, additional temporary leachate storage is needed at the Site.

One significant leachate seep had been identified and was contaminating a portion of the Surface Water System along the South Ditch and flowing into the West Pond. Under Order No.

8210-BBCPS2, the seep was isolated with berms, the water within it was pumped to the Leachate Control System, and the section was filled with clay on May 14, 2019. On May 14, 2019, I attended the site and the Company advised of potential minor seepage into the rest of the South Ditch. It is necessary to ensure the South Ditch is not connected to, nor receiving leachate from the Leachate Control System and any newly identified seeps must be dealt with swiftly to prevent impairment to the natural environment.

The East Pond normally conveys water through the South Ditch into the West Pond prior to reaching the Equalization Pond and discharged to the Telfer Side Road ditch. To prevent or reduce the risk of further surface water from being contaminated by leachate, it is necessary for the surface water from the East Pond to be directed to the Equalization Pond in a manner that will bypass the location of the seepage and ensure the contaminated area is isolated.

On April 10, 2019, the Company submitted the an abatement plan to the Ministry, which contained a proposal intended to address the seep from the Leachate Collection System to the Surface Water System. On May 7, 2019, the Company submitted the Surface Water Management Strategy, which was an updated abatement plan intended to further address the seep from the Leachate Collection System to the Surface Water System.

On May 23, 2019, the Company submitted the Updated Leachate Management Plan, which consolidates and further updates the previous leachate abatement plans. The Updated Leachate Management Plan forms the basis for this Order, and takes precedence over any previously discussed work or arrangements between the Ministry and the Company, including but not limited to any of the work described above. In the event of a conflict between the requirements of this Order and the Updated Leachate Management Plan, the requirements of the Order take precedence and prevail to the extent of any conflict.

In addition, the Company has been advised on April 18, 2019, May 3, 2019, and May 21, 2019 that carrying out the work further to the discussions between the Ministry and the Company did not and does not exempt the Company from any applicable legal requirements.

## 5. Legal Authority and Reasons

This Order is issued pursuant to sections 157.1, and 196 of the EPA and sections 16.1, 16.2 and 104 of the OWRA.

I reasonably believe the requirements of the Order are necessary or advisable to prevent or reduce the risk of a discharge of a contaminant, namely landfill leachate, into the natural environment from the undertaking or the property, or to prevent, decrease or eliminate an adverse effect, namely impairment of the quality of the natural environment for any use that may be made of it, and/or injury or damage to animal or plant life, that may result from (i) the discharge of the contaminant from the undertaking, or (ii) the presence or discharge of the contaminant in, on or under the property.

I reasonably believe that the requirements of this Order are generally in the public interest, and

necessary to prevent a discharge of material, namely landfill leachate, into Bear Creek that may impair the quality of water.

8. Attachments

The attachments listed below form a part of this Provincial Officer's Report:

1. Schedule "A" - Updated Leachate Management Plan

**Offence(s)**

<b>Suspected Violation(s)/Offence(s):</b>	
<b>Act - Regulation - Section, Description {General Offence}</b>	



Maisa Fumagalli  
Provincial Officer  
Badge Number:  
Date: 2019/06/05  
District Office: Sarnia District Office



**June 4, 2019**

## **Clean Harbors South Ditch, Water and Leachate Management Plan**

### **1. Introduction**

The following is a consolidated remedial work program to address the seepage of leachate at several locations along the South Ditch at the Clean Harbors Lambton Landfill. The work program addresses items that have been impacted by the seep either directly or indirectly by the leachate seeps and the removal of the South Ditch from the sites stormwater management system. The work program addresses surface water management, South Ditch remediation, leachate management, sampling plan, contingency plans, and reporting.

### **2. Surface Water Management**

#### **2.1 East Retention Pond Surface Water Management**

The East Retention Pond water normally discharges to the West Retention Pond via the South Ditch. The construction of berms, B2 and B7, located at the east and west end of the South Ditch were installed to contain the water in the ditch and isolated the East Retention Pond from transfer to the West Retention Pond for surface water treatment and discharge.

Analytical results from the East Retention Pond and East Ditch showed that the surface water was not impacted by the leachate seeps.

The current approach for surface water management for the East Retention Pond includes the following:

- Water from East Retention Pond is treated by a mobile carbon filtration system
- Following water treatment with the mobile carbon filtration system, the effluent water is piped overland to the Equalization Pond (EQ Pond). The temporary pipe system extends south to the security fence, west along the security fence, and then along the western limit of the West Retention Pond to the discharge point at the Equalization Pond.
- Water within the EQ Pond is sampled for ECA compliance parameters and additional for volatile organic compounds (VOCs) daily during discharge events to Telfer Road ditch.

#### **2.2 West Retention Pond Surface Water Management**

The West Retention Pond is the final surface water retention pond with all surface water from the site stored in this pond for treatment and discharge. The surface water quality in the West Retention Pond indicated a minor impact due to the leachate seepage event and as such the Site's Surface Water Treatment Plant (SWTP) was turned off and the west ditch inlet to the pond was bermed off through the construction of berm B1. The most recent water testing (April 30<sup>th</sup>) for the West Retention Pond indicated

that the primary VOC parameter detected, acetone, was 59 ug/L. Due to rain events, the West Retention Pond has back-flowed into the west ditch (over flowed berm B1).

The SWTP retrofit, which included new activated carbon and some minor repairs to the distribution pipes in the carbon filter unit, was completed on May 22, 2019. The amount and type of carbon are in accordance with the ECA approval for the facility.

The sand filter has been backwashed for a minimum of two hours (normally requires routine backwash for 15 to 20 minutes to remove sediment from the filter). The SWTP is now ready for return to service. As per normal protocol, the SWTP will be operated in recirculation mode until test samples confirm that the unit is operating within the ECA compliance parameters.

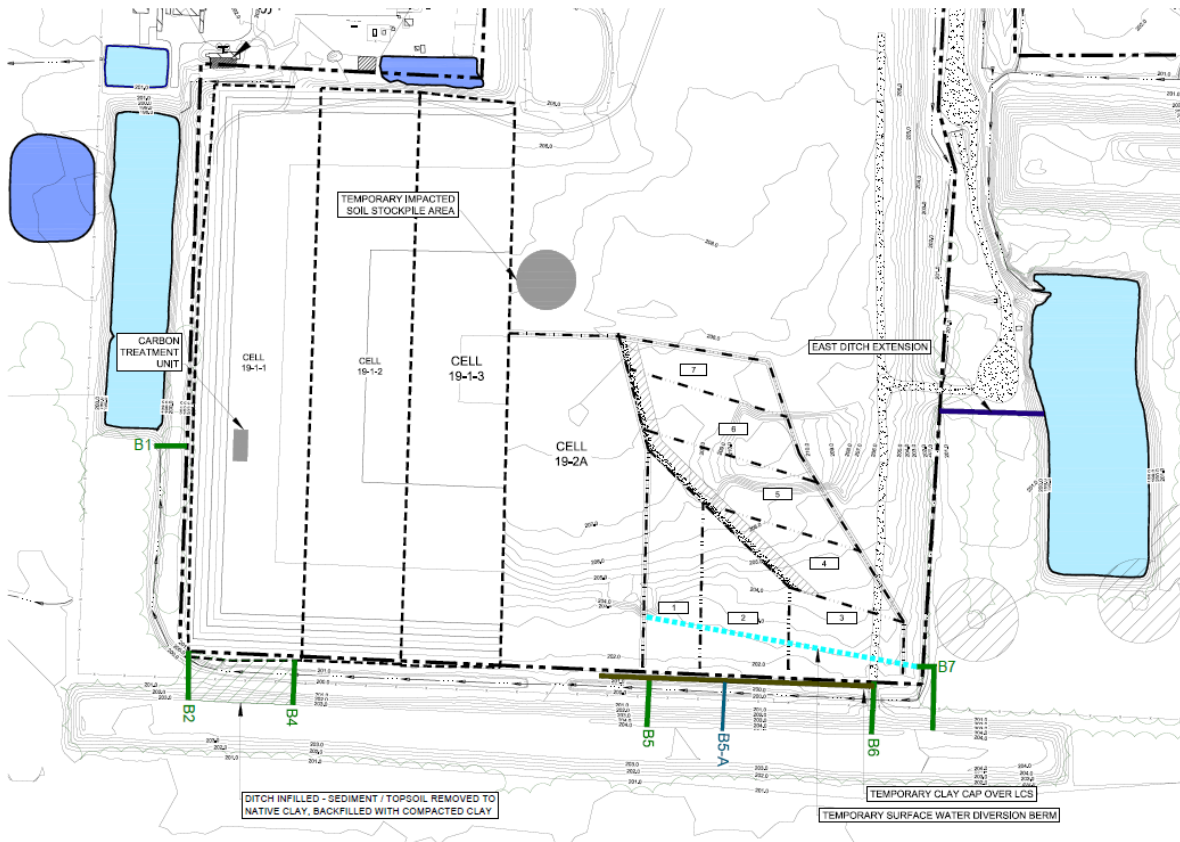
When the SWTP testing has concluded that the SWTP is operating within compliance requirements, the surface water management for the Site will consist of the following:

- Water from the West Retention Pond will be treated by the on-Site SWTP and discharged to the EQ Pond
- The mobile treatment system that is currently treating the East Retention Pond water will be removed and the temporary piping system will be adjusted to extend from the East Retention Pond pumphouse to the south end of the West Retention Pond
- Water within the EQ Pond will be sampled for ECA compliance parameters and VOCs daily during discharge to Telfer Road. Section 5 provides additional details with regards to sample locations, schedule, and completion period.

### **2.3 South Ditch Water Management**

The South Ditch has been separated with a series of berms to contain the impacted surface water. In addition, temporary diversion berms have been installed to redirect overland surface water flow from the South Ditch and the east ditch has been connected to the East Retention Pond. The following figure provides an overview of the key remedial works that have been or are currently being installed at the Site and provides a base for the remedial work plan.





The portion of the South Ditch from Berm B2 to B4 has been remediated at this time in accordance with procedure outline in later sections. This remediated section drains to the west ditch.

### 2.3.1 Water Treatment

#### 2.3.1.1 Water Treatment Pilot Testing

A pilot test for treating the surface water within the South Ditch was conducted, which involved treating 200,000 L of water from the South Ditch with a mobile carbon filtration system. The mobile carbon filtration system includes a bag filter to remove sediment and two activated carbon filters operated in series. The pilot test was conducted from water that was located between B4 and B6 and the intake was close to B4. The water tested is considered representative of water that is located within the South Ditch.

The pilot test treatment successfully treated the water to reduce the primary VOC detected, acetone, to non-detect levels. The following table provides the influent and effluent test results for the pilot test program. The treated water was returned to the South Ditch following treatment. Based on the pilot test results, the mobile treatment system has demonstrated that it is capable to treat the South Ditch water to VOC levels that are below the Provincial Water Quality Objectives (PWQO).

Appendix A has VOC analytical results from May 17<sup>th</sup> that indicate the VOC levels have significantly reduced since May 7<sup>th</sup>. With the reduced VOC levels in the South Ditch area B4 to B6 the carbon treatment systems should have no problem with treating the ditch water to acceptable discharge standards.

Client Sample ID			SOUTH DITCH BEFORE CARBON (BC)	SOUTH DITCH AFTER CARBON (AC)	Client Sample ID			SOUTH DITCH BEFORE CARBON (BC)	SOUTH DITCH AFTER CARBON (AC)
Date Sampled			7-May-2019	7-May-2019	Date Sampled			7-May-2019	7-May-2019
Time Sampled			13:15	13:15	Time Sampled			13:15	13:15
ALS Sample ID			L2268948-1	L2268948-2	ALS Sample ID			L2268948-1	L2268948-2
Parameter	Lowest Detection Limit	Units	Water	Water	Parameter	Lowest Detection Limit	Units	Water	Water
Volatile Organic Compounds (Water)									
Acetone	20	ug/L	7530	<20	Dichloromethane	2.0	ug/L	18.7	<2.0
Benzene	0.50	ug/L	1.02	<0.50	1,2-Dichloropropane	0.50	ug/L	<0.50	<0.50
Bromodichloromethane	1.0	ug/L	<1.0	<1.0	cis-1,3-Dichloropropene	0.50	ug/L	<0.50	<0.50
Bromoform	1.0	ug/L	<1.0	<1.0	trans-1,3-Dichloropropene	0.50	ug/L	<0.50	<0.50
Bromomethane	0.50	ug/L	<0.50	<0.50	Ethylbenzene	0.50	ug/L	3.89	<0.50
Carbon Disulfide	1.0	ug/L	2.2	<1.0	n-Hexane	0.50	ug/L	<0.50	<0.50
Carbon tetrachloride	0.50	ug/L	<0.50	<0.50	2-Hexanone	20	ug/L	<20	<20
Chlorobenzene	0.50	ug/L	<0.50	<0.50	Methyl Ethyl Ketone	20	ug/L	2540	<20
Dibromochloromethane	1.0	ug/L	<1.0	<1.0	Methyl Isobutyl Ketone	20	ug/L	<500	<20
Chloroethane	1.0	ug/L	<1.0	<1.0	MTBE	0.50	ug/L	22.9	<0.50
Chloroform	1.0	ug/L	<1.0	<1.0	Styrene	0.50	ug/L	0.81	<0.50
Chloromethane	1.0	ug/L	<1.0	<1.0	1,1,1,2-Tetrachloroethane	0.50	ug/L	<0.50	<0.50
1,2-Dibromoethane	0.20	ug/L	<0.20	<0.20	1,1,2,2-Tetrachloroethane	0.50	ug/L	<0.50	<0.50
1,2-Dichlorobenzene	0.50	ug/L	<0.50	<0.50	Tetrachloroethylene	0.50	ug/L	<0.50	<0.50
1,3-Dichlorobenzene	0.50	ug/L	<0.50	<0.50	Toluene	0.50	ug/L	54.9	<0.50
1,4-Dichlorobenzene	0.50	ug/L	<0.50	<0.50	1,1,1-Trichloroethane	0.50	ug/L	<0.50	<0.50
Dichlorodifluoromethane	1.0	ug/L	<1.0	<1.0	1,1,2-Trichloroethane	0.50	ug/L	<0.50	<0.50
1,1-Dichloroethane	0.50	ug/L	<0.50	<0.50	Trichloroethylene	0.50	ug/L	9.49	<0.50
1,2-Dichloroethane	0.50	ug/L	0.91	<0.50	Trichlorofluoromethane	1.0	ug/L	<1.0	<1.0
1,1-Dichloroethylene	0.50	ug/L	<0.50	<0.50	Vinyl chloride	0.50	ug/L	<0.50	<0.50
cis-1,2-Dichloroethylene	0.50	ug/L	39.9	<0.50	o-Xylene	0.50	ug/L	12.1	<0.50
trans-1,2-Dichloroethylene	0.50	ug/L	<0.50	<0.50	m+p-Xylenes	1.0	ug/L	19.5	<1.0
					Xylenes (Total)	1.1	ug/L	31.6	<1.1

### 2.3.1.2 Proposed Water Treatment for the South Ditch

Water from the South Ditch is proposed for treatment using a mobile carbon filtration system with the same configuration as the pilot test program. The proposed approach for water treatment includes the following:

- The mobile carbon filtration system will be installed on Cell 19-1.
- Initially, ten (10) frac tanks will be installed on Cell 19-1 to temporarily receive the treated water for confirmation testing. At Clean Harbors discretion, an additional ten (10) frac tanks (20 in total) may be used as temporary treated water storage on Cell 19-1. The additional frac tanks will be used to optimize the volume of treated water.
- Water from between berms B4 to B5 will be pumped directly into the mobile carbon filtration system. The effluent from the mobile carbon filtration system will be discharged to the frac tanks for confirmation testing.
- Water will be treated in batches and will be stored in 5 frac tanks per batch (the batch volume will depend on the frac tanks available). In general, a treated batch will represent approximately 450,000 L.
- Samples will be collected from the influent and effluent water from the mobile carbon filtration system during the final stage of filling the fifth and final frac tank of each batch. The effluent samples will be tested for VOC parameters. The influent sample will be held pending the effluent results. If the effluent results are acceptable, the influent sample will be disposed of. If the effluent result is unacceptable, the influent sample that was held will be analyzed by the laboratory. Pending the results, Clean Harbor may sample the individual frac tanks to assess treatment performance and discharge acceptability.
- Effluent water will be stored in the 5 frac tanks until analytical results are obtained.
  - If the results indicate adequate treatment to concentrations lower than the VOC PWQOs (including 280 ug/L for acetone), the frac tanks will be discharged via overland hose/pipe to the West Retention Pond.
  - If the results indicate elevated concentrations still exist above the PWQO, the effluent water stored in the frac tanks will be redirected for re-treatment.
  - Additionally, the influent sample will be analyzed, the mobile carbon filtration system will be assessed for carbon breakthrough.
- The treatment operation will be managed in a manner to allow continuous treatment of the South Ditch water, i.e. the next five frac tanks will be filled with treated water while testing from the previous batch is occurring.

Ten frac tanks, to a maximum of 20 frac tanks, will be used to store effluent water. This will allow for treating multiple batches while waiting for analytical results. The use of frac tanks for effluent storage may be increased to 20 based on operational capability.

Carbon in the mobile treatment system will be replaced as required based on testing. The mobile treatment plant that is currently treating the East Retention Pond water will provide a back-up treatment system for the South Ditch water during carbon change out or will be used to provide additional treatment by running the two plants in parallel.

In the event the two carbon treatment systems are run in parallel each system would complete their own separate batching and sampling program.

Water from berm B5 to B6 of the ditch will be transferred to berm B4 to B5 area as required by the South Ditch remediation.

### 3. South Ditch Remediation

The South Ditch will be remediated in sections based on the existing berms. Sections may be subdivided further based on the size that can be effectively managed and based on observations during the work and site conditions. The work program to infill the South Ditch has commenced and the section between B2 and B4 has been infilled through the procedures presented herein. The South Ditch will be remediated in four major sections.

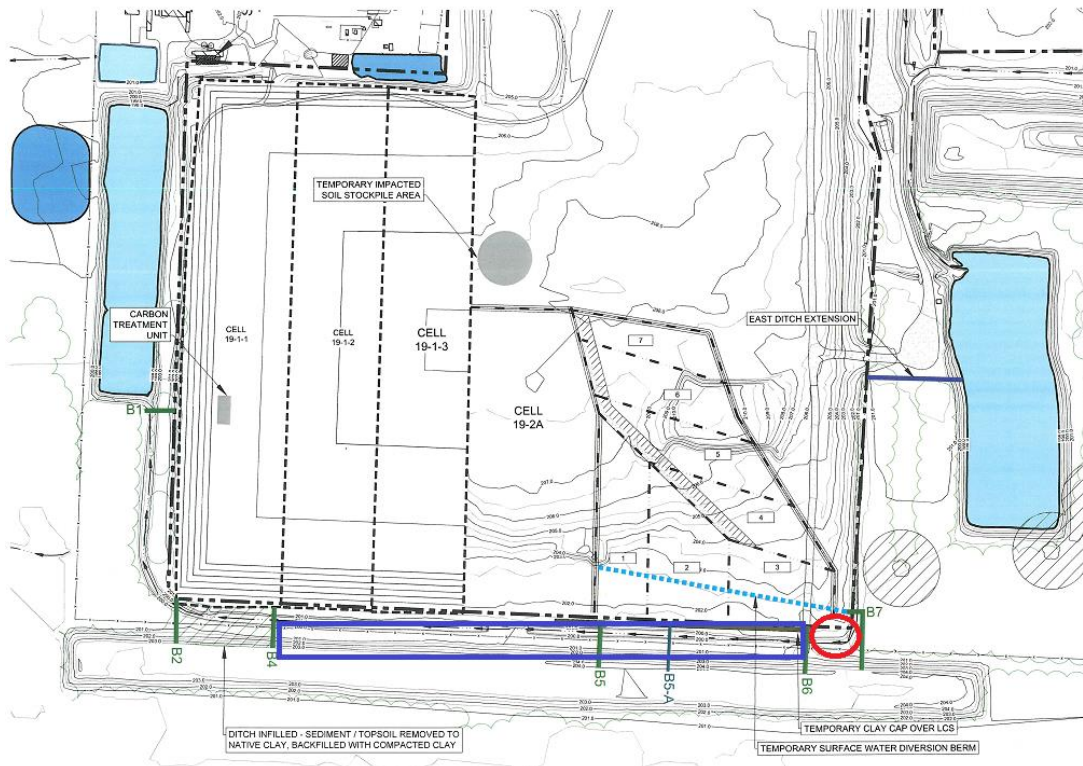
#### 3.1 Between berm B6-B7:

Berms B6-B7 are located at the southeast corner of the South Ditch. Water from between B6-B7 will be managed separately from other portions of South Ditch due to a leachate seep in the bank.

Water was pumped from this area into the LCS via the southeast cleanout. Sump 4 was operated to lower the leachate level within southeast area of LCS by transfer of the leachate to the leachate holding tank located prior to incineration.

The area has been temporarily remediated by installing a temporary clay plug in the area. Clay was stockpiled on the south side of ditch. As the water level was lowered within ditch, clay was placed within ditch and compacted.

Once the LCS is operating with the normal operational range (196 to 197 mASL), the temporary clay plug will be removed, along with any sediment/vegetation/root growth zone, and the excavation filled with compacted clay. The method of final infill will be based on the experience and lessons learned during the infill of B2 to B6.



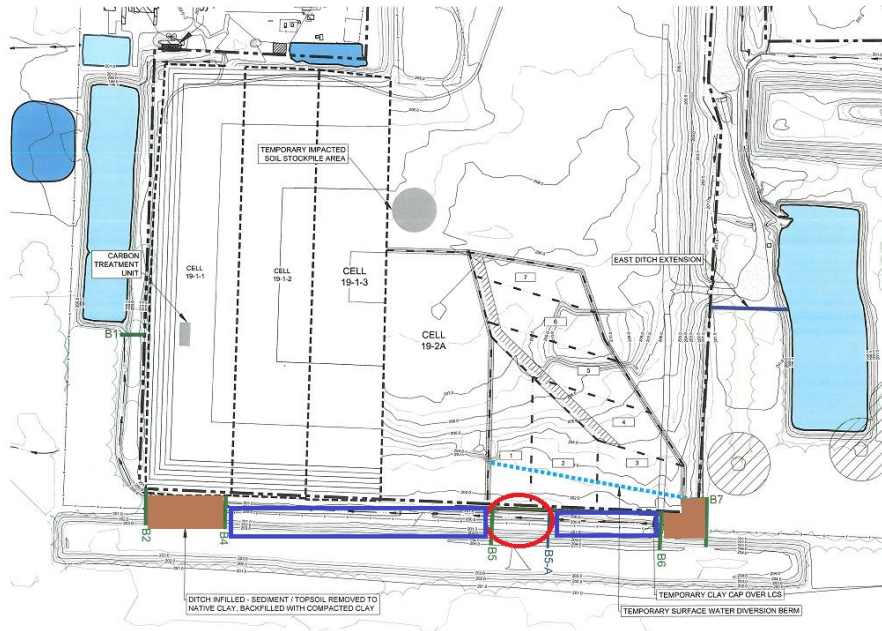
### 3.2 Between berms B5-B6:

The area between berms B5-B6 represents the section of the east ditch that located adjacent to the LCS that does not contain the landfill perimeter berm above the LCS. Minor leachate seepage/staining was visually noted directly above the LCS when the LCS was at the peak hydraulic pressure. Currently, there are no visual observations of leachate seeps within this area. It is anticipated the risk for potential leachate seepage during remediation is low if the LCS hydraulic pressure is managed. Currently water from the South Ditch has flooded the vertical projection of the LCS trench.

Berm B5A has been constructed to provide the initial remediation zone for the B5 to B6 area. The remediation for the area will consist of the following:

- Water from Berm 5 to 5A will be pumped to berm B4 to B5
- Temporary berm above the LCS has been constructed for the section and will be installed along the complete B5 to B6 section.
- The excavation and clay placement will be conducted in a manner to ensure that at the end of the work day the bulk of the excavated area has been backfilled with compacted clay to above the LCS level (approximately 201 mASL). The overall section will take several days to complete the excavation and infill work.
- After water removal, the area will be excavated to remove the sediment, vegetation, and root growth zone for the daily work area. The excavation will extend to the native undisturbed clay. The excavated material will be trucked to the disposal area north of Cell 19-2A and shown on the following plan.
- Clay (free of vegetation and roots) from the South Berm will be will be excavated and trucked to the area, placed and compacted.
- During remediation activities, the LCS will be pumped in accordance with the leachate management plan (Section 4)

The section between berms B5A and B6 will be remediated as per berm B5 and B5A. Depending on site conditions and water level, a temporary berm(s) may or may not be installed to create a manageable work area. Any lessons learned will be incorporated into the infilling of the next section. The following figure provides the B5 to B6 zone for reference.



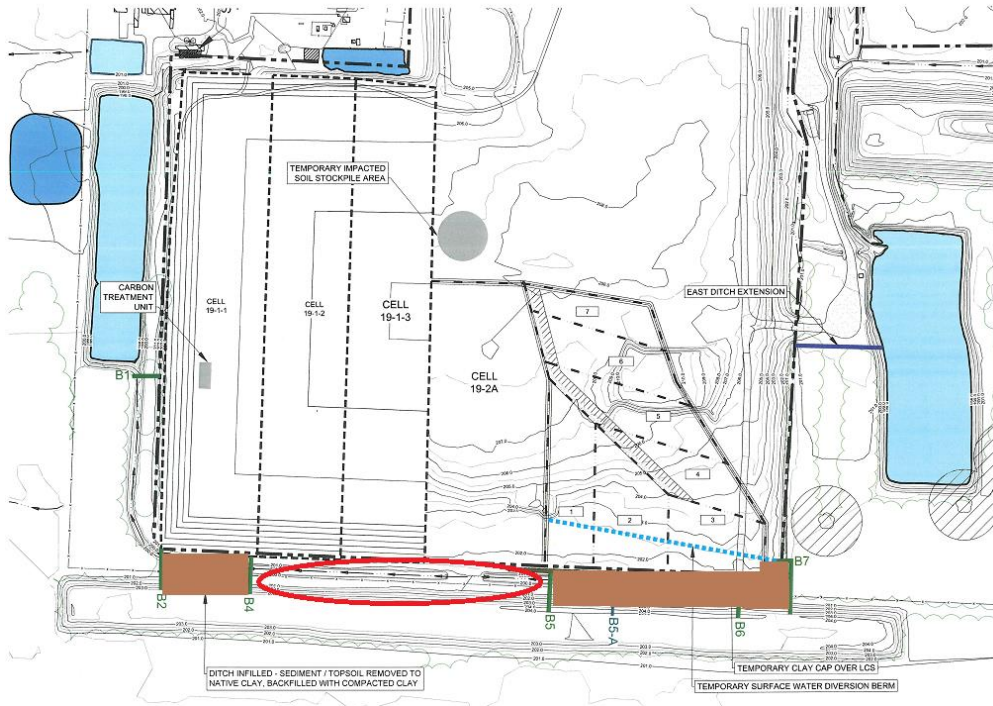
### 3.3 Between berms B4-B5:

Berms B4-B5 are located in the area that has the perimeter berm constructed above the LCS and is currently landfilled or currently being landfilled. No leachate seeps have been observed within this area. This area is proposed to be used to store water prior to treatment due to its current status and that an increased water level in this section will have minimal inflow to the LCS if the South Ditch water elevation is higher than the LCS leachate elevation.

Water from between B4-B5 will be pumped to the mobile carbon filtration system. The water located in the B4-B5 area will be the source water for the temporary water treatment plant. Remediation and infilling of the ditch between berms B4-B5 will occur after remediation is complete between berms B5-B6.

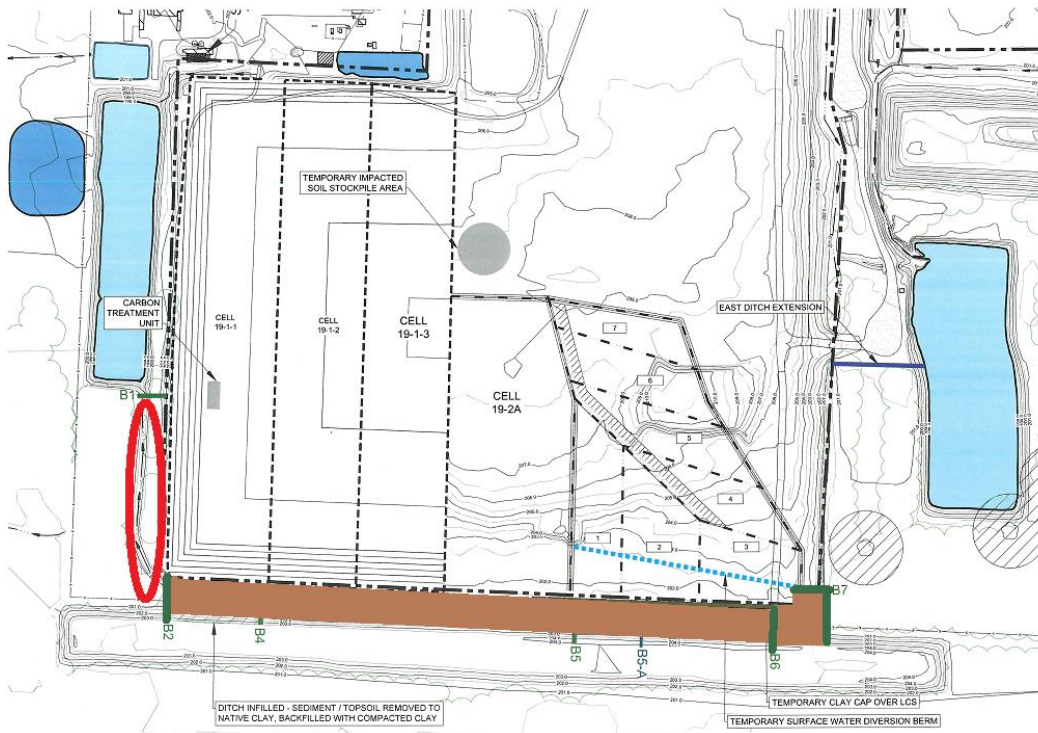
The remediation of the area between berms B4 and B5 will be conducted in a manner that is similar to the B5 to B6 zone. Any lessons learned will be used to optimize the remediation for this section. The use of temporary berms to create workable zones will be assessed prior to filling the overall section and the amount of water that remains in the zone and that requires treatment. The LCS will be controlled in accordance with the leachate management section.





### 3.4 Between B1 and B2

Analytical results within this section of the ditch shows that this water does not require any prior treatment prior to being moved to the West Retention Pond. There does not appear to be any risk for potential leachate seeps in this area due to the distance between B1 - B2 ditch and the LCS. Therefore, this area will be remediated by moving the water to the West Retention Pond, and installing a clay plug and the anchor trench. This section will be the last section to be completed.





### **3.5 Final Cover Anchor Trench**

Once the remedial South Ditch infill work has been completed and the LCS leachate level is approaching the normal operating range (196 to 197 mASL), the final cover anchor trench will be installed. The anchor trench is current being designed in preparation for the installation of final cover on Cell 19-1. The anchor trench will extend along the total length of the South Ditch. The anchor trench will in accordance with the concept and dimensions provided in the approved Design and Operations Report.

### **3.6 West Process Pond**

The company will empty the West Process Pond, and once empty will have the pond liner mended by a contractor. Once the liner is mended, the south ditch water will be moved into this pond. This will facilitate the timely remediation of the south ditch and installation of the clay plug.

The water collected in the West Process Pond will then be treated as per section 2.3.1.2.

## **4. Leachate Collection System**

### **4.1 Leachate Frac Tanks**

To handle the high levels within the LCS the company proposes to use up to 20 Frac tanks onsite for temporary storage. Leachate from the LCS would be pumped into the Frac tanks to reduce leachate levels within in the LCS. Throughout this the company will continue to dispose of leachate through the incinerator secondary zone. The Frac tanks would be stored within individual containment provided by the vendor. The Frac tanks will be managed to the following requirements:

- 1) No more than 20 Frac Tanks shall be installed at the Site for temporary leachate storage;
- 2) All Frac tanks shall; have secondary containment supplied by the vendor
- 3) Operate, use and maintain the frac tanks in accordance with the incinerator ECA;
- 4) Store all Frac tanks in the maintenance yard at the site;
- 5) All frac tank vents will be connected in series and vented through a caustic scrubber (as approved in the leachate pond cover ECA) and a carbon bed;
- 6) Monitor and record the pressure of the frac tanks on the inlet to the caustic scrubber once daily;
- 7) Monitor the volume of leachate added or removed from the frac tanks on a daily basis; provide this information to MECP weekly on a separate tab of the LDR storage report;
- 8) By June 28, 2019 provide a plan to the Provincial Officer with a plan for the removal of the frac tanks from the site. The plan needs to include the removal of leachate, the cleaning of the frac tanks and timelines.

### **4.2 Operation During Remediation Activities**

During the remediation period, the objective is to maintain the LCS leachate elevation at a level that is lower than the South Ditch water elevation. This will maintain an inward gradient from the South Ditch to the LCS and minimize the potential for leachate to seep to the South Ditch.

During active remediation in an area (excavation and initial filling), the LCS sump that is closest to the remediation zone will be pumped and the leachate transferred to the main leachate holding tank prior to incineration or to the frac tanks for storage. This will minimize the potential for localized leachate seepage into the dewatered area. During the remediation period on May 14<sup>th</sup>, Sump No. 3 was pumped to lower the leachate head in the area of the work. The following table provides hourly results related to volume pumped during the hour and the leachate head at Sump 3 (south west corner) and Sump 4 (mid-point of South Ditch). The results indicated that the LCS leachate elevation can be lowered by 0.5 to 0.7 m in the local area and by 0.2 m about 200 m along the trench. The reduction in leachate elevation successfully prevented the seep from draining and allowed the seep area to be excavated and sealed with compacted clay.

<b>Date and Time (Start of Period)</b>	<b>Sump 3 Volume Pumped (L)</b>	<b>Sump 3 Leachate Elevation (m ASL)</b>	<b>Sump 4 Leachate Elevation (m ASL)</b>
5/14/2019 8:00	0	201.53	201.82
5/14/2019 9:00	9979	201.18	201.82
5/14/2019 10:00	14273	201.05	201.82
5/14/2019 11:00	14320	201.00	201.80
5/14/2019 12:00	14515	200.95	201.78
5/14/2019 13:00	14727	200.93	201.76
5/14/2019 14:00	14456	200.89	201.73
5/14/2019 15:00	14325	200.86	201.71
5/14/2019 16:00	14548	200.83	201.68
5/14/2019 17:00	14645	201.16	201.60
5/14/2019 18:00	4375	201.31	201.63
5/14/2019 19:00	155	201.33	201.66

### **4.3 Leachate Management**

Clean Harbors is committed to destroy a minimum of 1.3 million litres of leachate each month. In addition to committing to the leachate destruction rate, the following actions will be conducted:

- The size of the active subcells for Cell 19-2 will be reduced from 12,000 m<sup>2</sup> to be approximately 5,000 m<sup>2</sup>/subcell to reduce leachate generation. This size of active subcell will supply about 4 to 6 weeks of waste disposal capacity. The implementation of smaller cells should provide on average an 800,000 liters of surplus leachate volume which can be utilized to reduce the LCS, elimination of the leachate Frac tanks and eventually leachate within the three leachate ponds.
- Interim cover will be installed once a subcell reaches finished waste grades (subject to weather conditions)
- Final cover will be installed on Cell 19-1 (approximately 6 hectares) in 2019.
- The final cover anchor trench will be installed along the full length of the South Ditch to minimize stormwater infiltration to the LCS.
- Leachate destruction will be focused on returning the LCS to the normal operating elevations, then to destruction of leachate that is stored in the frac tanks, and finally to the destruction of the leachate that is stored in the on-site leachate storage ponds. The rate of destruction will depend on weather conditions, and the timing Long Term Leachate Management Strategy submitted to the MECP.
- Clean Harbors will continue to discuss with MECP approvals staff the options proposed for increasing the leachate destruction rate.

## 5. Sampling Plan

The sampling program will consist of the routine samples required of the EQ Pond, the West Retention Pond and the East Retention Pond and as specified in the storm water management plan ECA. This testing is not discussed further. The time period for request the laboratory to provide the results will be determined by Clean Harbors. Initial or critical samples will be requested for rush analysis, the other samples will be normal turn-around time. The additional sampling plan is summarized as follows:

Location	Parameter	Rate	Comments
EQ Pond Discharge	VOC (standard list)	Daily (regular third-party laboratory turn-around time)	Until South Ditch is infilled and one week after the last of the South Ditch treated water has been discharged to West Pond
South Ditch Treatment Plant Discharge	VOC (standard list)	Every 5 <sup>th</sup> frac tank (third-party laboratory rush 24-hour turn-around time)	Required until South Ditch Water treated.
	Metals (standard list)	One sample monthly (regular third-party laboratory turn-around time)	Required until South Ditch Water treated. To be sampled on the same day as the monthly surface water monitoring samples.
South Ditch Treatment Plant Influent	VOC (standard list)	Every 5 <sup>th</sup> frac tank	Sample held pending result and only tested if effluent shows an impact
	Metals (standard list)	One sample monthly (regular third-party laboratory turn-around time)	Required until South Ditch Water treated. To be sampled on the same day as the monthly surface water monitoring samples.

On May 23, 2019 the company will conduct another south ditch treatment test through the carbon treatment unit. Samples will be collected of the influent and effluent and submitted to the ALS analysis for metal and VOC analysis. Samples will be requested for rush analysis and results will be submitted to MECP for their review.

Clean Harbors will collect additional samples of the South Ditch or pond water on an as required basis to assess the general strength of the water, potential concerns, or obtaining general knowledge and confirmation.

Water elevations will be collected by Clean Harbors at minimum of twice per week of the pond and ditch levels, and the LCS levels. These levels will allow the water levels to be assessed and to assess the potential water movement direction for various sections/locations.

## **6. Contingency Plans**

### **6.1 Leachate Seeps**

During remedial work in an area, the LCS will be pumped at Sumps 3 and/or 4 to provide a localized reduction in the LCS during the active remedial work. This LCS level management will reduce the potential for a leachate seep to be present, especially in the upper surface zone, and to reduce the hydraulic pressure on the LCS side wall.

Should a leachate seep be identified the remedial response will be as follows:

- Isolate the seep location with clay berms or other materials that will contain the seep and minimize/reduce the impact area.
- Pump the collected leachate to the local LCS clean-out. If volume is small and quickly controlled a site vacuum truck may be used to remove the leachate.
- Assess the ability of the LCS system to control the seep discharge
- Take steps to the reduce the seep flow and seal the seep area with a clay plug and additional compacted clay material

### **6.2 Carbon Breakthrough**

Assess the VOC analytical results for treatment effluent samples and EQ Pond samples when received to determine if VOC results show VOC levels that are below the PWQO including acetone level. If sample results are unacceptable as noted in this plan, assess influent results to assess breakthrough and need to replace activated carbon.

## **7. Schedule and Reporting**

The work program provided represents the current discussions. Clean Harbors will provide a weekly email update to the MECP on Friday afternoons. The weekly update will include information documenting work performed in the previous week and plans for the future week. An update on sampling results will be provided if available. Minor amendments to the work program based on lessons learned and data collected will be provided as part of the weekly email.

Clean Harbors will contact the MECP immediately upon receiving EQ sampling results that indicate any of the treatment system are not performing as intended in the document (i.e. unacceptable VOC levels).

## APPENDIX A

### Results Summary L2276181

**Job Reference** 44985-30-10  
**Report To** LAURA ERMETA, GHD Limited (Waterloo)  
**Date Received** 21-May-2019 14:36  
**Report Date** 22-May-2019 12:31  
**Report Version** 1

Client Sample ID			BD#1	BD#2	BD#3
Date Sampled			17-May-2019	17-May-2019	17-May-2019
Time Sampled			15:00	15:00	15:00
ALS Sample ID			L2276181-1	L2276181-2	L2276181-3
Parameter	Lowest Detection Limit	Units	B4 - B5 Water	B5 - B6 Water	B6 - B7 Water

#### Volatile Organic Compounds (Water)

Parameter	Lowest Detection Limit	Units	B4 - B5 Water	B5 - B6 Water	B6 - B7 Water
Acetone	20	ug/L	1720	650	11400
Benzene	0.50	ug/L	<0.50	<0.50	1.29
Bromodichloromethane	1.0	ug/L	<1.0	<1.0	<1.0
Bromoform	1.0	ug/L	<1.0	<1.0	<1.0
Bromomethane	0.50	ug/L	<0.50	<0.50	<0.50
Carbon Disulfide	1.0	ug/L	<1.0	<1.0	14.5
Carbon tetrachloride	0.50	ug/L	<0.50	<0.50	<0.50
Chlorobenzene	0.50	ug/L	<0.50	<0.50	<0.50
Dibromochloromethane	1.0	ug/L	<1.0	<1.0	<1.0
Chloroethane	1.0	ug/L	<1.0	<1.0	<1.0
Chloroform	1.0	ug/L	<1.0	<1.0	<1.0
Chloromethane	1.0	ug/L	<1.0	<1.0	<1.0
1,2-Dibromoethane	0.20	ug/L	<0.20	<0.20	<0.20
1,2-Dichlorobenzene	0.50	ug/L	<0.50	<0.50	<0.50
1,3-Dichlorobenzene	0.50	ug/L	<0.50	<0.50	<0.50
1,4-Dichlorobenzene	0.50	ug/L	<0.50	<0.50	<0.50
Dichlorodifluoromethane	1.0	ug/L	<1.0	<1.0	<1.0
1,1-Dichloroethane	0.50	ug/L	<0.50	<0.50	0.73
1,2-Dichloroethane	0.50	ug/L	<0.50	<0.50	1.31
1,1-Dichloroethylene	0.50	ug/L	<0.50	<0.50	<0.50
cis-1,2-Dichloroethylene	0.50	ug/L	1.56	1.44	42.2
trans-1,2-Dichloroethylene	0.50	ug/L	<0.50	<0.50	<0.90
Dichloromethane	2.0	ug/L	<2.0	<2.0	24.0
1,2-Dichloropropane	0.50	ug/L	<0.50	<0.50	<0.50
cis-1,3-Dichloropropene	0.50	ug/L	<0.50	<0.50	<0.50
trans-1,3-Dichloropropene	0.50	ug/L	<0.50	<0.50	<0.50
Ethylbenzene	0.50	ug/L	<0.50	<0.50	2.27
n-Hexane	0.50	ug/L	<0.50	<0.50	<0.50
2-Hexanone	20	ug/L	<20	<20	<20
Methyl Ethyl Ketone	20	ug/L	370	130	4900
Methyl Isobutyl Ketone	20	ug/L	<20	<20	279
MTBE	0.50	ug/L	1.64	1.40	32.9
Styrene	0.50	ug/L	<0.50	<0.50	<0.50
1,1,1,2-Tetrachloroethane	0.50	ug/L	<0.50	<0.50	<0.50
1,1,2,2-Tetrachloroethane	0.50	ug/L	<0.50	<0.50	<0.50
Tetrachloroethylene	0.50	ug/L	<0.50	<0.50	<0.50
Toluene	0.50	ug/L	1.49	<0.50	58.3
1,1,1-Trichloroethane	0.50	ug/L	<0.50	<0.50	<0.50
1,1,2-Trichloroethane	0.50	ug/L	<0.50	<0.50	<0.50
Trichloroethylene	0.50	ug/L	<0.50	<0.50	1.59
Trichlorofluoromethane	1.0	ug/L	<1.0	<1.0	<1.0
Vinyl chloride	0.50	ug/L	<0.50	<0.50	<0.50
o-Xylene	0.50	ug/L	<0.50	<0.50	6.20
m+p-Xylenes	1.0	ug/L	<1.0	<1.0	10.5
Xylenes (Total)	1.1	ug/L	<1.1	<1.1	16.7

# **Appendix C**

## **Analytical Data Collected During Effluent Discharge**






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

Date Received: 23-JAN-19  
Report Date: 29-JAN-19 08:15 (MT)  
Version: FINAL

Client Phone: 519-884-0510

## Certificate of Analysis

Lab Work Order #: L2223895  
Project P.O. #: 73506479  
Job Reference: 44985  
C of C Numbers:  
Legal Site Desc:

  
\_\_\_\_\_

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  
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## ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2223895-1 EQ POND DISCHARGE							
Sampled By: CLIENT on 22-JAN-19 @ 11:30							
Matrix: WATER							
<b>Field Tests</b>							
pH, Client Supplied	7.96		0.10	pH		24-JAN-19	R4464909
Temperature, Client	1.0		-50	Deg. C		24-JAN-19	R4464909
<b>Physical Tests</b>							
Conductivity	895		3.0	umhos/cm		24-JAN-19	R4467457
Hardness (as CaCO3)	319	HTC	10	mg/L		24-JAN-19	
pH	8.00		0.10	pH units		24-JAN-19	R4467457
Total Suspended Solids	3.3		2.0	mg/L	25-JAN-19	26-JAN-19	R4470248
Total Dissolved Solids	556	DLDS	20	mg/L		24-JAN-19	R4470647
<b>Anions and Nutrients</b>							
Alkalinity, Total (as CaCO3)	171		10	mg/L		24-JAN-19	R4467457
Unionized ammonia	0.00150		0.00020	mg/L		25-JAN-19	
Ammonia, Total (as N)	0.152		0.020	mg/L		24-JAN-19	R4465352
Bromide (Br)	1.85		0.10	mg/L		24-JAN-19	R4468919
Chloride (Cl)	85.0		0.50	mg/L		24-JAN-19	R4468919
Fluoride (F)	0.867		0.020	mg/L		24-JAN-19	R4468919
Nitrate (as N)	0.376		0.020	mg/L		24-JAN-19	R4468919
Nitrite (as N)	0.011		0.010	mg/L		24-JAN-19	R4468919
Total Kjeldahl Nitrogen	0.86		0.15	mg/L	24-JAN-19	25-JAN-19	R4471414
Phosphorus, Total	0.0243		0.0030	mg/L	25-JAN-19	28-JAN-19	R4471987
Sulfate (SO4)	175		0.30	mg/L		24-JAN-19	R4468919
<b>Cyanides</b>							
Cyanide, Total	<0.0020		0.0020	mg/L		24-JAN-19	R4467487
<b>Organic / Inorganic Carbon</b>							
Dissolved Carbon Filtration Location	LAB					23-JAN-19	R4464829
Dissolved Organic Carbon	5.28		0.50	mg/L	23-JAN-19	23-JAN-19	R4464860
<b>Total Metals</b>							
Aluminum (Al)-Total	0.364		0.010	mg/L	24-JAN-19	24-JAN-19	R4466968
Antimony (Sb)-Total	0.00095		0.00010	mg/L	24-JAN-19	24-JAN-19	R4466968
Arsenic (As)-Total	0.00161		0.00010	mg/L	24-JAN-19	24-JAN-19	R4466968
Barium (Ba)-Total	0.0672		0.00020	mg/L	24-JAN-19	24-JAN-19	R4466968
Beryllium (Be)-Total	<0.00010		0.00010	mg/L	24-JAN-19	24-JAN-19	R4466968
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	24-JAN-19	24-JAN-19	R4466968
Boron (B)-Total	0.128		0.010	mg/L	24-JAN-19	24-JAN-19	R4466968
Cadmium (Cd)-Total	<0.00020	DLM	0.00020	mg/L	24-JAN-19	24-JAN-19	R4466968
Calcium (Ca)-Total	87.5		0.50	mg/L	24-JAN-19	24-JAN-19	R4466968
Cobalt (Co)-Total	0.00048		0.00010	mg/L	24-JAN-19	24-JAN-19	R4466968
Copper (Cu)-Total	0.0027		0.0010	mg/L	24-JAN-19	24-JAN-19	R4466968
Iron (Fe)-Total	0.351		0.050	mg/L	24-JAN-19	24-JAN-19	R4466968
Lead (Pb)-Total	0.00051		0.00010	mg/L	24-JAN-19	24-JAN-19	R4466968
Magnesium (Mg)-Total	24.3		0.050	mg/L	24-JAN-19	24-JAN-19	R4466968
Manganese (Mn)-Total	0.0211		0.00050	mg/L	24-JAN-19	24-JAN-19	R4466968
Mercury (Hg)-Total	<0.000010		0.000010	mg/L		25-JAN-19	R4468346

\* 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
L2223895-1 EQ POND DISCHARGE							
Sampled By: CLIENT on 22-JAN-19 @ 11:30							
Matrix: WATER							
<b>Total Metals</b>							
Molybdenum (Mo)-Total	0.132		0.000050	mg/L	24-JAN-19	24-JAN-19	R4466968
Nickel (Ni)-Total	0.00811		0.00050	mg/L	24-JAN-19	24-JAN-19	R4466968
Potassium (K)-Total	23.4		0.050	mg/L	24-JAN-19	24-JAN-19	R4466968
Selenium (Se)-Total	0.00291		0.000050	mg/L	24-JAN-19	24-JAN-19	R4466968
Silicon (Si)-Total	2.93		0.10	mg/L	24-JAN-19	24-JAN-19	R4466968
Silver (Ag)-Total	<0.000050		0.000050	mg/L	24-JAN-19	24-JAN-19	R4466968
Sodium (Na)-Total	51.4		0.50	mg/L	24-JAN-19	24-JAN-19	R4466968
Strontium (Sr)-Total	0.718		0.0010	mg/L	24-JAN-19	24-JAN-19	R4466968
Thallium (Tl)-Total	0.000148		0.000010	mg/L	24-JAN-19	24-JAN-19	R4466968
Tin (Sn)-Total	<0.00010		0.00010	mg/L	24-JAN-19	24-JAN-19	R4466968
Vanadium (V)-Total	0.00108		0.00050	mg/L	24-JAN-19	24-JAN-19	R4466968
Zinc (Zn)-Total	0.0059		0.0030	mg/L	24-JAN-19	24-JAN-19	R4466968
<b>Speciated Metals</b>							
Chromium, Hexavalent	0.00087		0.00050	mg/L		24-JAN-19	R4467959
<b>Aggregate Organics</b>							
COD	19		10	mg/L		25-JAN-19	R4467968
Phenols (4AAP)	0.0025		0.0010	mg/L		24-JAN-19	R4466011
<b>Volatile Organic Compounds</b>							
Acetone	<20		20	ug/L		24-JAN-19	R4464861
Benzene	<0.50		0.50	ug/L		24-JAN-19	R4464861
Bromodichloromethane	<1.0		1.0	ug/L		24-JAN-19	R4464861
Bromoform	<1.0		1.0	ug/L		24-JAN-19	R4464861
Bromomethane	<0.50		0.50	ug/L		24-JAN-19	R4464861
Carbon tetrachloride	<0.50		0.50	ug/L		24-JAN-19	R4464861
Chlorobenzene	<0.50		0.50	ug/L		24-JAN-19	R4464861
Dibromochloromethane	<1.0		1.0	ug/L		24-JAN-19	R4464861
Chloroethane	<1.0		1.0	ug/L		24-JAN-19	R4464861
Chloroform	<1.0		1.0	ug/L		24-JAN-19	R4464861
1,2-Dibromoethane	<0.20		0.20	ug/L		24-JAN-19	R4464861
1,2-Dichlorobenzene	<0.50		0.50	ug/L		24-JAN-19	R4464861
1,3-Dichlorobenzene	<0.50		0.50	ug/L		24-JAN-19	R4464861
1,4-Dichlorobenzene	<0.50		0.50	ug/L		24-JAN-19	R4464861
Dichlorodifluoromethane	<1.0		1.0	ug/L		24-JAN-19	R4464861
1,1-Dichloroethane	<0.50		0.50	ug/L		24-JAN-19	R4464861
1,2-Dichloroethane	<0.50		0.50	ug/L		24-JAN-19	R4464861
1,1-Dichloroethylene	<0.50		0.50	ug/L		24-JAN-19	R4464861
cis-1,2-Dichloroethylene	<0.50		0.50	ug/L		24-JAN-19	R4464861
trans-1,2-Dichloroethylene	<0.50		0.50	ug/L		24-JAN-19	R4464861
Dichloromethane	<2.0		2.0	ug/L		24-JAN-19	R4464861
1,2-Dichloropropane	<0.50		0.50	ug/L		24-JAN-19	R4464861
cis-1,3-Dichloropropene	<0.50		0.50	ug/L		24-JAN-19	R4464861
trans-1,3-Dichloropropene	<0.50		0.50	ug/L		24-JAN-19	R4464861

\* 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
L2223895-1 EQ POND DISCHARGE							
Sampled By: CLIENT on 22-JAN-19 @ 11:30							
Matrix: WATER							
<b>Volatile Organic Compounds</b>							
Ethylbenzene	<0.50		0.50	ug/L		24-JAN-19	R4464861
n-Hexane	<0.50		0.50	ug/L		24-JAN-19	R4464861
Methyl Ethyl Ketone	<20		20	ug/L		24-JAN-19	R4464861
Methyl Isobutyl Ketone	<20		20	ug/L		24-JAN-19	R4464861
MTBE	<0.50		0.50	ug/L		24-JAN-19	R4464861
Styrene	<0.50		0.50	ug/L		24-JAN-19	R4464861
1,1,1,2-Tetrachloroethane	<0.50		0.50	ug/L		24-JAN-19	R4464861
1,1,2,2-Tetrachloroethane	<0.50		0.50	ug/L		24-JAN-19	R4464861
Tetrachloroethylene	<0.50		0.50	ug/L		24-JAN-19	R4464861
Toluene	<0.50		0.50	ug/L		24-JAN-19	R4464861
1,1,1-Trichloroethane	<0.50		0.50	ug/L		24-JAN-19	R4464861
1,1,2-Trichloroethane	<0.50		0.50	ug/L		24-JAN-19	R4464861
Trichloroethylene	<0.50		0.50	ug/L		24-JAN-19	R4464861
Trichlorofluoromethane	<1.0		1.0	ug/L		24-JAN-19	R4464861
Vinyl chloride	<0.50		0.50	ug/L		24-JAN-19	R4464861
o-Xylene	<0.50		0.50	ug/L		24-JAN-19	R4464861
m+p-Xylenes	<1.0		1.0	ug/L		24-JAN-19	R4464861
Xylenes (Total)	<1.1		1.1	ug/L		24-JAN-19	
Surrogate: 4-Bromofluorobenzene	97.7		70-130	%		24-JAN-19	R4464861
Surrogate: 1,4-Difluorobenzene	102.0		70-130	%		24-JAN-19	R4464861
<b>Trihalomethanes</b>							
Total THMs	<2.0		2.0	ug/L		24-JAN-19	
<b>Acid Extractables</b>							
2,3,6-Trichlorophenol	<0.50		0.50	ug/L	23-JAN-19	25-JAN-19	R4468208
Surrogate: 2,4,6-Tribromophenol	131.2		40-150	%	23-JAN-19	25-JAN-19	R4468208
<b>Semi-Volatile Organics</b>							
Acenaphthene	<0.20		0.20	ug/L	23-JAN-19	25-JAN-19	R4468769
Acenaphthylene	<0.20		0.20	ug/L	23-JAN-19	25-JAN-19	R4468769
Anthracene	<0.20		0.20	ug/L	23-JAN-19	25-JAN-19	R4468769
Benzo(a)anthracene	<0.20		0.20	ug/L	23-JAN-19	25-JAN-19	R4468769
Benzo(a)pyrene	<0.050		0.050	ug/L	23-JAN-19	25-JAN-19	R4468769
Benzo(b)fluoranthene	<0.20		0.20	ug/L	23-JAN-19	25-JAN-19	R4468769
Benzo(ghi)perylene	<0.20		0.20	ug/L	23-JAN-19	25-JAN-19	R4468769
Benzo(k)fluoranthene	<0.20		0.20	ug/L	23-JAN-19	25-JAN-19	R4468769
4-Chloroaniline	<0.40		0.40	ug/L	23-JAN-19	25-JAN-19	R4468769
Bis(2-chloroethyl)ether	<0.40		0.40	ug/L	23-JAN-19	25-JAN-19	R4468769
2-Chlorophenol	<0.30		0.30	ug/L	23-JAN-19	25-JAN-19	R4468769
Chrysene	<0.20		0.20	ug/L	23-JAN-19	25-JAN-19	R4468769
Dibenzo(a,h)anthracene	<0.20		0.20	ug/L	23-JAN-19	25-JAN-19	R4468769
1,2-Dichlorobenzene	<0.40		0.40	ug/L	23-JAN-19	25-JAN-19	R4468769
1,3-Dichlorobenzene	<0.40		0.40	ug/L	23-JAN-19	25-JAN-19	R4468769
1,4-Dichlorobenzene	<0.40		0.40	ug/L	23-JAN-19	25-JAN-19	R4468769

\* 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
L2223895-1 EQ POND DISCHARGE Sampled By: CLIENT on 22-JAN-19 @ 11:30 Matrix: WATER							
<b>Semi-Volatile Organics</b>							
3,3'-Dichlorobenzidine	<0.40		0.40	ug/L	23-JAN-19	25-JAN-19	R4468769
2,4-Dichlorophenol	<0.30		0.30	ug/L	23-JAN-19	25-JAN-19	R4468769
Diethylphthalate	<0.20		0.20	ug/L	23-JAN-19	25-JAN-19	R4468769
Dimethylphthalate	<0.20		0.20	ug/L	23-JAN-19	25-JAN-19	R4468769
2,4-Dimethylphenol	<0.50		0.50	ug/L	23-JAN-19	25-JAN-19	R4468769
2,4-Dinitrophenol	<1.0		1.0	ug/L	23-JAN-19	25-JAN-19	R4468769
2,4-Dinitrotoluene	<0.40		0.40	ug/L	23-JAN-19	25-JAN-19	R4468769
2,6-Dinitrotoluene	<0.40		0.40	ug/L	23-JAN-19	25-JAN-19	R4468769
Bis(2-ethylhexyl)phthalate	<2.0		2.0	ug/L	23-JAN-19	25-JAN-19	R4468769
Fluoranthene	<0.20		0.20	ug/L	23-JAN-19	25-JAN-19	R4468769
Fluorene	<0.20		0.20	ug/L	23-JAN-19	25-JAN-19	R4468769
Hexachlorobenzene	<0.040		0.040	ug/L	23-JAN-19	25-JAN-19	R4468769
Hexachlorobutadiene	<0.20		0.20	ug/L	23-JAN-19	25-JAN-19	R4468769
Indeno(1,2,3-cd)pyrene	<0.20		0.20	ug/L	23-JAN-19	25-JAN-19	R4468769
1-Methylnaphthalene	<0.40		0.40	ug/L	23-JAN-19	25-JAN-19	R4468769
2-Methylnaphthalene	<0.40		0.40	ug/L	23-JAN-19	25-JAN-19	R4468769
Naphthalene	<0.20		0.20	ug/L	23-JAN-19	25-JAN-19	R4468769
Pentachlorophenol	<0.50		0.50	ug/L	23-JAN-19	25-JAN-19	R4468769
Perylene	<0.20		0.20	ug/L	23-JAN-19	25-JAN-19	R4468769
Phenanthrene	<0.20		0.20	ug/L	23-JAN-19	25-JAN-19	R4468769
Pyrene	<0.20		0.20	ug/L	23-JAN-19	25-JAN-19	R4468769
2,3,4,5-Tetrachlorophenol	<0.50		0.50	ug/L	23-JAN-19	25-JAN-19	R4468769
2,3,4,6-Tetrachlorophenol	<0.50		0.50	ug/L	23-JAN-19	25-JAN-19	R4468769
1,2,4-Trichlorobenzene	<0.40		0.40	ug/L	23-JAN-19	25-JAN-19	R4468769
2,4,5-Trichlorophenol	<0.50		0.50	ug/L	23-JAN-19	25-JAN-19	R4468769
2,4,6-Trichlorophenol	<0.50		0.50	ug/L	23-JAN-19	25-JAN-19	R4468769
Surrogate: 2-Fluorobiphenyl	92.3		40-130	%	23-JAN-19	25-JAN-19	R4468769
Surrogate: Nitrobenzene d5	98.2		40-130	%	23-JAN-19	25-JAN-19	R4468769
Surrogate: p-Terphenyl d14	101.0		40-130	%	23-JAN-19	25-JAN-19	R4468769
Report Remarks : Increased Cd LOR due to interference.							
L2223895-2 WEST STORM WATER POND Sampled By: CLIENT on 22-JAN-19 @ 11:40 Matrix: WATER							
<b>Field Tests</b>							
pH, Client Supplied	6.79		0.10	pH		24-JAN-19	R4464909
Temperature, Client	1.0		-50	Deg. C		24-JAN-19	R4464909
<b>Physical Tests</b>							
Conductivity	899		3.0	umhos/cm		24-JAN-19	R4467457
Hardness (as CaCO3)	312	HTC	10	mg/L		24-JAN-19	
pH	8.04		0.10	pH units		24-JAN-19	R4467457
Total Suspended Solids	3.9		2.0	mg/L	25-JAN-19	26-JAN-19	R4470248
Total Dissolved Solids	552	DLDS	20	mg/L		24-JAN-19	R4470647

\* 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
L2223895-2 WEST STORM WATER POND Sampled By: CLIENT on 22-JAN-19 @ 11:40 Matrix: WATER							
<b>Physical Tests</b>							
<b>Anions and Nutrients</b>							
Alkalinity, Total (as CaCO <sub>3</sub> )	173		10	mg/L		24-JAN-19	R4467457
Unionized ammonia	0.00110		0.000067	mg/L		25-JAN-19	
Ammonia, Total (as N)	1.64	DLHC	0.10	mg/L		24-JAN-19	R4465352
Bromide (Br)	1.93		0.10	mg/L		24-JAN-19	R4468919
Chloride (Cl)	85.0		0.50	mg/L		24-JAN-19	R4468919
Fluoride (F)	0.871		0.020	mg/L		24-JAN-19	R4468919
Nitrate (as N)	0.309		0.020	mg/L		24-JAN-19	R4468919
Nitrite (as N)	<0.010		0.010	mg/L		24-JAN-19	R4468919
Total Kjeldahl Nitrogen	1.79		0.15	mg/L	28-JAN-19	28-JAN-19	R4472791
Phosphorus, Total	0.0298		0.0030	mg/L	25-JAN-19	28-JAN-19	R4471987
Sulfate (SO <sub>4</sub> )	177		0.30	mg/L		24-JAN-19	R4468919
<b>Cyanides</b>							
Cyanide, Total	<0.0020		0.0020	mg/L		24-JAN-19	R4467487
<b>Organic / Inorganic Carbon</b>							
Dissolved Carbon Filtration Location	LAB					23-JAN-19	R4464829
Dissolved Organic Carbon	5.64		0.50	mg/L	23-JAN-19	23-JAN-19	R4464860
<b>Total Metals</b>							
Aluminum (Al)-Total	0.346		0.010	mg/L	24-JAN-19	24-JAN-19	R4466968
Antimony (Sb)-Total	0.00095		0.00010	mg/L	24-JAN-19	24-JAN-19	R4466968
Arsenic (As)-Total	0.00155		0.00010	mg/L	24-JAN-19	24-JAN-19	R4466968
Barium (Ba)-Total	0.0655		0.00020	mg/L	24-JAN-19	24-JAN-19	R4466968
Beryllium (Be)-Total	<0.00010		0.00010	mg/L	24-JAN-19	24-JAN-19	R4466968
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	24-JAN-19	24-JAN-19	R4466968
Boron (B)-Total	0.141		0.010	mg/L	24-JAN-19	24-JAN-19	R4466968
Cadmium (Cd)-Total	<0.00020	DLM	0.00020	mg/L	24-JAN-19	24-JAN-19	R4466968
Calcium (Ca)-Total	85.1		0.50	mg/L	24-JAN-19	24-JAN-19	R4466968
Cobalt (Co)-Total	0.00050		0.00010	mg/L	24-JAN-19	24-JAN-19	R4466968
Copper (Cu)-Total	0.0029		0.0010	mg/L	24-JAN-19	24-JAN-19	R4466968
Iron (Fe)-Total	0.339		0.050	mg/L	24-JAN-19	24-JAN-19	R4466968
Lead (Pb)-Total	0.00054		0.00010	mg/L	24-JAN-19	24-JAN-19	R4466968
Magnesium (Mg)-Total	24.3		0.050	mg/L	24-JAN-19	24-JAN-19	R4466968
Manganese (Mn)-Total	0.0241		0.00050	mg/L	24-JAN-19	24-JAN-19	R4466968
Mercury (Hg)-Total	<0.000010		0.000010	mg/L		25-JAN-19	R4468346
Molybdenum (Mo)-Total	0.127		0.000050	mg/L	24-JAN-19	24-JAN-19	R4466968
Nickel (Ni)-Total	0.00842		0.00050	mg/L	24-JAN-19	24-JAN-19	R4466968
Potassium (K)-Total	24.6		0.050	mg/L	24-JAN-19	24-JAN-19	R4466968
Selenium (Se)-Total	0.00356		0.000050	mg/L	24-JAN-19	24-JAN-19	R4466968
Silicon (Si)-Total	2.86		0.10	mg/L	24-JAN-19	24-JAN-19	R4466968
Silver (Ag)-Total	<0.000050		0.000050	mg/L	24-JAN-19	24-JAN-19	R4466968
Sodium (Na)-Total	53.0		0.50	mg/L	24-JAN-19	24-JAN-19	R4466968
Strontium (Sr)-Total	0.697		0.0010	mg/L	24-JAN-19	24-JAN-19	R4466968

\* 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
L2223895-2 WEST STORM WATER POND Sampled By: CLIENT on 22-JAN-19 @ 11:40 Matrix: WATER							
<b>Total Metals</b>							
Thallium (Tl)-Total	0.000202		0.000010	mg/L	24-JAN-19	24-JAN-19	R4466968
Tin (Sn)-Total	<0.00010		0.00010	mg/L	24-JAN-19	24-JAN-19	R4466968
Vanadium (V)-Total	0.00105		0.00050	mg/L	24-JAN-19	24-JAN-19	R4466968
Zinc (Zn)-Total	0.0077		0.0030	mg/L	24-JAN-19	24-JAN-19	R4466968
<b>Speciated Metals</b>							
Chromium, Hexavalent	0.00081		0.00050	mg/L		24-JAN-19	R4467959
<b>Aggregate Organics</b>							
COD	24		10	mg/L		25-JAN-19	R4467968
Phenols (4AAP)	0.0018		0.0010	mg/L		24-JAN-19	R4466011
<b>Volatile Organic Compounds</b>							
Acetone	<20		20	ug/L		24-JAN-19	R4464861
Benzene	<0.50		0.50	ug/L		24-JAN-19	R4464861
Bromodichloromethane	<1.0		1.0	ug/L		24-JAN-19	R4464861
Bromoform	<1.0		1.0	ug/L		24-JAN-19	R4464861
Bromomethane	<0.50		0.50	ug/L		24-JAN-19	R4464861
Carbon tetrachloride	<0.50		0.50	ug/L		24-JAN-19	R4464861
Chlorobenzene	<0.50		0.50	ug/L		24-JAN-19	R4464861
Dibromochloromethane	<1.0		1.0	ug/L		24-JAN-19	R4464861
Chloroethane	<1.0		1.0	ug/L		24-JAN-19	R4464861
Chloroform	<1.0		1.0	ug/L		24-JAN-19	R4464861
1,2-Dibromoethane	<0.20		0.20	ug/L		24-JAN-19	R4464861
1,2-Dichlorobenzene	<0.50		0.50	ug/L		24-JAN-19	R4464861
1,3-Dichlorobenzene	<0.50		0.50	ug/L		24-JAN-19	R4464861
1,4-Dichlorobenzene	<0.50		0.50	ug/L		24-JAN-19	R4464861
Dichlorodifluoromethane	<1.0		1.0	ug/L		24-JAN-19	R4464861
1,1-Dichloroethane	<0.50		0.50	ug/L		24-JAN-19	R4464861
1,2-Dichloroethane	<0.50		0.50	ug/L		24-JAN-19	R4464861
1,1-Dichloroethylene	<0.50		0.50	ug/L		24-JAN-19	R4464861
cis-1,2-Dichloroethylene	<0.50		0.50	ug/L		24-JAN-19	R4464861
trans-1,2-Dichloroethylene	<0.50		0.50	ug/L		24-JAN-19	R4464861
Dichloromethane	<2.0		2.0	ug/L		24-JAN-19	R4464861
1,2-Dichloropropane	<0.50		0.50	ug/L		24-JAN-19	R4464861
cis-1,3-Dichloropropene	<0.50		0.50	ug/L		24-JAN-19	R4464861
trans-1,3-Dichloropropene	<0.50		0.50	ug/L		24-JAN-19	R4464861
Ethylbenzene	<0.50		0.50	ug/L		24-JAN-19	R4464861
n-Hexane	<0.50		0.50	ug/L		24-JAN-19	R4464861
Methyl Ethyl Ketone	<20		20	ug/L		24-JAN-19	R4464861
Methyl Isobutyl Ketone	<20		20	ug/L		24-JAN-19	R4464861
MTBE	<0.50		0.50	ug/L		24-JAN-19	R4464861
Styrene	<0.50		0.50	ug/L		24-JAN-19	R4464861
1,1,1,2-Tetrachloroethane	<0.50		0.50	ug/L		24-JAN-19	R4464861
1,1,2,2-Tetrachloroethane	<0.50		0.50	ug/L		24-JAN-19	R4464861

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## ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2223895-2 WEST STORM WATER POND Sampled By: CLIENT on 22-JAN-19 @ 11:40 Matrix: WATER							
<b>Volatile Organic Compounds</b>							
Tetrachloroethylene	<0.50		0.50	ug/L		24-JAN-19	R4464861
Toluene	<0.50		0.50	ug/L		24-JAN-19	R4464861
1,1,1-Trichloroethane	<0.50		0.50	ug/L		24-JAN-19	R4464861
1,1,2-Trichloroethane	<0.50		0.50	ug/L		24-JAN-19	R4464861
Trichloroethylene	<0.50		0.50	ug/L		24-JAN-19	R4464861
Trichlorofluoromethane	<1.0		1.0	ug/L		24-JAN-19	R4464861
Vinyl chloride	<0.50		0.50	ug/L		24-JAN-19	R4464861
o-Xylene	<0.50		0.50	ug/L		24-JAN-19	R4464861
m+p-Xylenes	<1.0		1.0	ug/L		24-JAN-19	R4464861
Xylenes (Total)	<1.1		1.1	ug/L		24-JAN-19	
Surrogate: 4-Bromofluorobenzene	96.6		70-130	%		24-JAN-19	R4464861
Surrogate: 1,4-Difluorobenzene	103.4		70-130	%		24-JAN-19	R4464861
<b>Trihalomethanes</b>							
Total THMs	<2.0		2.0	ug/L		24-JAN-19	
<b>Acid Extractables</b>							
2,3,6-Trichlorophenol	<0.50		0.50	ug/L	23-JAN-19	25-JAN-19	R4468208
Surrogate: 2,4,6-Tribromophenol	127.5		40-150	%	23-JAN-19	25-JAN-19	R4468208
<b>Semi-Volatile Organics</b>							
Acenaphthene	<0.20		0.20	ug/L	23-JAN-19	25-JAN-19	R4468769
Acenaphthylene	<0.20		0.20	ug/L	23-JAN-19	25-JAN-19	R4468769
Anthracene	<0.20		0.20	ug/L	23-JAN-19	25-JAN-19	R4468769
Benzo(a)anthracene	<0.20		0.20	ug/L	23-JAN-19	25-JAN-19	R4468769
Benzo(a)pyrene	<0.050		0.050	ug/L	23-JAN-19	25-JAN-19	R4468769
Benzo(b)fluoranthene	<0.20		0.20	ug/L	23-JAN-19	25-JAN-19	R4468769
Benzo(ghi)perylene	<0.20		0.20	ug/L	23-JAN-19	25-JAN-19	R4468769
Benzo(k)fluoranthene	<0.20		0.20	ug/L	23-JAN-19	25-JAN-19	R4468769
4-Chloroaniline	<0.40		0.40	ug/L	23-JAN-19	25-JAN-19	R4468769
Bis(2-chloroethyl)ether	<0.40		0.40	ug/L	23-JAN-19	25-JAN-19	R4468769
2-Chlorophenol	<0.30		0.30	ug/L	23-JAN-19	25-JAN-19	R4468769
Chrysene	<0.20		0.20	ug/L	23-JAN-19	25-JAN-19	R4468769
Dibenzo(a,h)anthracene	<0.20		0.20	ug/L	23-JAN-19	25-JAN-19	R4468769
1,2-Dichlorobenzene	<0.40		0.40	ug/L	23-JAN-19	25-JAN-19	R4468769
1,3-Dichlorobenzene	<0.40		0.40	ug/L	23-JAN-19	25-JAN-19	R4468769
1,4-Dichlorobenzene	<0.40		0.40	ug/L	23-JAN-19	25-JAN-19	R4468769
3,3'-Dichlorobenzidine	<0.40		0.40	ug/L	23-JAN-19	25-JAN-19	R4468769
2,4-Dichlorophenol	<0.30		0.30	ug/L	23-JAN-19	25-JAN-19	R4468769
Diethylphthalate	<0.20		0.20	ug/L	23-JAN-19	25-JAN-19	R4468769
Dimethylphthalate	<0.20		0.20	ug/L	23-JAN-19	25-JAN-19	R4468769
2,4-Dimethylphenol	<0.50		0.50	ug/L	23-JAN-19	25-JAN-19	R4468769
2,4-Dinitrophenol	<1.0		1.0	ug/L	23-JAN-19	25-JAN-19	R4468769
2,4-Dinitrotoluene	<0.40		0.40	ug/L	23-JAN-19	25-JAN-19	R4468769
2,6-Dinitrotoluene	<0.40		0.40	ug/L	23-JAN-19	25-JAN-19	R4468769

\* 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
L2223895-2 WEST STORM WATER POND Sampled By: CLIENT on 22-JAN-19 @ 11:40 Matrix: WATER							
<b>Semi-Volatile Organics</b>							
Bis(2-ethylhexyl)phthalate	<2.0		2.0	ug/L	23-JAN-19	25-JAN-19	R4468769
Fluoranthene	<0.20		0.20	ug/L	23-JAN-19	25-JAN-19	R4468769
Fluorene	<0.20		0.20	ug/L	23-JAN-19	25-JAN-19	R4468769
Hexachlorobenzene	<0.040		0.040	ug/L	23-JAN-19	25-JAN-19	R4468769
Hexachlorobutadiene	<0.20		0.20	ug/L	23-JAN-19	25-JAN-19	R4468769
Indeno(1,2,3-cd)pyrene	<0.20		0.20	ug/L	23-JAN-19	25-JAN-19	R4468769
1-Methylnaphthalene	<0.40		0.40	ug/L	23-JAN-19	25-JAN-19	R4468769
2-Methylnaphthalene	<0.40		0.40	ug/L	23-JAN-19	25-JAN-19	R4468769
Naphthalene	<0.20		0.20	ug/L	23-JAN-19	25-JAN-19	R4468769
Pentachlorophenol	<0.50		0.50	ug/L	23-JAN-19	25-JAN-19	R4468769
Perylene	<0.20		0.20	ug/L	23-JAN-19	25-JAN-19	R4468769
Phenanthrene	<0.20		0.20	ug/L	23-JAN-19	25-JAN-19	R4468769
Pyrene	<0.20		0.20	ug/L	23-JAN-19	25-JAN-19	R4468769
2,3,4,5-Tetrachlorophenol	<0.50		0.50	ug/L	23-JAN-19	25-JAN-19	R4468769
2,3,4,6-Tetrachlorophenol	<0.50		0.50	ug/L	23-JAN-19	25-JAN-19	R4468769
1,2,4-Trichlorobenzene	<0.40		0.40	ug/L	23-JAN-19	25-JAN-19	R4468769
2,4,5-Trichlorophenol	<0.50		0.50	ug/L	23-JAN-19	25-JAN-19	R4468769
2,4,6-Trichlorophenol	<0.50		0.50	ug/L	23-JAN-19	25-JAN-19	R4468769
Surrogate: 2-Fluorobiphenyl	82.5		40-130	%	23-JAN-19	25-JAN-19	R4468769
Surrogate: Nitrobenzene d5	84.8		40-130	%	23-JAN-19	25-JAN-19	R4468769
Surrogate: p-Terphenyl d14	102.0		40-130	%	23-JAN-19	25-JAN-19	R4468769
Report Remarks : Increased Cd LOR due to interference.							
L2223895-3 EAST STORM WATER POND Sampled By: CLIENT on 22-JAN-19 @ 11:00 Matrix: WATER							
<b>Field Tests</b>							
pH, Client Supplied	6.97		0.10	pH		24-JAN-19	R4464909
Temperature, Client	1.0		-50	Deg. C		24-JAN-19	R4464909
<b>Physical Tests</b>							
Conductivity	898		3.0	umhos/cm		24-JAN-19	R4467457
Hardness (as CaCO3)	324	HTC	10	mg/L		24-JAN-19	
pH	7.91		0.10	pH units		24-JAN-19	R4467457
Total Suspended Solids	7.5		2.0	mg/L	25-JAN-19	26-JAN-19	R4470248
Total Dissolved Solids	551	DLDS	20	mg/L		24-JAN-19	R4470647
<b>Anions and Nutrients</b>							
Alkalinity, Total (as CaCO3)	169		10	mg/L		24-JAN-19	R4467457
Unionized ammonia	0.000122		0.000020	mg/L		25-JAN-19	
Ammonia, Total (as N)	0.120		0.020	mg/L		24-JAN-19	R4465352
Bromide (Br)	2.08		0.10	mg/L		24-JAN-19	R4468919
Chloride (Cl)	80.4		0.50	mg/L		24-JAN-19	R4468919
Fluoride (F)	0.993		0.020	mg/L		24-JAN-19	R4468919
Nitrate (as N)	0.190		0.020	mg/L		24-JAN-19	R4468919

\* 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
L2223895-3 EAST STORM WATER POND Sampled By: CLIENT on 22-JAN-19 @ 11:00 Matrix: WATER							
<b>Anions and Nutrients</b>							
Nitrite (as N)	<0.010		0.010	mg/L		24-JAN-19	R4468919
Total Kjeldahl Nitrogen	0.78		0.15	mg/L	24-JAN-19	25-JAN-19	R4471414
Phosphorus, Total	0.0388		0.0030	mg/L	25-JAN-19	28-JAN-19	R4471987
Sulfate (SO4)	189		0.30	mg/L		24-JAN-19	R4468919
<b>Cyanides</b>							
Cyanide, Total	<0.0020		0.0020	mg/L		24-JAN-19	R4467487
<b>Organic / Inorganic Carbon</b>							
Dissolved Carbon Filtration Location	LAB					23-JAN-19	R4464829
Dissolved Organic Carbon	5.72		0.50	mg/L	23-JAN-19	23-JAN-19	R4464860
<b>Total Metals</b>							
Aluminum (Al)-Total	0.534		0.010	mg/L	24-JAN-19	24-JAN-19	R4466968
Antimony (Sb)-Total	0.00110		0.00010	mg/L	24-JAN-19	24-JAN-19	R4466968
Arsenic (As)-Total	0.00183		0.00010	mg/L	24-JAN-19	24-JAN-19	R4466968
Barium (Ba)-Total	0.0700		0.00020	mg/L	24-JAN-19	24-JAN-19	R4466968
Beryllium (Be)-Total	<0.00010		0.00010	mg/L	24-JAN-19	24-JAN-19	R4466968
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	24-JAN-19	24-JAN-19	R4466968
Boron (B)-Total	0.126		0.010	mg/L	24-JAN-19	24-JAN-19	R4466968
Cadmium (Cd)-Total	<0.00020	DLM	0.00020	mg/L	24-JAN-19	24-JAN-19	R4466968
Calcium (Ca)-Total	87.4		0.50	mg/L	24-JAN-19	24-JAN-19	R4466968
Cobalt (Co)-Total	0.00067		0.00010	mg/L	24-JAN-19	24-JAN-19	R4466968
Copper (Cu)-Total	0.0031		0.0010	mg/L	24-JAN-19	24-JAN-19	R4466968
Iron (Fe)-Total	0.765		0.050	mg/L	24-JAN-19	24-JAN-19	R4466968
Lead (Pb)-Total	0.00085		0.00010	mg/L	24-JAN-19	24-JAN-19	R4466968
Magnesium (Mg)-Total	25.6		0.050	mg/L	24-JAN-19	24-JAN-19	R4466968
Manganese (Mn)-Total	0.0400		0.00050	mg/L	24-JAN-19	24-JAN-19	R4466968
Mercury (Hg)-Total	0.000013		0.000010	mg/L		25-JAN-19	R4468346
Molybdenum (Mo)-Total	0.160		0.000050	mg/L	24-JAN-19	24-JAN-19	R4466968
Nickel (Ni)-Total	0.00996		0.00050	mg/L	24-JAN-19	24-JAN-19	R4466968
Potassium (K)-Total	30.5		0.050	mg/L	24-JAN-19	24-JAN-19	R4466968
Selenium (Se)-Total	0.00366		0.000050	mg/L	24-JAN-19	24-JAN-19	R4466968
Silicon (Si)-Total	3.46		0.10	mg/L	24-JAN-19	24-JAN-19	R4466968
Silver (Ag)-Total	<0.000050		0.000050	mg/L	24-JAN-19	24-JAN-19	R4466968
Sodium (Na)-Total	49.7		0.50	mg/L	24-JAN-19	24-JAN-19	R4466968
Strontium (Sr)-Total	0.766		0.0010	mg/L	24-JAN-19	24-JAN-19	R4466968
Thallium (Tl)-Total	0.000290		0.000010	mg/L	24-JAN-19	24-JAN-19	R4466968
Tin (Sn)-Total	<0.00010		0.00010	mg/L	24-JAN-19	24-JAN-19	R4466968
Vanadium (V)-Total	0.00158		0.00050	mg/L	24-JAN-19	24-JAN-19	R4466968
Zinc (Zn)-Total	0.0116		0.0030	mg/L	24-JAN-19	24-JAN-19	R4466968
<b>Speciated Metals</b>							
Chromium, Hexavalent	<0.00050		0.00050	mg/L		24-JAN-19	R4467959
<b>Aggregate Organics</b>							
COD	25		10	mg/L		25-JAN-19	R4467968

\* 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
L2223895-3 EAST STORM WATER POND Sampled By: CLIENT on 22-JAN-19 @ 11:00 Matrix: WATER							
<b>Aggregate Organics</b>							
Phenols (4AAP)	0.0016		0.0010	mg/L		24-JAN-19	R4466011
<b>Volatile Organic Compounds</b>							
Acetone	<20		20	ug/L		24-JAN-19	R4464861
Benzene	<0.50		0.50	ug/L		24-JAN-19	R4464861
Bromodichloromethane	<1.0		1.0	ug/L		24-JAN-19	R4464861
Bromoform	<1.0		1.0	ug/L		24-JAN-19	R4464861
Bromomethane	<0.50		0.50	ug/L		24-JAN-19	R4464861
Carbon tetrachloride	<0.50		0.50	ug/L		24-JAN-19	R4464861
Chlorobenzene	<0.50		0.50	ug/L		24-JAN-19	R4464861
Dibromochloromethane	<1.0		1.0	ug/L		24-JAN-19	R4464861
Chloroethane	<1.0		1.0	ug/L		24-JAN-19	R4464861
Chloroform	<1.0		1.0	ug/L		24-JAN-19	R4464861
1,2-Dibromoethane	<0.20		0.20	ug/L		24-JAN-19	R4464861
1,2-Dichlorobenzene	<0.50		0.50	ug/L		24-JAN-19	R4464861
1,3-Dichlorobenzene	<0.50		0.50	ug/L		24-JAN-19	R4464861
1,4-Dichlorobenzene	<0.50		0.50	ug/L		24-JAN-19	R4464861
Dichlorodifluoromethane	<1.0		1.0	ug/L		24-JAN-19	R4464861
1,1-Dichloroethane	<0.50		0.50	ug/L		24-JAN-19	R4464861
1,2-Dichloroethane	<0.50		0.50	ug/L		24-JAN-19	R4464861
1,1-Dichloroethylene	<0.50		0.50	ug/L		24-JAN-19	R4464861
cis-1,2-Dichloroethylene	<0.50		0.50	ug/L		24-JAN-19	R4464861
trans-1,2-Dichloroethylene	<0.50		0.50	ug/L		24-JAN-19	R4464861
Dichloromethane	<2.0		2.0	ug/L		24-JAN-19	R4464861
1,2-Dichloropropane	<0.50		0.50	ug/L		24-JAN-19	R4464861
cis-1,3-Dichloropropene	<0.50		0.50	ug/L		24-JAN-19	R4464861
trans-1,3-Dichloropropene	<0.50		0.50	ug/L		24-JAN-19	R4464861
Ethylbenzene	<0.50		0.50	ug/L		24-JAN-19	R4464861
n-Hexane	<0.50		0.50	ug/L		24-JAN-19	R4464861
Methyl Ethyl Ketone	<20		20	ug/L		24-JAN-19	R4464861
Methyl Isobutyl Ketone	<20		20	ug/L		24-JAN-19	R4464861
MTBE	<0.50		0.50	ug/L		24-JAN-19	R4464861
Styrene	<0.50		0.50	ug/L		24-JAN-19	R4464861
1,1,1,2-Tetrachloroethane	<0.50		0.50	ug/L		24-JAN-19	R4464861
1,1,1,2,2-Tetrachloroethane	<0.50		0.50	ug/L		24-JAN-19	R4464861
Tetrachloroethylene	<0.50		0.50	ug/L		24-JAN-19	R4464861
Toluene	<0.50		0.50	ug/L		24-JAN-19	R4464861
1,1,1-Trichloroethane	<0.50		0.50	ug/L		24-JAN-19	R4464861
1,1,2-Trichloroethane	<0.50		0.50	ug/L		24-JAN-19	R4464861
Trichloroethylene	<0.50		0.50	ug/L		24-JAN-19	R4464861
Trichlorofluoromethane	<1.0		1.0	ug/L		24-JAN-19	R4464861
Vinyl chloride	<0.50		0.50	ug/L		24-JAN-19	R4464861

\* 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
L2223895-3 EAST STORM WATER POND Sampled By: CLIENT on 22-JAN-19 @ 11:00 Matrix: WATER							
<b>Volatile Organic Compounds</b>							
o-Xylene	<0.50		0.50	ug/L		24-JAN-19	R4464861
m+p-Xylenes	<1.0		1.0	ug/L		24-JAN-19	R4464861
Xylenes (Total)	<1.1		1.1	ug/L		24-JAN-19	
Surrogate: 4-Bromofluorobenzene	97.2		70-130	%		24-JAN-19	R4464861
Surrogate: 1,4-Difluorobenzene	102.5		70-130	%		24-JAN-19	R4464861
<b>Trihalomethanes</b>							
Total THMs	<2.0		2.0	ug/L		24-JAN-19	
<b>Acid Extractables</b>							
2,3,6-Trichlorophenol	<0.50		0.50	ug/L	23-JAN-19	25-JAN-19	R4468208
Surrogate: 2,4,6-Tribromophenol	126.9		40-150	%	23-JAN-19	25-JAN-19	R4468208
<b>Semi-Volatile Organics</b>							
Acenaphthene	<0.20		0.20	ug/L	23-JAN-19	25-JAN-19	R4468769
Acenaphthylene	<0.20		0.20	ug/L	23-JAN-19	25-JAN-19	R4468769
Anthracene	<0.20		0.20	ug/L	23-JAN-19	25-JAN-19	R4468769
Benzo(a)anthracene	<0.20		0.20	ug/L	23-JAN-19	25-JAN-19	R4468769
Benzo(a)pyrene	<0.050		0.050	ug/L	23-JAN-19	25-JAN-19	R4468769
Benzo(b)fluoranthene	<0.20		0.20	ug/L	23-JAN-19	25-JAN-19	R4468769
Benzo(ghi)perylene	<0.20		0.20	ug/L	23-JAN-19	25-JAN-19	R4468769
Benzo(k)fluoranthene	<0.20		0.20	ug/L	23-JAN-19	25-JAN-19	R4468769
4-Chloroaniline	<0.40		0.40	ug/L	23-JAN-19	25-JAN-19	R4468769
Bis(2-chloroethyl)ether	<0.40		0.40	ug/L	23-JAN-19	25-JAN-19	R4468769
2-Chlorophenol	<0.30		0.30	ug/L	23-JAN-19	25-JAN-19	R4468769
Chrysene	<0.20		0.20	ug/L	23-JAN-19	25-JAN-19	R4468769
Dibenzo(a,h)anthracene	<0.20		0.20	ug/L	23-JAN-19	25-JAN-19	R4468769
1,2-Dichlorobenzene	<0.40		0.40	ug/L	23-JAN-19	25-JAN-19	R4468769
1,3-Dichlorobenzene	<0.40		0.40	ug/L	23-JAN-19	25-JAN-19	R4468769
1,4-Dichlorobenzene	<0.40		0.40	ug/L	23-JAN-19	25-JAN-19	R4468769
3,3'-Dichlorobenzidine	<0.40		0.40	ug/L	23-JAN-19	25-JAN-19	R4468769
2,4-Dichlorophenol	<0.30		0.30	ug/L	23-JAN-19	25-JAN-19	R4468769
Diethylphthalate	<0.20		0.20	ug/L	23-JAN-19	25-JAN-19	R4468769
Dimethylphthalate	<0.20		0.20	ug/L	23-JAN-19	25-JAN-19	R4468769
2,4-Dimethylphenol	<0.50		0.50	ug/L	23-JAN-19	25-JAN-19	R4468769
2,4-Dinitrophenol	<1.0		1.0	ug/L	23-JAN-19	25-JAN-19	R4468769
2,4-Dinitrotoluene	<0.40		0.40	ug/L	23-JAN-19	25-JAN-19	R4468769
2,6-Dinitrotoluene	<0.40		0.40	ug/L	23-JAN-19	25-JAN-19	R4468769
Bis(2-ethylhexyl)phthalate	<2.0		2.0	ug/L	23-JAN-19	25-JAN-19	R4468769
Fluoranthene	<0.20		0.20	ug/L	23-JAN-19	25-JAN-19	R4468769
Fluorene	<0.20		0.20	ug/L	23-JAN-19	25-JAN-19	R4468769
Hexachlorobenzene	<0.040		0.040	ug/L	23-JAN-19	25-JAN-19	R4468769
Hexachlorobutadiene	<0.20		0.20	ug/L	23-JAN-19	25-JAN-19	R4468769
Indeno(1,2,3-cd)pyrene	<0.20		0.20	ug/L	23-JAN-19	25-JAN-19	R4468769
1-Methylnaphthalene	<0.40		0.40	ug/L	23-JAN-19	25-JAN-19	R4468769

\* 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
L2223895-3 EAST STORM WATER POND Sampled By: CLIENT on 22-JAN-19 @ 11:00 Matrix: WATER							
<b>Semi-Volatile Organics</b>							
2-Methylnaphthalene	<0.40		0.40	ug/L	23-JAN-19	25-JAN-19	R4468769
Naphthalene	<0.20		0.20	ug/L	23-JAN-19	25-JAN-19	R4468769
Pentachlorophenol	<0.50		0.50	ug/L	23-JAN-19	25-JAN-19	R4468769
Perylene	<0.20		0.20	ug/L	23-JAN-19	25-JAN-19	R4468769
Phenanthrene	<0.20		0.20	ug/L	23-JAN-19	25-JAN-19	R4468769
Pyrene	<0.20		0.20	ug/L	23-JAN-19	25-JAN-19	R4468769
2,3,4,5-Tetrachlorophenol	<0.50		0.50	ug/L	23-JAN-19	25-JAN-19	R4468769
2,3,4,6-Tetrachlorophenol	<0.50		0.50	ug/L	23-JAN-19	25-JAN-19	R4468769
1,2,4-Trichlorobenzene	<0.40		0.40	ug/L	23-JAN-19	25-JAN-19	R4468769
2,4,5-Trichlorophenol	<0.50		0.50	ug/L	23-JAN-19	25-JAN-19	R4468769
2,4,6-Trichlorophenol	<0.50		0.50	ug/L	23-JAN-19	25-JAN-19	R4468769
Surrogate: 2-Fluorobiphenyl	84.0		40-130	%	23-JAN-19	25-JAN-19	R4468769
Surrogate: Nitrobenzene d5	88.5		40-130	%	23-JAN-19	25-JAN-19	R4468769
Surrogate: p-Terphenyl d14	105.3		40-130	%	23-JAN-19	25-JAN-19	R4468769
Report Remarks : Increased Cd LOR due to 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)
Laboratory Control Sample	Pentachlorophenol	MES	L2223895-1, -2, -3
Matrix Spike	Bromide (Br)	MS-B	L2223895-1, -2, -3
Matrix Spike	Aluminum (Al)-Total	MS-B	L2223895-1, -2, -3
Matrix Spike	Barium (Ba)-Total	MS-B	L2223895-1, -2, -3
Matrix Spike	Boron (B)-Total	MS-B	L2223895-1, -2, -3
Matrix Spike	Calcium (Ca)-Total	MS-B	L2223895-1, -2, -3
Matrix Spike	Iron (Fe)-Total	MS-B	L2223895-1, -2, -3
Matrix Spike	Magnesium (Mg)-Total	MS-B	L2223895-1, -2, -3
Matrix Spike	Potassium (K)-Total	MS-B	L2223895-1, -2, -3
Matrix Spike	Silicon (Si)-Total	MS-B	L2223895-1, -2, -3
Matrix Spike	Sodium (Na)-Total	MS-B	L2223895-1, -2, -3
Matrix Spike	Strontium (Sr)-Total	MS-B	L2223895-1, -2, -3
Matrix Spike	Sulfate (SO4)	MS-B	L2223895-1, -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).
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.

### Test Method References:

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 CaCO3)	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			



## Reference Information

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.			
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

## Reference Information

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.			

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

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*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:*

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<b>Laboratory Definition Code</b>	<b>Laboratory Location</b>
WT	ALS ENVIRONMENTAL - WATERLOO, ONTARIO, CANADA

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### 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: L2223895

Report Date: 29-JAN-19

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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
<b>625-ACID-EXTRA-WT</b>								
	<b>Water</b>							
<b>Batch</b>	<b>R4468208</b>							
<b>WG2975516-2 LCS</b>								
2,3,6-Trichlorophenol			100.5		%		50-130	25-JAN-19
<b>WG2975516-3 LCSD</b>		<b>WG2975516-2</b>						
2,3,6-Trichlorophenol		100.5	94.6		%	6.1	50	25-JAN-19
<b>WG2975516-1 MB</b>								
2,3,6-Trichlorophenol			<0.50		ug/L		0.5	24-JAN-19
Surrogate: 2,4,6-Tribromophenol			99.0		%		40-150	24-JAN-19
<b>625-WT</b>								
	<b>Water</b>							
<b>Batch</b>	<b>R4468769</b>							
<b>WG2975516-2 LCS</b>								
1-Methylnaphthalene			92.9		%		50-140	24-JAN-19
1,2-Dichlorobenzene			96.2		%		40-130	24-JAN-19
1,2,4-Trichlorobenzene			93.7		%		50-130	24-JAN-19
1,3-Dichlorobenzene			92.9		%		50-140	24-JAN-19
1,4-Dichlorobenzene			92.6		%		40-130	24-JAN-19
2-Chlorophenol			97.8		%		65-130	24-JAN-19
2-Methylnaphthalene			96.7		%		50-140	24-JAN-19
2,3,4,5-Tetrachlorophenol			127.9		%		50-130	24-JAN-19
2,3,4,6-Tetrachlorophenol			121.6		%		65-130	24-JAN-19
2,4-Dichlorophenol			108.6		%		65-130	24-JAN-19
2,4-Dimethylphenol			72.9		%		30-130	24-JAN-19
2,4-Dinitrophenol			134.7		%		40-140	24-JAN-19
2,4-Dinitrotoluene			110.0		%		50-140	24-JAN-19
2,4,5-Trichlorophenol			116.8		%		65-130	24-JAN-19
2,4,6-Trichlorophenol			111.8		%		65-130	24-JAN-19
2,6-Dinitrotoluene			104.4		%		50-140	24-JAN-19
3,3'-Dichlorobenzidine			76.8		%		50-140	24-JAN-19
4-Chloroaniline			54.6		%		30-140	24-JAN-19
Acenaphthene			100.2		%		50-140	24-JAN-19
Acenaphthylene			106.2		%		50-140	24-JAN-19
Anthracene			108.6		%		50-140	24-JAN-19
Benzo(a)anthracene			104.8		%		50-140	24-JAN-19
Benzo(a)pyrene			101.5		%		60-130	24-JAN-19
Benzo(b)fluoranthene			101.7		%		50-140	24-JAN-19
Benzo(ghi)perylene			109.5		%		50-140	24-JAN-19



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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
<b>625-WT</b>	<b>Water</b>							
<b>Batch</b>	<b>R4468769</b>							
<b>WG2975516-2 LCS</b>								
Benzo(k)fluoranthene			114.5		%		50-140	24-JAN-19
Bis(2-chloroethyl)ether			105.5		%		50-140	24-JAN-19
Bis(2-ethylhexyl)phthalate			123.3		%		50-140	24-JAN-19
Chrysene			110.7		%		50-140	24-JAN-19
Dibenzo(a,h)anthracene			109.6		%		50-140	24-JAN-19
Diethylphthalate			109.5		%		50-140	24-JAN-19
Dimethylphthalate			104.9		%		50-140	24-JAN-19
Fluoranthene			115.6		%		50-140	24-JAN-19
Fluorene			108.5		%		50-140	24-JAN-19
Hexachlorobenzene			104.0		%		40-130	24-JAN-19
Hexachlorobutadiene			90.1		%		40-130	24-JAN-19
Indeno(1,2,3-cd)pyrene			108.3		%		50-140	24-JAN-19
Naphthalene			98.0		%		50-140	24-JAN-19
Pentachlorophenol			139.7	MES	%		65-130	24-JAN-19
Perylene			100.7		%		50-140	24-JAN-19
Phenanthrene			106.9		%		50-140	24-JAN-19
Pyrene			111.5		%		50-140	24-JAN-19
<b>WG2975516-3 LCSD</b>		<b>WG2975516-2</b>						
1-Methylnaphthalene		92.9	92.9		%	0.0	50	24-JAN-19
1,2-Dichlorobenzene		96.2	94.1		%	2.3	50	24-JAN-19
1,2,4-Trichlorobenzene		93.7	92.6		%	1.2	50	24-JAN-19
1,3-Dichlorobenzene		92.9	93.1		%	0.3	50	24-JAN-19
1,4-Dichlorobenzene		92.6	93.3		%	0.7	50	24-JAN-19
2-Chlorophenol		97.8	97.8		%	0.0	50	24-JAN-19
2-Methylnaphthalene		96.7	95.8		%	0.9	50	24-JAN-19
2,3,4,5-Tetrachlorophenol		127.9	128.2		%	0.2	50	24-JAN-19
2,3,4,6-Tetrachlorophenol		121.6	121.8		%	0.2	50	24-JAN-19
2,4-Dichlorophenol		108.6	110.7		%	1.9	50	24-JAN-19
2,4-Dimethylphenol		72.9	79.3		%	8.4	50	24-JAN-19
2,4-Dinitrophenol		134.7	139.3		%	3.4	50	24-JAN-19
2,4-Dinitrotoluene		110.0	111.2		%	1.1	50	24-JAN-19
2,4,5-Trichlorophenol		116.8	119.2		%	2.0	50	24-JAN-19
2,4,6-Trichlorophenol		111.8	113.3		%	1.4	50	24-JAN-19



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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
<b>625-WT</b>	<b>Water</b>							
<b>Batch</b>	<b>R4468769</b>							
<b>WG2975516-3</b>	<b>LCSD</b>	<b>WG2975516-2</b>						
2,6-Dinitrotoluene		104.4	105.9		%	1.4	50	24-JAN-19
3,3'-Dichlorobenzidine		76.8	82.8		%	7.5	50	24-JAN-19
4-Chloroaniline		54.6	55.7		%	2.1	50	24-JAN-19
Acenaphthene		100.2	100.7		%	0.4	50	24-JAN-19
Acenaphthylene		106.2	104.7		%	1.5	50	24-JAN-19
Anthracene		108.6	109.5		%	0.8	50	24-JAN-19
Benzo(a)anthracene		104.8	105.0		%	0.2	50	24-JAN-19
Benzo(a)pyrene		101.5	98.3		%	3.1	50	24-JAN-19
Benzo(b)fluoranthene		101.7	105.0		%	3.2	50	24-JAN-19
Benzo(ghi)perylene		109.5	106.4		%	2.9	50	24-JAN-19
Benzo(k)fluoranthene		114.5	113.3		%	1.1	50	24-JAN-19
Bis(2-chloroethyl)ether		105.5	104.3		%	1.2	50	24-JAN-19
Bis(2-ethylhexyl)phthalate		123.3	121.4		%	1.5	50	24-JAN-19
Chrysene		110.7	107.1		%	3.3	50	24-JAN-19
Dibenzo(a,h)anthracene		109.6	107.5		%	1.9	50	24-JAN-19
Diethylphthalate		109.5	107.2		%	2.1	50	24-JAN-19
Dimethylphthalate		104.9	104.8		%	0.1	50	24-JAN-19
Fluoranthene		115.6	113.2		%	2.2	50	24-JAN-19
Fluorene		108.5	107.3		%	1.2	50	24-JAN-19
Hexachlorobenzene		104.0	101.4		%	2.5	50	24-JAN-19
Hexachlorobutadiene		90.1	93.8		%	4.0	50	24-JAN-19
Indeno(1,2,3-cd)pyrene		108.3	104.3		%	3.8	50	24-JAN-19
Naphthalene		98.0	100.1		%	2.2	50	24-JAN-19
Pentachlorophenol		139.7	138.2		%	1.1	50	24-JAN-19
Perylene		100.7	102.5		%	1.7	50	24-JAN-19
Phenanthrene		106.9	105.5		%	1.3	50	24-JAN-19
Pyrene		111.5	109.8		%	1.5	50	24-JAN-19
<b>WG2975516-1</b>	<b>MB</b>							
1-Methylnaphthalene			<0.40		ug/L		0.4	24-JAN-19
1,2-Dichlorobenzene			<0.40		ug/L		0.4	24-JAN-19
1,2,4-Trichlorobenzene			<0.40		ug/L		0.4	24-JAN-19
1,3-Dichlorobenzene			<0.40		ug/L		0.4	24-JAN-19
1,4-Dichlorobenzene			<0.40		ug/L		0.4	24-JAN-19



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455 PHILLIP STREET  
WATERLOO ON N2L 3X2

Contact: LAURA ERMETA

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>625-WT</b>	<b>Water</b>							
<b>Batch</b>	<b>R4468769</b>							
<b>WG2975516-1 MB</b>								
2-Chlorophenol			<0.30		ug/L		0.3	24-JAN-19
2-Methylnaphthalene			<0.40		ug/L		0.4	24-JAN-19
2,3,4,5-Tetrachlorophenol			<0.50		ug/L		0.5	24-JAN-19
2,3,4,6-Tetrachlorophenol			<0.50		ug/L		0.5	24-JAN-19
2,4-Dichlorophenol			<0.30		ug/L		0.3	24-JAN-19
2,4-Dimethylphenol			<0.50		ug/L		0.5	24-JAN-19
2,4-Dinitrophenol			<1.0		ug/L		1	24-JAN-19
2,4-Dinitrotoluene			<0.40		ug/L		0.4	24-JAN-19
2,4,5-Trichlorophenol			<0.50		ug/L		0.5	24-JAN-19
2,4,6-Trichlorophenol			<0.50		ug/L		0.5	24-JAN-19
2,6-Dinitrotoluene			<0.40		ug/L		0.4	24-JAN-19
3,3'-Dichlorobenzidine			<0.40		ug/L		0.4	24-JAN-19
4-Chloroaniline			<0.40		ug/L		0.4	24-JAN-19
Acenaphthene			<0.20		ug/L		0.2	24-JAN-19
Acenaphthylene			<0.20		ug/L		0.2	24-JAN-19
Anthracene			<0.20		ug/L		0.2	24-JAN-19
Benzo(a)anthracene			<0.20		ug/L		0.2	24-JAN-19
Benzo(a)pyrene			<0.050		ug/L		0.05	24-JAN-19
Benzo(b)fluoranthene			<0.20		ug/L		0.2	24-JAN-19
Benzo(ghi)perylene			<0.20		ug/L		0.2	24-JAN-19
Benzo(k)fluoranthene			<0.20		ug/L		0.2	24-JAN-19
Bis(2-chloroethyl)ether			<0.40		ug/L		0.4	24-JAN-19
Bis(2-ethylhexyl)phthalate			<1.0		ug/L		1	24-JAN-19
Chrysene			<0.20		ug/L		0.2	24-JAN-19
Dibenzo(a,h)anthracene			<0.20		ug/L		0.2	24-JAN-19
Diethylphthalate			<0.20		ug/L		0.2	24-JAN-19
Dimethylphthalate			<0.20		ug/L		0.2	24-JAN-19
Fluoranthene			<0.20		ug/L		0.2	24-JAN-19
Fluorene			<0.20		ug/L		0.2	24-JAN-19
Hexachlorobenzene			<0.040		ug/L		0.04	24-JAN-19
Hexachlorobutadiene			<0.20		ug/L		0.2	24-JAN-19
Indeno(1,2,3-cd)pyrene			<0.20		ug/L		0.2	24-JAN-19
Naphthalene			<0.20		ug/L		0.2	24-JAN-19



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

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>625-WT Water</b>								
Batch R4468769								
WG2975516-1 MB								
			<0.50		ug/L		0.5	24-JAN-19
			<0.20		ug/L		0.2	24-JAN-19
			<0.20		ug/L		0.2	24-JAN-19
			<0.20		ug/L		0.2	24-JAN-19
			89.5		%		40-130	24-JAN-19
			89.9		%		40-130	24-JAN-19
			112.6		%		40-130	24-JAN-19
<b>ALK-WT Water</b>								
Batch R4467457								
WG2975962-4 DUP								
		WG2975962-3	167		mg/L	1.5	20	24-JAN-19
		169	167		mg/L			
WG2975962-2 LCS								
			101.4		%		85-115	24-JAN-19
WG2975962-1 MB								
			<10		mg/L		10	24-JAN-19
<b>BR-IC-N-WT Water</b>								
Batch R4468919								
WG2976184-9 DUP								
		L2223895-2	1.89		mg/L	2.1	20	24-JAN-19
		1.93	1.89		mg/L			
WG2976184-7 LCS								
			104.2		%		85-115	24-JAN-19
WG2976184-6 MB								
			<0.10		mg/L		0.1	24-JAN-19
WG2976184-10 MS								
		L2223895-2	N/A	MS-B	%		-	24-JAN-19
			N/A	MS-B	%		-	24-JAN-19
<b>CL-IC-N-WT Water</b>								
Batch R4468919								
WG2976184-9 DUP								
		L2223895-2	84.9		mg/L	0.1	20	24-JAN-19
		85.0	84.9		mg/L			
WG2976184-7 LCS								
			101.0		%		90-110	24-JAN-19
WG2976184-6 MB								
			<0.50		mg/L		0.5	24-JAN-19
WG2976184-10 MS								
		L2223895-2	103.1		%		75-125	24-JAN-19
			103.1		%		75-125	24-JAN-19
<b>Water</b>								



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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
<b>CN-TOT-WT</b>		<b>Water</b>						
<b>Batch</b>	<b>R4467487</b>							
<b>WG2976064-3</b>	<b>DUP</b>	<b>L2224046-1</b>						
Cyanide, Total		<0.0020	<0.0020	RPD-NA	mg/L	N/A	20	24-JAN-19
<b>WG2976064-2</b>	<b>LCS</b>							
Cyanide, Total			85.0		%		80-120	24-JAN-19
<b>WG2976064-1</b>	<b>MB</b>							
Cyanide, Total			<0.0020		mg/L		0.002	24-JAN-19
<b>WG2976064-4</b>	<b>MS</b>	<b>L2224046-1</b>						
Cyanide, Total			83.5		%		70-130	24-JAN-19
<b>COD-T-WT</b>		<b>Water</b>						
<b>Batch</b>	<b>R4467968</b>							
<b>WG2976735-3</b>	<b>DUP</b>	<b>L2223895-2</b>						
COD		24	22		mg/L	7.0	20	25-JAN-19
<b>WG2976735-2</b>	<b>LCS</b>							
COD			102.6		%		85-115	25-JAN-19
<b>WG2976735-1</b>	<b>MB</b>							
COD			<10		mg/L		10	25-JAN-19
<b>WG2976735-4</b>	<b>MS</b>	<b>L2223895-2</b>						
COD			99.5		%		75-125	25-JAN-19
<b>CR-CR6-IC-WT</b>		<b>Water</b>						
<b>Batch</b>	<b>R4467959</b>							
<b>WG2976251-4</b>	<b>DUP</b>	<b>WG2976251-3</b>						
Chromium, Hexavalent		0.00059	0.00058		mg/L	1.9	20	24-JAN-19
<b>WG2976251-2</b>	<b>LCS</b>							
Chromium, Hexavalent			94.2		%		80-120	24-JAN-19
<b>WG2976251-1</b>	<b>MB</b>							
Chromium, Hexavalent			<0.00050		mg/L		0.0005	24-JAN-19
<b>WG2976251-5</b>	<b>MS</b>	<b>WG2976251-3</b>						
Chromium, Hexavalent			93.1		%		70-130	24-JAN-19
<b>DOC-WT</b>		<b>Water</b>						
<b>Batch</b>	<b>R4464860</b>							
<b>WG2975918-3</b>	<b>DUP</b>	<b>L2223895-1</b>						
Dissolved Organic Carbon		5.28	5.46		mg/L	3.3	25	23-JAN-19
<b>WG2975918-2</b>	<b>LCS</b>							
Dissolved Organic Carbon			94.9		%		70-130	23-JAN-19
<b>WG2975918-1</b>	<b>MB</b>							
Dissolved Organic Carbon			<0.50		mg/L		0.5	23-JAN-19
<b>WG2975918-4</b>	<b>MS</b>	<b>L2223895-1</b>						





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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
<b>DOC-WT</b>								
	Water							
<b>Batch</b>	<b>R4464860</b>							
<b>WG2975918-4</b>	<b>MS</b>	<b>L2223895-1</b>						
Dissolved Organic Carbon			96.4		%		70-130	23-JAN-19
<b>EC-WT</b>								
	Water							
<b>Batch</b>	<b>R4467457</b>							
<b>WG2975962-4</b>	<b>DUP</b>	<b>WG2975962-3</b>						
Conductivity		898	912		umhos/cm	1.5	10	24-JAN-19
<b>WG2975962-2</b>	<b>LCS</b>		99.6		%		90-110	24-JAN-19
Conductivity								
<b>WG2975962-1</b>	<b>MB</b>		<3.0		umhos/cm		3	24-JAN-19
Conductivity								
<b>F-IC-N-WT</b>								
	Water							
<b>Batch</b>	<b>R4468919</b>							
<b>WG2976184-9</b>	<b>DUP</b>	<b>L2223895-2</b>						
Fluoride (F)		0.871	0.871		mg/L	0.0	20	24-JAN-19
<b>WG2976184-7</b>	<b>LCS</b>		103.1		%		90-110	24-JAN-19
Fluoride (F)								
<b>WG2976184-6</b>	<b>MB</b>		<0.020		mg/L		0.02	24-JAN-19
Fluoride (F)								
<b>WG2976184-10</b>	<b>MS</b>	<b>L2223895-2</b>	102.6		%		75-125	24-JAN-19
Fluoride (F)								
<b>HG-T-CVAA-WT</b>								
	Water							
<b>Batch</b>	<b>R4468346</b>							
<b>WG2976138-3</b>	<b>DUP</b>	<b>L2223895-2</b>						
Mercury (Hg)-Total		<0.000010	<0.000010	RPD-NA	mg/L	N/A	20	25-JAN-19
<b>WG2976138-2</b>	<b>LCS</b>		98.3		%		80-120	25-JAN-19
Mercury (Hg)-Total								
<b>WG2976138-1</b>	<b>MB</b>		<0.000010		mg/L		0.00001	25-JAN-19
Mercury (Hg)-Total								
<b>WG2976138-4</b>	<b>MS</b>	<b>L2223895-3</b>	90.0		%		70-130	25-JAN-19
Mercury (Hg)-Total								
<b>MET-T-CCMS-WT</b>								
	Water							
<b>Batch</b>	<b>R4466968</b>							
<b>WG2975886-4</b>	<b>DUP</b>	<b>WG2975886-3</b>						
Aluminum (Al)-Total		0.395	0.398		mg/L	0.7	20	24-JAN-19
Antimony (Sb)-Total		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	24-JAN-19
Arsenic (As)-Total		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	24-JAN-19



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 455 PHILLIP STREET  
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 Contact: LAURA ERMETA

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>MET-T-CCMS-WT</b>		<b>Water</b>						
<b>Batch</b>	<b>R4466968</b>							
<b>WG2975886-4</b>	<b>DUP</b>	<b>WG2975886-3</b>						
Barium (Ba)-Total		0.131	0.130		mg/L	0.6	20	24-JAN-19
Beryllium (Be)-Total		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	24-JAN-19
Bismuth (Bi)-Total		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	24-JAN-19
Boron (B)-Total		<0.10	<0.10	RPD-NA	mg/L	N/A	20	24-JAN-19
Cadmium (Cd)-Total		<0.000050	<0.000050	RPD-NA	mg/L	N/A	20	24-JAN-19
Calcium (Ca)-Total		145	152		mg/L	4.6	20	24-JAN-19
Cobalt (Co)-Total		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	24-JAN-19
Copper (Cu)-Total		<0.010	<0.010	RPD-NA	mg/L	N/A	20	24-JAN-19
Iron (Fe)-Total		0.43	0.42		mg/L	2.5	20	24-JAN-19
Lead (Pb)-Total		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	24-JAN-19
Magnesium (Mg)-Total		31.5	31.5		mg/L	0.1	20	24-JAN-19
Manganese (Mn)-Total		0.0163	0.0172		mg/L	5.0	20	24-JAN-19
Molybdenum (Mo)-Total		0.00077	0.00076		mg/L	1.2	20	24-JAN-19
Nickel (Ni)-Total		<0.0050	<0.0050	RPD-NA	mg/L	N/A	20	24-JAN-19
Potassium (K)-Total		4.97	5.08		mg/L	2.1	20	24-JAN-19
Selenium (Se)-Total		0.00150	0.00136		mg/L	9.4	20	24-JAN-19
Silicon (Si)-Total		6.3	6.3		mg/L	0.4	20	24-JAN-19
Silver (Ag)-Total		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	24-JAN-19
Sodium (Na)-Total		288	289		mg/L	0.4	20	24-JAN-19
Strontium (Sr)-Total		1.05	1.08		mg/L	3.2	20	24-JAN-19
Thallium (Tl)-Total		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	24-JAN-19
Tin (Sn)-Total		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	24-JAN-19
Vanadium (V)-Total		<0.0050	<0.0050	RPD-NA	mg/L	N/A	20	24-JAN-19
Zinc (Zn)-Total		<0.030	<0.030	RPD-NA	mg/L	N/A	20	24-JAN-19
<b>WG2975886-2</b>	<b>LCS</b>							
Aluminum (Al)-Total			101.6		%		80-120	24-JAN-19
Antimony (Sb)-Total			104.0		%		80-120	24-JAN-19
Arsenic (As)-Total			99.3		%		80-120	24-JAN-19
Barium (Ba)-Total			103.7		%		80-120	24-JAN-19
Beryllium (Be)-Total			98.7		%		80-120	24-JAN-19
Bismuth (Bi)-Total			104.7		%		80-120	24-JAN-19
Boron (B)-Total			98.3		%		80-120	24-JAN-19
Cadmium (Cd)-Total			104.2		%		80-120	24-JAN-19



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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
<b>MET-T-CCMS-WT</b>		<b>Water</b>						
<b>Batch</b>	<b>R4466968</b>							
<b>WG2975886-2 LCS</b>								
Calcium (Ca)-Total			101.2		%		80-120	24-JAN-19
Cobalt (Co)-Total			99.6		%		80-120	24-JAN-19
Copper (Cu)-Total			97.4		%		80-120	24-JAN-19
Iron (Fe)-Total			101.0		%		80-120	24-JAN-19
Lead (Pb)-Total			102.7		%		80-120	24-JAN-19
Magnesium (Mg)-Total			104.6		%		80-120	24-JAN-19
Manganese (Mn)-Total			101.2		%		80-120	24-JAN-19
Molybdenum (Mo)-Total			98.4		%		80-120	24-JAN-19
Nickel (Ni)-Total			97.9		%		80-120	24-JAN-19
Potassium (K)-Total			99.8		%		80-120	24-JAN-19
Selenium (Se)-Total			98.4		%		80-120	24-JAN-19
Silicon (Si)-Total			102.0		%		60-140	24-JAN-19
Silver (Ag)-Total			103.7		%		80-120	24-JAN-19
Sodium (Na)-Total			100.6		%		80-120	24-JAN-19
Strontium (Sr)-Total			103.9		%		80-120	24-JAN-19
Thallium (Tl)-Total			99.6		%		80-120	24-JAN-19
Tin (Sn)-Total			103.5		%		80-120	24-JAN-19
Vanadium (V)-Total			102.3		%		80-120	24-JAN-19
Zinc (Zn)-Total			97.8		%		80-120	24-JAN-19
<b>WG2975886-1 MB</b>								
Aluminum (Al)-Total			<0.0050		mg/L		0.005	24-JAN-19
Antimony (Sb)-Total			<0.00010		mg/L		0.0001	24-JAN-19
Arsenic (As)-Total			<0.00010		mg/L		0.0001	24-JAN-19
Barium (Ba)-Total			<0.00010		mg/L		0.0001	24-JAN-19
Beryllium (Be)-Total			<0.00010		mg/L		0.0001	24-JAN-19
Bismuth (Bi)-Total			<0.000050		mg/L		0.00005	24-JAN-19
Boron (B)-Total			<0.010		mg/L		0.01	24-JAN-19
Cadmium (Cd)-Total			<0.0000050		mg/L		0.000005	24-JAN-19
Calcium (Ca)-Total			<0.050		mg/L		0.05	24-JAN-19
Cobalt (Co)-Total			<0.00010		mg/L		0.0001	24-JAN-19
Copper (Cu)-Total			<0.0010		mg/L		0.001	24-JAN-19
Iron (Fe)-Total			<0.010		mg/L		0.01	24-JAN-19
Lead (Pb)-Total			<0.000050		mg/L		0.00005	24-JAN-19
Magnesium (Mg)-Total			<0.0050		mg/L		0.005	24-JAN-19



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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
<b>MET-T-CCMS-WT</b>								
	<b>Water</b>							
<b>Batch</b>	<b>R4466968</b>							
<b>WG2975886-1 MB</b>								
Manganese (Mn)-Total			<0.00050		mg/L		0.0005	24-JAN-19
Molybdenum (Mo)-Total			<0.000050		mg/L		0.00005	24-JAN-19
Nickel (Ni)-Total			<0.00050		mg/L		0.0005	24-JAN-19
Potassium (K)-Total			<0.050		mg/L		0.05	24-JAN-19
Selenium (Se)-Total			<0.000050		mg/L		0.00005	24-JAN-19
Silicon (Si)-Total			<0.10		mg/L		0.1	24-JAN-19
Silver (Ag)-Total			<0.000050		mg/L		0.00005	24-JAN-19
Sodium (Na)-Total			<0.050		mg/L		0.05	24-JAN-19
Strontium (Sr)-Total			<0.0010		mg/L		0.001	24-JAN-19
Thallium (Tl)-Total			<0.000010		mg/L		0.00001	24-JAN-19
Tin (Sn)-Total			<0.00010		mg/L		0.0001	24-JAN-19
Vanadium (V)-Total			<0.00050		mg/L		0.0005	24-JAN-19
Zinc (Zn)-Total			<0.0030		mg/L		0.003	24-JAN-19
<b>WG2975886-5 MS</b>		<b>WG2975886-6</b>						
Aluminum (Al)-Total			N/A	MS-B	%		-	24-JAN-19
Antimony (Sb)-Total			102.2		%		70-130	24-JAN-19
Arsenic (As)-Total			100.4		%		70-130	24-JAN-19
Barium (Ba)-Total			N/A	MS-B	%		-	24-JAN-19
Beryllium (Be)-Total			102.7		%		70-130	24-JAN-19
Bismuth (Bi)-Total			100.6		%		70-130	24-JAN-19
Boron (B)-Total			N/A	MS-B	%		-	24-JAN-19
Cadmium (Cd)-Total			104.4		%		70-130	24-JAN-19
Calcium (Ca)-Total			N/A	MS-B	%		-	24-JAN-19
Cobalt (Co)-Total			95.0		%		70-130	24-JAN-19
Copper (Cu)-Total			98.8		%		70-130	24-JAN-19
Iron (Fe)-Total			N/A	MS-B	%		-	24-JAN-19
Lead (Pb)-Total			99.2		%		70-130	24-JAN-19
Magnesium (Mg)-Total			N/A	MS-B	%		-	24-JAN-19
Manganese (Mn)-Total			98.7		%		70-130	24-JAN-19
Molybdenum (Mo)-Total			100.1		%		70-130	24-JAN-19
Nickel (Ni)-Total			93.7		%		70-130	24-JAN-19
Potassium (K)-Total			N/A	MS-B	%		-	24-JAN-19
Selenium (Se)-Total			95.8		%		70-130	24-JAN-19
Silicon (Si)-Total			N/A	MS-B	%		-	24-JAN-19



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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
<b>MET-T-CCMS-WT</b>								
	<b>Water</b>							
<b>Batch</b>	<b>R4466968</b>							
<b>WG2975886-5 MS</b>		<b>WG2975886-6</b>						
Silver (Ag)-Total			98.3		%		70-130	24-JAN-19
Sodium (Na)-Total			N/A	MS-B	%		-	24-JAN-19
Strontium (Sr)-Total			N/A	MS-B	%		-	24-JAN-19
Thallium (Tl)-Total			97.2		%		70-130	24-JAN-19
Tin (Sn)-Total			102.0		%		70-130	24-JAN-19
Vanadium (V)-Total			99.3		%		70-130	24-JAN-19
Zinc (Zn)-Total			98.4		%		70-130	24-JAN-19
<b>NH3-WT</b>								
	<b>Water</b>							
<b>Batch</b>	<b>R4465352</b>							
<b>WG2976032-3 DUP</b>		<b>L2223735-1</b>						
Ammonia, Total (as N)		0.254	0.238		mg/L	6.4	20	24-JAN-19
<b>WG2976032-2 LCS</b>								
Ammonia, Total (as N)			95.9		%		85-115	24-JAN-19
<b>WG2976032-1 MB</b>								
Ammonia, Total (as N)			<0.020		mg/L		0.02	24-JAN-19
<b>WG2976032-4 MS</b>		<b>L2223735-1</b>						
Ammonia, Total (as N)			84.5		%		75-125	24-JAN-19
<b>NO2-IC-WT</b>								
	<b>Water</b>							
<b>Batch</b>	<b>R4468919</b>							
<b>WG2976184-9 DUP</b>		<b>L2223895-2</b>						
Nitrite (as N)		<0.010	<0.010	RPD-NA	mg/L	N/A	25	24-JAN-19
<b>WG2976184-7 LCS</b>								
Nitrite (as N)			101.5		%		70-130	24-JAN-19
<b>WG2976184-6 MB</b>								
Nitrite (as N)			<0.010		mg/L		0.01	24-JAN-19
<b>WG2976184-10 MS</b>		<b>L2223895-2</b>						
Nitrite (as N)			104.3		%		70-130	24-JAN-19
<b>NO3-IC-WT</b>								
	<b>Water</b>							
<b>Batch</b>	<b>R4468919</b>							
<b>WG2976184-9 DUP</b>		<b>L2223895-2</b>						
Nitrate (as N)		0.309	0.319		mg/L	3.0	25	24-JAN-19
<b>WG2976184-7 LCS</b>								
Nitrate (as N)			100.8		%		70-130	24-JAN-19
<b>WG2976184-6 MB</b>								
Nitrate (as N)			<0.020		mg/L		0.02	24-JAN-19
<b>WG2976184-10 MS</b>		<b>L2223895-2</b>						



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Contact: LAURA ERMETA

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>NO3-IC-WT</b>								
Batch R4468919								
WG2976184-10	MS	L2223895-2						
Nitrate (as N)			103.4		%		70-130	24-JAN-19
<b>P-T-COL-WT</b>								
Batch R4471987								
WG2977236-3	DUP	L2223895-2						
Phosphorus, Total		0.0298	0.0310		mg/L	4.1	20	28-JAN-19
WG2977236-2	LCS							
Phosphorus, Total			95.7		%		80-120	28-JAN-19
WG2977236-1	MB							
Phosphorus, Total			<0.0030		mg/L		0.003	28-JAN-19
WG2977236-4	MS	L2223895-2						
Phosphorus, Total			92.9		%		70-130	28-JAN-19
<b>PH-WT</b>								
Batch R4467457								
WG2975962-4	DUP	WG2975962-3						
pH		7.91	7.90	J	pH units	0.01	0.2	24-JAN-19
WG2975962-2	LCS							
pH			6.99		pH units		6.9-7.1	24-JAN-19
<b>PHENOLS-4AAP-WT</b>								
Batch R4466011								
WG2976337-3	DUP	L2223760-1						
Phenols (4AAP)		0.0028	0.0029		mg/L	2.0	20	24-JAN-19
WG2976337-2	LCS							
Phenols (4AAP)			105.2		%		85-115	24-JAN-19
WG2976337-1	MB							
Phenols (4AAP)			<0.0010		mg/L		0.001	24-JAN-19
WG2976337-4	MS	L2223760-1						
Phenols (4AAP)			94.3		%		75-125	24-JAN-19
<b>SO4-IC-N-WT</b>								
Batch R4468919								
WG2976184-9	DUP	L2223895-2						
Sulfate (SO4)		177	177		mg/L	0.0	20	24-JAN-19
WG2976184-7	LCS							
Sulfate (SO4)			101.7		%		90-110	24-JAN-19
WG2976184-6	MB							
Sulfate (SO4)			<0.30		mg/L		0.3	24-JAN-19



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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
<b>SO4-IC-N-WT</b>								
Batch R4468919								
WG2976184-10 MS		L2223895-2						
Sulfate (SO4)	Water		N/A	MS-B	%		-	24-JAN-19
<b>SOLIDS-TDS-WT</b>								
Batch R4470647								
WG2976190-3 DUP		L2223005-1						
Total Dissolved Solids	Water	31000	31900		mg/L	2.9	20	24-JAN-19
WG2976190-2 LCS								
Total Dissolved Solids			96.1		%		85-115	24-JAN-19
WG2976190-1 MB								
Total Dissolved Solids			<10		mg/L		10	24-JAN-19
<b>SOLIDS-TSS-WT</b>								
Batch R4470248								
WG2976782-3 DUP		L2223535-7						
Total Suspended Solids	Water	5880	5770		mg/L	1.9	20	26-JAN-19
WG2976782-2 LCS								
Total Suspended Solids			100.6		%		85-115	26-JAN-19
WG2976782-1 MB								
Total Suspended Solids			<2.0		mg/L		2	26-JAN-19
<b>TKN-WT</b>								
Batch R4471414								
WG2976240-3 DUP		L2224333-2						
Total Kjeldahl Nitrogen	Water	0.76	0.82		mg/L	8.5	20	25-JAN-19
WG2976240-2 LCS								
Total Kjeldahl Nitrogen			95.7		%		75-125	25-JAN-19
WG2976240-1 MB								
Total Kjeldahl Nitrogen			<0.15		mg/L		0.15	25-JAN-19
WG2976240-4 MS		L2224333-2						
Total Kjeldahl Nitrogen			120.7		%		70-130	25-JAN-19
Batch R4472791								
WG2977927-3 DUP		L2224091-1						
Total Kjeldahl Nitrogen	Water	1.13	1.10		mg/L	3.1	20	28-JAN-19
WG2977927-2 LCS								
Total Kjeldahl Nitrogen			114.5		%		75-125	28-JAN-19
WG2977927-1 MB								
Total Kjeldahl Nitrogen			<0.15		mg/L		0.15	28-JAN-19
WG2977927-4 MS		L2224091-1						



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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
<b>TKN-WT</b>								
	<b>Water</b>							
<b>Batch</b>	<b>R4472791</b>							
<b>WG2977927-4 MS</b>		<b>L2224091-1</b>						
Total Kjeldahl Nitrogen			105.0		%		70-130	28-JAN-19
<b>VOC-ROU-HS-WT</b>								
	<b>Water</b>							
<b>Batch</b>	<b>R4464861</b>							
<b>WG2972260-4 DUP</b>		<b>WG2972260-3</b>						
1,1,1,2-Tetrachloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	24-JAN-19
1,1,2,2-Tetrachloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	24-JAN-19
1,1,1-Trichloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	24-JAN-19
1,1,2-Trichloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	24-JAN-19
1,2-Dibromoethane		<0.20	<0.20	RPD-NA	ug/L	N/A	30	24-JAN-19
1,1-Dichloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	24-JAN-19
1,1-Dichloroethylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	24-JAN-19
1,2-Dichlorobenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	24-JAN-19
1,2-Dichloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	24-JAN-19
1,2-Dichloropropane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	24-JAN-19
1,3-Dichlorobenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	24-JAN-19
1,4-Dichlorobenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	24-JAN-19
Acetone		<20	<20	RPD-NA	ug/L	N/A	30	24-JAN-19
Benzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	24-JAN-19
Bromodichloromethane		<1.0	<1.0	RPD-NA	ug/L	N/A	30	24-JAN-19
Bromoform		<1.0	<1.0	RPD-NA	ug/L	N/A	30	24-JAN-19
Bromomethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	24-JAN-19
Carbon tetrachloride		<0.50	<0.50	RPD-NA	ug/L	N/A	30	24-JAN-19
Chlorobenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	24-JAN-19
Chloroethane		<1.0	<1.0	RPD-NA	ug/L	N/A	30	24-JAN-19
Chloroform		<1.0	<1.0	RPD-NA	ug/L	N/A	30	24-JAN-19
cis-1,2-Dichloroethylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	24-JAN-19
cis-1,3-Dichloropropene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	24-JAN-19
Dibromochloromethane		<1.0	<1.0	RPD-NA	ug/L	N/A	30	24-JAN-19
Dichlorodifluoromethane		<1.0	<1.0	RPD-NA	ug/L	N/A	30	24-JAN-19
Dichloromethane		<2.0	<2.0	RPD-NA	ug/L	N/A	30	24-JAN-19
Ethylbenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	24-JAN-19
m+p-Xylenes		<1.0	<1.0	RPD-NA	ug/L	N/A	30	24-JAN-19





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455 PHILLIP STREET  
WATERLOO ON N2L 3X2

Contact: LAURA ERMETA

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>VOC-ROU-HS-WT</b>		<b>Water</b>						
<b>Batch</b>	<b>R4464861</b>							
<b>WG2972260-4</b>	<b>DUP</b>	<b>WG2972260-3</b>						
Methyl Ethyl Ketone		<20	<20	RPD-NA	ug/L	N/A	30	24-JAN-19
Methyl Isobutyl Ketone		<20	<20	RPD-NA	ug/L	N/A	30	24-JAN-19
n-Hexane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	24-JAN-19
MTBE		<0.50	<0.50	RPD-NA	ug/L	N/A	30	24-JAN-19
o-Xylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	24-JAN-19
Styrene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	24-JAN-19
Tetrachloroethylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	24-JAN-19
Toluene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	24-JAN-19
trans-1,2-Dichloroethylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	24-JAN-19
trans-1,3-Dichloropropene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	24-JAN-19
Trichloroethylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	24-JAN-19
Trichlorofluoromethane		<1.0	<1.0	RPD-NA	ug/L	N/A	30	24-JAN-19
Vinyl chloride		<0.50	<0.50	RPD-NA	ug/L	N/A	30	24-JAN-19
<b>WG2972260-1</b>	<b>LCS</b>							
1,1,1,2-Tetrachloroethane			93.0		%		70-130	24-JAN-19
1,1,2,2-Tetrachloroethane			88.8		%		70-130	24-JAN-19
1,1,1-Trichloroethane			91.0		%		70-130	24-JAN-19
1,1,2-Trichloroethane			94.4		%		70-130	24-JAN-19
1,2-Dibromoethane			99.2		%		70-130	24-JAN-19
1,1-Dichloroethane			95.5		%		70-130	24-JAN-19
1,1-Dichloroethylene			92.6		%		70-130	24-JAN-19
1,2-Dichlorobenzene			93.2		%		70-130	24-JAN-19
1,2-Dichloroethane			97.9		%		70-130	24-JAN-19
1,2-Dichloropropane			94.5		%		70-130	24-JAN-19
1,3-Dichlorobenzene			94.4		%		70-130	24-JAN-19
1,4-Dichlorobenzene			94.5		%		70-130	24-JAN-19
Acetone			114.4		%		60-140	24-JAN-19
Benzene			96.1		%		70-130	24-JAN-19
Bromodichloromethane			92.5		%		70-130	24-JAN-19
Bromoform			98.2		%		70-130	24-JAN-19
Bromomethane			121.1		%		60-140	24-JAN-19
Carbon tetrachloride			90.7		%		70-130	24-JAN-19
Chlorobenzene			95.1		%		70-130	24-JAN-19



### Quality Control Report

Workorder: L2223895

Report Date: 29-JAN-19

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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
<b>VOC-ROU-HS-WT</b>								
	<b>Water</b>							
<b>Batch</b>	<b>R4464861</b>							
<b>WG2972260-1</b>	<b>LCS</b>							
Chloroethane			90.0		%		70-130	24-JAN-19
Chloroform			94.9		%		70-130	24-JAN-19
cis-1,2-Dichloroethylene			93.6		%		70-130	24-JAN-19
cis-1,3-Dichloropropene			90.2		%		70-130	24-JAN-19
Dibromochloromethane			98.1		%		70-130	24-JAN-19
Dichlorodifluoromethane			94.2		%		50-140	24-JAN-19
Dichloromethane			98.8		%		70-130	24-JAN-19
Ethylbenzene			94.7		%		70-130	24-JAN-19
m+p-Xylenes			95.6		%		70-130	24-JAN-19
Methyl Ethyl Ketone			100.7		%		60-140	24-JAN-19
Methyl Isobutyl Ketone			86.3		%		50-150	24-JAN-19
n-Hexane			89.6		%		70-130	24-JAN-19
MTBE			93.1		%		70-130	24-JAN-19
o-Xylene			93.6		%		70-130	24-JAN-19
Styrene			96.6		%		70-130	24-JAN-19
Tetrachloroethylene			101.6		%		70-130	24-JAN-19
Toluene			90.9		%		70-130	24-JAN-19
trans-1,2-Dichloroethylene			92.8		%		70-130	24-JAN-19
trans-1,3-Dichloropropene			95.0		%		70-130	24-JAN-19
Trichloroethylene			95.2		%		70-130	24-JAN-19
Trichlorofluoromethane			99.3		%		60-140	24-JAN-19
Vinyl chloride			79.4		%		60-140	24-JAN-19
<b>WG2972260-2</b>	<b>MB</b>							
1,1,1,2-Tetrachloroethane			<0.50		ug/L		0.5	24-JAN-19
1,1,2,2-Tetrachloroethane			<0.50		ug/L		0.5	24-JAN-19
1,1,1-Trichloroethane			<0.50		ug/L		0.5	24-JAN-19
1,1,2-Trichloroethane			<0.50		ug/L		0.5	24-JAN-19
1,2-Dibromoethane			<0.20		ug/L		0.2	24-JAN-19
1,1-Dichloroethane			<0.50		ug/L		0.5	24-JAN-19
1,1-Dichloroethylene			<0.50		ug/L		0.5	24-JAN-19
1,2-Dichlorobenzene			<0.50		ug/L		0.5	24-JAN-19
1,2-Dichloroethane			<0.50		ug/L		0.5	24-JAN-19
1,2-Dichloropropane			<0.50		ug/L		0.5	24-JAN-19
1,3-Dichlorobenzene			<0.50		ug/L		0.5	24-JAN-19



### Quality Control Report

Workorder: L2223895

Report Date: 29-JAN-19

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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
<b>VOC-ROU-HS-WT</b>								
	<b>Water</b>							
<b>Batch</b>	<b>R4464861</b>							
<b>WG2972260-2 MB</b>								
1,4-Dichlorobenzene			<0.50		ug/L		0.5	24-JAN-19
Acetone			<20		ug/L		20	24-JAN-19
Benzene			<0.50		ug/L		0.5	24-JAN-19
Bromodichloromethane			<1.0		ug/L		1	24-JAN-19
Bromoform			<1.0		ug/L		1	24-JAN-19
Bromomethane			<0.50		ug/L		0.5	24-JAN-19
Carbon tetrachloride			<0.50		ug/L		0.5	24-JAN-19
Chlorobenzene			<0.50		ug/L		0.5	24-JAN-19
Chloroethane			<1.0		ug/L		1	24-JAN-19
Chloroform			<1.0		ug/L		1	24-JAN-19
cis-1,2-Dichloroethylene			<0.50		ug/L		0.5	24-JAN-19
cis-1,3-Dichloropropene			<0.50		ug/L		0.5	24-JAN-19
Dibromochloromethane			<1.0		ug/L		1	24-JAN-19
Dichlorodifluoromethane			<1.0		ug/L		1	24-JAN-19
Dichloromethane			<2.0		ug/L		2	24-JAN-19
Ethylbenzene			<0.50		ug/L		0.5	24-JAN-19
m+p-Xylenes			<1.0		ug/L		1	24-JAN-19
Methyl Ethyl Ketone			<20		ug/L		20	24-JAN-19
Methyl Isobutyl Ketone			<20		ug/L		20	24-JAN-19
n-Hexane			<0.50		ug/L		0.5	24-JAN-19
MTBE			<0.50		ug/L		0.5	24-JAN-19
o-Xylene			<0.50		ug/L		0.5	24-JAN-19
Styrene			<0.50		ug/L		0.5	24-JAN-19
Tetrachloroethylene			<0.50		ug/L		0.5	24-JAN-19
Toluene			<0.50		ug/L		0.5	24-JAN-19
trans-1,2-Dichloroethylene			<0.50		ug/L		0.5	24-JAN-19
trans-1,3-Dichloropropene			<0.50		ug/L		0.5	24-JAN-19
Trichloroethylene			<0.50		ug/L		0.5	24-JAN-19
Trichlorofluoromethane			<1.0		ug/L		1	24-JAN-19
Vinyl chloride			<0.50		ug/L		0.5	24-JAN-19
Surrogate: 1,4-Difluorobenzene			103.8		%		70-130	24-JAN-19
Surrogate: 4-Bromofluorobenzene			95.3		%		70-130	24-JAN-19
<b>WG2972260-5 MS</b>		<b>WG2972260-3</b>						
1,1,1,2-Tetrachloroethane			92.8		%		50-150	24-JAN-19



## Quality Control Report

Workorder: L2223895

Report Date: 29-JAN-19

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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
<b>VOC-ROU-HS-WT</b>								
	<b>Water</b>							
<b>Batch</b>	<b>R4464861</b>							
<b>WG2972260-5 MS</b>		<b>WG2972260-3</b>						
1,1,2,2-Tetrachloroethane			94.4		%		50-150	24-JAN-19
1,1,1-Trichloroethane			90.2		%		50-150	24-JAN-19
1,1,2-Trichloroethane			94.3		%		50-150	24-JAN-19
1,2-Dibromoethane			99.1		%		50-150	24-JAN-19
1,1-Dichloroethane			94.9		%		50-150	24-JAN-19
1,1-Dichloroethylene			91.2		%		50-150	24-JAN-19
1,2-Dichlorobenzene			94.2		%		50-150	24-JAN-19
1,2-Dichloroethane			96.9		%		50-150	24-JAN-19
1,2-Dichloropropane			94.8		%		50-150	24-JAN-19
1,3-Dichlorobenzene			95.2		%		50-150	24-JAN-19
1,4-Dichlorobenzene			95.7		%		50-150	24-JAN-19
Acetone			108.8		%		50-150	24-JAN-19
Benzene			96.2		%		50-150	24-JAN-19
Bromodichloromethane			92.5		%		50-150	24-JAN-19
Bromoform			98.5		%		50-150	24-JAN-19
Bromomethane			119.8		%		50-150	24-JAN-19
Carbon tetrachloride			89.8		%		50-150	24-JAN-19
Chlorobenzene			95.4		%		50-150	24-JAN-19
Chloroethane			87.8		%		50-150	24-JAN-19
Chloroform			94.2		%		50-150	24-JAN-19
cis-1,2-Dichloroethylene			93.1		%		50-150	24-JAN-19
cis-1,3-Dichloropropene			92.7		%		50-150	24-JAN-19
Dibromochloromethane			98.6		%		50-150	24-JAN-19
Dichlorodifluoromethane			85.8		%		50-150	24-JAN-19
Dichloromethane			98.8		%		50-150	24-JAN-19
Ethylbenzene			95.3		%		50-150	24-JAN-19
m+p-Xylenes			96.3		%		50-150	24-JAN-19
Methyl Ethyl Ketone			100.2		%		50-150	24-JAN-19
Methyl Isobutyl Ketone			86.9		%		50-150	24-JAN-19
n-Hexane			90.4		%		50-150	24-JAN-19
MTBE			94.5		%		50-150	24-JAN-19
o-Xylene			94.2		%		50-150	24-JAN-19
Styrene			97.9		%		50-150	24-JAN-19



## Quality Control Report

Workorder: L2223895

Report Date: 29-JAN-19

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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
<b>VOC-ROU-HS-WT</b>	<b>Water</b>							
<b>Batch</b>	<b>R4464861</b>							
<b>WG2972260-5 MS</b>		<b>WG2972260-3</b>						
Tetrachloroethylene			102.2		%		50-150	24-JAN-19
Toluene			91.1		%		50-150	24-JAN-19
trans-1,2-Dichloroethylene			93.9		%		50-150	24-JAN-19
trans-1,3-Dichloropropene			98.0		%		50-150	24-JAN-19
Trichloroethylene			94.6		%		50-150	24-JAN-19
Trichlorofluoromethane			96.4		%		50-150	24-JAN-19
Vinyl chloride			76.5		%		50-150	24-JAN-19

# Quality Control Report

Workorder: L2223895

Report Date: 29-JAN-19

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.
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.

---

## 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.





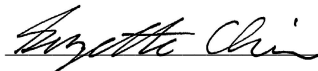
GHD Limited (Waterloo)  
ATTN: LAURA ERMETA  
455 PHILLIP STREET  
WATERLOO ON N2L 3X2

Date Received: 23-JAN-19  
Report Date: 30-JAN-19 09:49 (MT)  
Version: FINAL

Client Phone: 519-884-0510

## Certificate of Analysis

Lab Work Order #: L2223811  
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
L2223811-1 EQ POND DISCHARGE Sampled By: CLIENT on 22-JAN-19 @ 11:30 Matrix: WATER							
<b>Microtox Physical Tests</b>							
Turbidity	N/A				26-JAN-19	26-JAN-19	R4473447
Colour	Colourless				26-JAN-19	26-JAN-19	R4473447
Clarification	None				26-JAN-19	26-JAN-19	R4473447
Initial pH	7.9		0.10	pH	26-JAN-19	26-JAN-19	R4473447
Final pH	7.9		0.10	pH	26-JAN-19	26-JAN-19	R4473447
Lab Treatment	None				26-JAN-19	26-JAN-19	R4473447
<b>Microtox Original</b>							
EC50 (15min) Original	>100		1.0	%	26-JAN-19	26-JAN-19	R4473447
EC20 (15min) Original	>100		1.0	%	26-JAN-19	26-JAN-19	R4473447
EC50 (5min) Original	>100		1.0	%	26-JAN-19	26-JAN-19	R4473447
EC20 (5min) Original	>100		1.0	%	26-JAN-19	26-JAN-19	R4473447
Interpretation Original	NON TOXIC				26-JAN-19	26-JAN-19	R4473447

\* 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.*



Environmental

### Quality Control Report

Workorder: L2223811

Report Date: 30-JAN-19

Page 1 of 3

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

Contact: LAURA ERMETA

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>MICROTOX-ORG-ED</b>								
	Water							
<b>Batch</b>	<b>R4473447</b>							
<b>WG2977524-2 CRM</b>		<b>PHENOL_ED</b>						
EC50 (5min) Original			16.3		mg/L		13-26	26-JAN-19
<b>WG2977524-3 CRM</b>		<b>PHENOL_ED</b>						
EC50 (5min) Original			15.6		mg/L		13-26	26-JAN-19
<b>WG2977524-4 DUP</b>		<b>L2223811-1</b>						
EC50 (15min) Original		>100	>100	RPD-NA	%	N/A		26-JAN-19
EC20 (15min) Original		>100	>100	RPD-NA	%	N/A		26-JAN-19
EC50 (5min) Original		>100	>100	RPD-NA	%	N/A		26-JAN-19
EC20 (5min) Original		>100	>100	RPD-NA	%	N/A		26-JAN-19
<b>WG2977524-1 MB</b>								
EC50 (15min) Original			PASS					26-JAN-19
EC20 (15min) Original			PASS					26-JAN-19
EC50 (5min) Original			PASS					26-JAN-19
EC20 (5min) Original			PASS					26-JAN-19

# Quality Control Report

Workorder: L2223811

Report Date: 30-JAN-19

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

---

# Quality Control Report

Workorder: L2223811

Report Date: 30-JAN-19

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

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## Hold Time Exceedances:

ALS Product Description	Sample ID	Sampling Date	Date Processed	Rec. HT	Actual HT	Units	Qualifier
<b>Microtox</b>							
Microtox Original	1	22-JAN-19 11:30	26-JAN-19 00:00	3	4	days	EHT

## 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 L2223811 were received on 23-JAN-19 09:59.

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

COC Number: 14 -



Page 1 of 1

Canada Toll Free: 1 800 668 9878

L2223811-COFC

www.alsglobal.com

<b>Report To</b>		<b>Acct#13791</b>		<b>Report Format / Distribution</b>		<b>Select Service Level Below (Rush Turnaround Time (TAT) is not available for all tests)</b>											
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 <u>laura.ermeta@ghd.com</u>		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											
<b>Invoice To</b>		<b>Invoice Distribution</b>		<b>Analysis Request</b>													
Same as Report To <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Select Invoice Distribution: <input checked="" type="checkbox"/> EMAIL <input type="checkbox"/> MAIL <input type="checkbox"/> FAX		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		Email 1 or Fax <u>laura.ermeta@ghd.com</u>		MICROTOX (MICROTOX-ORG-ED)													
Company: GHD LIMITED		Email 2		MICROTOX (MICROTOX-PHYSICAL-ED)													
Contact: Laura Ermeta				Number of Containers													
<b>Project Information</b>				<b>Oil and Gas Required Fields (client use)</b>													
ALS Quote #:		Approver ID:		Cost Center:													
Job #: 44985		GL Account:		Routing Code:													
PO / AFE: 73506479		Activity Code:															
LSD:		Location:															
ALS Lab Work Order # (lab use only) <u>L2223811</u>		ALS Contact: Rick H		Sampler:													
<b>ALS Sample # (lab use only)</b>	<b>Sample Identification and/or Coordinates (This description will appear on the report)</b>			<b>Date (dd-mm-yy)</b>	<b>Time (hh:mm)</b>	<b>Sample Type</b>											
	EQ Pond Discharge			22-01-19	11:30	Water	R										
<b>Drinking Water (DW) Samples<sup>1</sup> (client use)</b>				<b>Special Instructions / Specify Criteria to add on report (client Use)</b>				<b>SAMPLE CONDITION AS RECEIVED (lab use only)</b>									
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 type="checkbox"/> No								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					
								3.3°C				FINAL COOLER TEMPERATURES °C					
<b>SHIPMENT RELEASE (client use)</b>				<b>INITIAL SHIPMENT RECEPTION (lab use only)</b>				<b>FINAL SHIPMENT RECEPTION (lab use only)</b>									
Released by: <u>R Tobino</u>		Date: <u>Jan 22/19</u>	Time: <u>13:00</u>	Received by: <u>[Signature]</u>		Date: <u>Jan 23/19</u>	Time: <u>9:57AM</u>	Received by:		Date:		Time:					

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

ALS-FM 0326v-09 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: 26-MAR-19  
Report Date: 02-APR-19 07:31 (MT)  
Version: FINAL

Client Phone: 519-884-0510

## Certificate of Analysis

Lab Work Order #: L2249002  
Project P.O. #: 73506479-1  
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
L2249002-1 EQ POND DISCHARGE							
Sampled By: CLIENT on 25-MAR-19 @ 11:30							
Matrix: WATER							
<b>Field Tests</b>							
pH, Client Supplied	7.50		0.10	pH		27-MAR-19	R4585186
Temperature, Client	4.0		-50	Deg. C		27-MAR-19	R4585186
<b>Physical Tests</b>							
Conductivity	876		3.0	umhos/cm		27-MAR-19	R4586007
Hardness (as CaCO3)	284	HTC	1.3	mg/L		28-MAR-19	
pH	7.94		0.10	pH units		27-MAR-19	R4586007
Total Suspended Solids	7.2		2.0	mg/L	28-MAR-19	29-MAR-19	R4586819
Total Dissolved Solids	520	DLDS	20	mg/L		31-MAR-19	R4588370
<b>Anions and Nutrients</b>							
Alkalinity, Total (as CaCO3)	170		10	mg/L		27-MAR-19	R4586007
Unionized ammonia	0.00583		0.00022	mg/L		28-MAR-19	
Ammonia, Total (as N)	1.32	DLHC	0.050	mg/L		27-MAR-19	R4585509
Bromide (Br)	3.27		0.10	mg/L		27-MAR-19	R4586420
Chloride (Cl)	91.8		0.50	mg/L		27-MAR-19	R4586420
Fluoride (F)	0.619		0.020	mg/L		27-MAR-19	R4586420
Nitrate (as N)	0.394		0.020	mg/L		27-MAR-19	R4586420
Nitrite (as N)	<0.010		0.010	mg/L		27-MAR-19	R4586420
Total Kjeldahl Nitrogen	1.88		0.15	mg/L	29-MAR-19	29-MAR-19	R4587300
Phosphorus, Total	0.0295		0.0030	mg/L	29-MAR-19	01-APR-19	R4588063
Sulfate (SO4)	144		0.30	mg/L		27-MAR-19	R4586420
<b>Cyanides</b>							
Cyanide, Total	<0.0020		0.0020	mg/L		27-MAR-19	R4586276
<b>Organic / Inorganic Carbon</b>							
Dissolved Carbon Filtration Location	LAB					27-MAR-19	R4585382
Dissolved Organic Carbon	6.60		0.50	mg/L	27-MAR-19	28-MAR-19	R4587941
<b>Total Metals</b>							
Aluminum (Al)-Total	0.566		0.010	mg/L	27-MAR-19	27-MAR-19	R4585960
Antimony (Sb)-Total	0.00065		0.00010	mg/L	27-MAR-19	27-MAR-19	R4585960
Arsenic (As)-Total	0.00139		0.00010	mg/L	27-MAR-19	27-MAR-19	R4585960
Barium (Ba)-Total	0.0599		0.00020	mg/L	27-MAR-19	27-MAR-19	R4585960
Beryllium (Be)-Total	<0.00010		0.00010	mg/L	27-MAR-19	27-MAR-19	R4585960
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	27-MAR-19	27-MAR-19	R4585960
Boron (B)-Total	0.156		0.010	mg/L	27-MAR-19	27-MAR-19	R4585960
Cadmium (Cd)-Total	<0.00030	DLM	0.00030	mg/L	27-MAR-19	27-MAR-19	R4585960
Calcium (Ca)-Total	76.9		0.50	mg/L	27-MAR-19	27-MAR-19	R4585960
Cobalt (Co)-Total	0.00186		0.00010	mg/L	27-MAR-19	27-MAR-19	R4585960
Copper (Cu)-Total	0.0025		0.0010	mg/L	27-MAR-19	27-MAR-19	R4585960
Iron (Fe)-Total	0.587		0.050	mg/L	27-MAR-19	27-MAR-19	R4585960
Lead (Pb)-Total	0.00059		0.00010	mg/L	27-MAR-19	27-MAR-19	R4585960
Magnesium (Mg)-Total	22.2		0.050	mg/L	27-MAR-19	27-MAR-19	R4585960
Manganese (Mn)-Total	0.128		0.00050	mg/L	27-MAR-19	27-MAR-19	R4585960
Mercury (Hg)-Total	<0.000010		0.000010	mg/L		27-MAR-19	R4585440

\* 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
L2249002-1 EQ POND DISCHARGE							
Sampled By: CLIENT on 25-MAR-19 @ 11:30							
Matrix: WATER							
<b>Total Metals</b>							
Molybdenum (Mo)-Total	0.0820		0.000050	mg/L	27-MAR-19	27-MAR-19	R4585960
Nickel (Ni)-Total	0.0130		0.00050	mg/L	27-MAR-19	27-MAR-19	R4585960
Potassium (K)-Total	16.7		0.050	mg/L	27-MAR-19	27-MAR-19	R4585960
Selenium (Se)-Total	0.00202		0.000050	mg/L	27-MAR-19	27-MAR-19	R4585960
Silicon (Si)-Total	3.08		0.10	mg/L	27-MAR-19	27-MAR-19	R4585960
Silver (Ag)-Total	<0.000050		0.000050	mg/L	27-MAR-19	27-MAR-19	R4585960
Sodium (Na)-Total	55.2		0.50	mg/L	27-MAR-19	27-MAR-19	R4585960
Strontium (Sr)-Total	0.569		0.0010	mg/L	27-MAR-19	27-MAR-19	R4585960
Thallium (Tl)-Total	0.000372		0.000010	mg/L	27-MAR-19	27-MAR-19	R4585960
Tin (Sn)-Total	<0.00010		0.00010	mg/L	27-MAR-19	27-MAR-19	R4585960
Vanadium (V)-Total	0.00151		0.00050	mg/L	27-MAR-19	27-MAR-19	R4585960
Zinc (Zn)-Total	0.0063		0.0030	mg/L	27-MAR-19	27-MAR-19	R4585960
<b>Speciated Metals</b>							
Chromium, Hexavalent	<0.00050		0.00050	mg/L		27-MAR-19	R4585961
<b>Aggregate Organics</b>							
COD	29		10	mg/L		28-MAR-19	R4586381
Phenols (4AAP)	0.0026		0.0010	mg/L		27-MAR-19	R4586132
<b>Volatile Organic Compounds</b>							
Acetone	283		20	ug/L		28-MAR-19	R4585953
Benzene	<0.50		0.50	ug/L		28-MAR-19	R4585953
Bromodichloromethane	<1.0		1.0	ug/L		28-MAR-19	R4585953
Bromoform	<1.0		1.0	ug/L		28-MAR-19	R4585953
Bromomethane	<0.50		0.50	ug/L		28-MAR-19	R4585953
Carbon tetrachloride	<0.50		0.50	ug/L		28-MAR-19	R4585953
Chlorobenzene	<0.50		0.50	ug/L		28-MAR-19	R4585953
Dibromochloromethane	<1.0		1.0	ug/L		28-MAR-19	R4585953
Chloroethane	<1.0		1.0	ug/L		28-MAR-19	R4585953
Chloroform	<1.0		1.0	ug/L		28-MAR-19	R4585953
1,2-Dibromoethane	<0.20		0.20	ug/L		28-MAR-19	R4585953
1,2-Dichlorobenzene	<0.50		0.50	ug/L		28-MAR-19	R4585953
1,3-Dichlorobenzene	<0.50		0.50	ug/L		28-MAR-19	R4585953
1,4-Dichlorobenzene	<0.50		0.50	ug/L		28-MAR-19	R4585953
Dichlorodifluoromethane	<1.0		1.0	ug/L		28-MAR-19	R4585953
1,1-Dichloroethane	<0.50		0.50	ug/L		28-MAR-19	R4585953
1,2-Dichloroethane	<0.50		0.50	ug/L		28-MAR-19	R4585953
1,1-Dichloroethylene	<0.50		0.50	ug/L		28-MAR-19	R4585953
cis-1,2-Dichloroethylene	1.25		0.50	ug/L		28-MAR-19	R4585953
trans-1,2-Dichloroethylene	<0.50		0.50	ug/L		28-MAR-19	R4585953
Dichloromethane	<2.0		2.0	ug/L		28-MAR-19	R4585953
1,2-Dichloropropane	<0.50		0.50	ug/L		28-MAR-19	R4585953
cis-1,3-Dichloropropene	<0.50		0.50	ug/L		28-MAR-19	R4585953
trans-1,3-Dichloropropene	<0.50		0.50	ug/L		28-MAR-19	R4585953

\* 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
L2249002-1 EQ POND DISCHARGE							
Sampled By: CLIENT on 25-MAR-19 @ 11:30							
Matrix: WATER							
<b>Volatile Organic Compounds</b>							
Ethylbenzene	<0.50		0.50	ug/L		28-MAR-19	R4585953
n-Hexane	<0.50		0.50	ug/L		28-MAR-19	R4585953
Methyl Ethyl Ketone	69		20	ug/L		28-MAR-19	R4585953
Methyl Isobutyl Ketone	<20		20	ug/L		28-MAR-19	R4585953
MTBE	1.28		0.50	ug/L		28-MAR-19	R4585953
Styrene	<0.50		0.50	ug/L		28-MAR-19	R4585953
1,1,1,2-Tetrachloroethane	<0.50		0.50	ug/L		28-MAR-19	R4585953
1,1,2,2-Tetrachloroethane	<0.50		0.50	ug/L		28-MAR-19	R4585953
Tetrachloroethylene	<0.50		0.50	ug/L		28-MAR-19	R4585953
Toluene	0.61		0.50	ug/L		28-MAR-19	R4585953
1,1,1-Trichloroethane	<0.50		0.50	ug/L		28-MAR-19	R4585953
1,1,2-Trichloroethane	<0.50		0.50	ug/L		28-MAR-19	R4585953
Trichloroethylene	<0.50		0.50	ug/L		28-MAR-19	R4585953
Trichlorofluoromethane	<1.0		1.0	ug/L		28-MAR-19	R4585953
Vinyl chloride	<0.50		0.50	ug/L		28-MAR-19	R4585953
o-Xylene	<0.50		0.50	ug/L		28-MAR-19	R4585953
m+p-Xylenes	<1.0		1.0	ug/L		28-MAR-19	R4585953
Xylenes (Total)	<1.1		1.1	ug/L		28-MAR-19	
Surrogate: 4-Bromofluorobenzene	94.5		70-130	%		28-MAR-19	R4585953
Surrogate: 1,4-Difluorobenzene	97.2		70-130	%		28-MAR-19	R4585953
<b>Trihalomethanes</b>							
Total THMs	<2.0		2.0	ug/L		28-MAR-19	
<b>Acid Extractables</b>							
2,3,6-Trichlorophenol	<0.50		0.50	ug/L	27-MAR-19	28-MAR-19	R4586298
Surrogate: 2,4,6-Tribromophenol	139.0		40-150	%	27-MAR-19	28-MAR-19	R4586298
<b>Semi-Volatile Organics</b>							
Acenaphthene	<0.20		0.20	ug/L	27-MAR-19	28-MAR-19	R4586360
Acenaphthylene	<0.20		0.20	ug/L	27-MAR-19	28-MAR-19	R4586360
Anthracene	<0.20		0.20	ug/L	27-MAR-19	28-MAR-19	R4586360
Benzo(a)anthracene	<0.20		0.20	ug/L	27-MAR-19	28-MAR-19	R4586360
Benzo(a)pyrene	<0.050		0.050	ug/L	27-MAR-19	28-MAR-19	R4586360
Benzo(b)fluoranthene	<0.20		0.20	ug/L	27-MAR-19	28-MAR-19	R4586360
Benzo(ghi)perylene	<0.20		0.20	ug/L	27-MAR-19	28-MAR-19	R4586360
Benzo(k)fluoranthene	<0.20		0.20	ug/L	27-MAR-19	28-MAR-19	R4586360
4-Chloroaniline	<0.40		0.40	ug/L	27-MAR-19	28-MAR-19	R4586360
Bis(2-chloroethyl)ether	<0.40		0.40	ug/L	27-MAR-19	28-MAR-19	R4586360
2-Chlorophenol	<0.30		0.30	ug/L	27-MAR-19	28-MAR-19	R4586360
Chrysene	<0.20		0.20	ug/L	27-MAR-19	28-MAR-19	R4586360
Dibenzo(a,h)anthracene	<0.20		0.20	ug/L	27-MAR-19	28-MAR-19	R4586360
1,2-Dichlorobenzene	<0.40		0.40	ug/L	27-MAR-19	28-MAR-19	R4586360
1,3-Dichlorobenzene	<0.40		0.40	ug/L	27-MAR-19	28-MAR-19	R4586360
1,4-Dichlorobenzene	<0.40		0.40	ug/L	27-MAR-19	28-MAR-19	R4586360

\* 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
L2249002-1 EQ POND DISCHARGE Sampled By: CLIENT on 25-MAR-19 @ 11:30 Matrix: WATER							
<b>Semi-Volatile Organics</b>							
3,3'-Dichlorobenzidine	<0.40		0.40	ug/L	27-MAR-19	28-MAR-19	R4586360
2,4-Dichlorophenol	<0.30		0.30	ug/L	27-MAR-19	28-MAR-19	R4586360
Diethylphthalate	<0.20		0.20	ug/L	27-MAR-19	28-MAR-19	R4586360
Dimethylphthalate	<0.20		0.20	ug/L	27-MAR-19	28-MAR-19	R4586360
2,4-Dimethylphenol	<0.50		0.50	ug/L	27-MAR-19	28-MAR-19	R4586360
2,4-Dinitrophenol	<1.0		1.0	ug/L	27-MAR-19	28-MAR-19	R4586360
2,4-Dinitrotoluene	<0.40		0.40	ug/L	27-MAR-19	28-MAR-19	R4586360
2,6-Dinitrotoluene	<0.40		0.40	ug/L	27-MAR-19	28-MAR-19	R4586360
Bis(2-ethylhexyl)phthalate	<2.0		2.0	ug/L	27-MAR-19	28-MAR-19	R4586360
Fluoranthene	<0.20		0.20	ug/L	27-MAR-19	28-MAR-19	R4586360
Fluorene	<0.20		0.20	ug/L	27-MAR-19	28-MAR-19	R4586360
Hexachlorobenzene	<0.040		0.040	ug/L	27-MAR-19	28-MAR-19	R4586360
Hexachlorobutadiene	<0.20		0.20	ug/L	27-MAR-19	28-MAR-19	R4586360
Indeno(1,2,3-cd)pyrene	<0.20		0.20	ug/L	27-MAR-19	28-MAR-19	R4586360
1-Methylnaphthalene	<0.40		0.40	ug/L	27-MAR-19	28-MAR-19	R4586360
2-Methylnaphthalene	<0.40		0.40	ug/L	27-MAR-19	28-MAR-19	R4586360
Naphthalene	<0.20		0.20	ug/L	27-MAR-19	28-MAR-19	R4586360
Pentachlorophenol	<0.50		0.50	ug/L	27-MAR-19	28-MAR-19	R4586360
Perylene	<0.20		0.20	ug/L	27-MAR-19	28-MAR-19	R4586360
Phenanthrene	<0.20		0.20	ug/L	27-MAR-19	28-MAR-19	R4586360
Pyrene	<0.20		0.20	ug/L	27-MAR-19	28-MAR-19	R4586360
2,3,4,5-Tetrachlorophenol	<0.50		0.50	ug/L	27-MAR-19	28-MAR-19	R4586360
2,3,4,6-Tetrachlorophenol	<0.50		0.50	ug/L	27-MAR-19	28-MAR-19	R4586360
1,2,4-Trichlorobenzene	<0.40		0.40	ug/L	27-MAR-19	28-MAR-19	R4586360
2,4,5-Trichlorophenol	<0.50		0.50	ug/L	27-MAR-19	28-MAR-19	R4586360
2,4,6-Trichlorophenol	<0.50		0.50	ug/L	27-MAR-19	28-MAR-19	R4586360
Surrogate: 2-Fluorobiphenyl	86.8		40-130	%	27-MAR-19	28-MAR-19	R4586360
Surrogate: Nitrobenzene d5	90.4		40-130	%	27-MAR-19	28-MAR-19	R4586360
Surrogate: p-Terphenyl d14	92.9		40-130	%	27-MAR-19	28-MAR-19	R4586360
Report Remarks : raised Cd LOR to remove potential Mo interference							
L2249002-2 WEST STORM WATER POND Sampled By: CLIENT on 25-MAR-19 @ 11:30 Matrix: WATER							
<b>Field Tests</b>							
pH, Client Supplied	7.60		0.10	pH		27-MAR-19	R4585186
Temperature, Client	4.0		-50	Deg. C		27-MAR-19	R4585186
<b>Physical Tests</b>							
Conductivity	869		3.0	umhos/cm		27-MAR-19	R4586007
Hardness (as CaCO3)	283	HTC	1.3	mg/L		28-MAR-19	
pH	7.89		0.10	pH units		27-MAR-19	R4586007
Total Suspended Solids	10.1		2.0	mg/L	28-MAR-19	29-MAR-19	R4586819
Total Dissolved Solids	517	DLDS	20	mg/L		31-MAR-19	R4588370

\* 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
L2249002-2 WEST STORM WATER POND Sampled By: CLIENT on 25-MAR-19 @ 11:30 Matrix: WATER							
<b>Physical Tests</b>							
<b>Anions and Nutrients</b>							
Alkalinity, Total (as CaCO <sub>3</sub> )	170		10	mg/L		27-MAR-19	R4586007
Unionized ammonia	0.00221		0.000055	mg/L		28-MAR-19	
Ammonia, Total (as N)	0.399		0.010	mg/L		27-MAR-19	R4585509
Bromide (Br)	3.52		0.10	mg/L		27-MAR-19	R4586420
Chloride (Cl)	90.7		0.50	mg/L		27-MAR-19	R4586420
Fluoride (F)	0.608		0.020	mg/L		27-MAR-19	R4586420
Nitrate (as N)	0.297		0.020	mg/L		27-MAR-19	R4586420
Nitrite (as N)	<0.010		0.010	mg/L		27-MAR-19	R4586420
Total Kjeldahl Nitrogen	1.46		0.15	mg/L	29-MAR-19	29-MAR-19	R4587300
Phosphorus, Total	0.0395		0.0030	mg/L	29-MAR-19	01-APR-19	R4588063
Sulfate (SO <sub>4</sub> )	139		0.30	mg/L		27-MAR-19	R4586420
<b>Cyanides</b>							
Cyanide, Total	<0.0020		0.0020	mg/L		27-MAR-19	R4586276
<b>Organic / Inorganic Carbon</b>							
Dissolved Carbon Filtration Location	LAB					27-MAR-19	R4585382
Dissolved Organic Carbon	7.49		0.50	mg/L	27-MAR-19	28-MAR-19	R4587941
<b>Total Metals</b>							
Aluminum (Al)-Total	0.767		0.010	mg/L	27-MAR-19	27-MAR-19	R4585960
Antimony (Sb)-Total	0.00064		0.00010	mg/L	27-MAR-19	27-MAR-19	R4585960
Arsenic (As)-Total	0.00145		0.00010	mg/L	27-MAR-19	27-MAR-19	R4585960
Barium (Ba)-Total	0.0628		0.00020	mg/L	27-MAR-19	27-MAR-19	R4585960
Beryllium (Be)-Total	<0.00010		0.00010	mg/L	27-MAR-19	27-MAR-19	R4585960
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	27-MAR-19	27-MAR-19	R4585960
Boron (B)-Total	0.153		0.010	mg/L	27-MAR-19	27-MAR-19	R4585960
Cadmium (Cd)-Total	<0.00030	DLM	0.00030	mg/L	27-MAR-19	27-MAR-19	R4585960
Calcium (Ca)-Total	76.9		0.50	mg/L	27-MAR-19	27-MAR-19	R4585960
Cobalt (Co)-Total	0.00244		0.00010	mg/L	27-MAR-19	27-MAR-19	R4585960
Copper (Cu)-Total	0.0030		0.0010	mg/L	27-MAR-19	27-MAR-19	R4585960
Iron (Fe)-Total	0.859		0.050	mg/L	27-MAR-19	27-MAR-19	R4585960
Lead (Pb)-Total	0.00083		0.00010	mg/L	27-MAR-19	27-MAR-19	R4585960
Magnesium (Mg)-Total	22.0		0.050	mg/L	27-MAR-19	27-MAR-19	R4585960
Manganese (Mn)-Total	0.246		0.00050	mg/L	27-MAR-19	27-MAR-19	R4585960
Mercury (Hg)-Total	<0.000010		0.000010	mg/L		27-MAR-19	R4585440
Molybdenum (Mo)-Total	0.0817		0.000050	mg/L	27-MAR-19	27-MAR-19	R4585960
Nickel (Ni)-Total	0.0140		0.00050	mg/L	27-MAR-19	27-MAR-19	R4585960
Potassium (K)-Total	16.0		0.050	mg/L	27-MAR-19	27-MAR-19	R4585960
Selenium (Se)-Total	0.00182		0.000050	mg/L	27-MAR-19	27-MAR-19	R4585960
Silicon (Si)-Total	3.13		0.10	mg/L	27-MAR-19	27-MAR-19	R4585960
Silver (Ag)-Total	<0.000050		0.000050	mg/L	27-MAR-19	27-MAR-19	R4585960
Sodium (Na)-Total	54.9		0.50	mg/L	27-MAR-19	27-MAR-19	R4585960
Strontium (Sr)-Total	0.574		0.0010	mg/L	27-MAR-19	27-MAR-19	R4585960

\* 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
L2249002-2 WEST STORM WATER POND							
Sampled By: CLIENT on 25-MAR-19 @ 11:30							
Matrix: WATER							
<b>Total Metals</b>							
Thallium (Tl)-Total	0.000678		0.000010	mg/L	27-MAR-19	27-MAR-19	R4585960
Tin (Sn)-Total	<0.00010		0.00010	mg/L	27-MAR-19	27-MAR-19	R4585960
Vanadium (V)-Total	0.00198		0.00050	mg/L	27-MAR-19	27-MAR-19	R4585960
Zinc (Zn)-Total	0.0078		0.0030	mg/L	27-MAR-19	27-MAR-19	R4585960
<b>Speciated Metals</b>							
Chromium, Hexavalent	<0.00050		0.00050	mg/L		27-MAR-19	R4585961
<b>Aggregate Organics</b>							
COD	32		10	mg/L		28-MAR-19	R4586381
Phenols (4AAP)	0.0046		0.0010	mg/L		27-MAR-19	R4586132
<b>Volatile Organic Compounds</b>							
Acetone	298		20	ug/L		28-MAR-19	R4585953
Benzene	<0.50		0.50	ug/L		28-MAR-19	R4585953
Bromodichloromethane	<1.0		1.0	ug/L		28-MAR-19	R4585953
Bromoform	<1.0		1.0	ug/L		28-MAR-19	R4585953
Bromomethane	<0.50		0.50	ug/L		28-MAR-19	R4585953
Carbon tetrachloride	<0.50		0.50	ug/L		28-MAR-19	R4585953
Chlorobenzene	<0.50		0.50	ug/L		28-MAR-19	R4585953
Dibromochloromethane	<1.0		1.0	ug/L		28-MAR-19	R4585953
Chloroethane	<1.0		1.0	ug/L		28-MAR-19	R4585953
Chloroform	<1.0		1.0	ug/L		28-MAR-19	R4585953
1,2-Dibromoethane	<0.20		0.20	ug/L		28-MAR-19	R4585953
1,2-Dichlorobenzene	<0.50		0.50	ug/L		28-MAR-19	R4585953
1,3-Dichlorobenzene	<0.50		0.50	ug/L		28-MAR-19	R4585953
1,4-Dichlorobenzene	<0.50		0.50	ug/L		28-MAR-19	R4585953
Dichlorodifluoromethane	<1.0		1.0	ug/L		28-MAR-19	R4585953
1,1-Dichloroethane	<0.50		0.50	ug/L		28-MAR-19	R4585953
1,2-Dichloroethane	<0.50		0.50	ug/L		28-MAR-19	R4585953
1,1-Dichloroethylene	<0.50		0.50	ug/L		28-MAR-19	R4585953
cis-1,2-Dichloroethylene	2.33		0.50	ug/L		28-MAR-19	R4585953
trans-1,2-Dichloroethylene	<0.50		0.50	ug/L		28-MAR-19	R4585953
Dichloromethane	<2.0		2.0	ug/L		28-MAR-19	R4585953
1,2-Dichloropropane	<0.50		0.50	ug/L		28-MAR-19	R4585953
cis-1,3-Dichloropropene	<0.50		0.50	ug/L		28-MAR-19	R4585953
trans-1,3-Dichloropropene	<0.50		0.50	ug/L		28-MAR-19	R4585953
Ethylbenzene	<0.50		0.50	ug/L		28-MAR-19	R4585953
n-Hexane	<0.50		0.50	ug/L		28-MAR-19	R4585953
Methyl Ethyl Ketone	87		20	ug/L		28-MAR-19	R4585953
Methyl Isobutyl Ketone	<20		20	ug/L		28-MAR-19	R4585953
MTBE	1.36		0.50	ug/L		28-MAR-19	R4585953
Styrene	<0.50		0.50	ug/L		28-MAR-19	R4585953
1,1,1,2-Tetrachloroethane	<0.50		0.50	ug/L		28-MAR-19	R4585953
1,1,2,2-Tetrachloroethane	<0.50		0.50	ug/L		28-MAR-19	R4585953

\* 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
L2249002-2 WEST STORM WATER POND Sampled By: CLIENT on 25-MAR-19 @ 11:30 Matrix: WATER							
<b>Volatile Organic Compounds</b>							
Tetrachloroethylene	<0.50		0.50	ug/L		28-MAR-19	R4585953
Toluene	1.16		0.50	ug/L		28-MAR-19	R4585953
1,1,1-Trichloroethane	<0.50		0.50	ug/L		28-MAR-19	R4585953
1,1,2-Trichloroethane	<0.50		0.50	ug/L		28-MAR-19	R4585953
Trichloroethylene	0.97		0.50	ug/L		28-MAR-19	R4585953
Trichlorofluoromethane	<1.0		1.0	ug/L		28-MAR-19	R4585953
Vinyl chloride	<0.50		0.50	ug/L		28-MAR-19	R4585953
o-Xylene	0.58		0.50	ug/L		28-MAR-19	R4585953
m+p-Xylenes	<1.0		1.0	ug/L		28-MAR-19	R4585953
Xylenes (Total)	<1.1		1.1	ug/L		28-MAR-19	
Surrogate: 4-Bromofluorobenzene	92.3		70-130	%		28-MAR-19	R4585953
Surrogate: 1,4-Difluorobenzene	97.9		70-130	%		28-MAR-19	R4585953
<b>Trihalomethanes</b>							
Total THMs	<2.0		2.0	ug/L		28-MAR-19	
<b>Acid Extractables</b>							
2,3,6-Trichlorophenol	<0.50		0.50	ug/L	27-MAR-19	28-MAR-19	R4586298
Surrogate: 2,4,6-Tribromophenol	149.7		40-150	%	27-MAR-19	28-MAR-19	R4586298
<b>Semi-Volatile Organics</b>							
Acenaphthene	<0.20		0.20	ug/L	27-MAR-19	28-MAR-19	R4586360
Acenaphthylene	<0.20		0.20	ug/L	27-MAR-19	28-MAR-19	R4586360
Anthracene	<0.20		0.20	ug/L	27-MAR-19	28-MAR-19	R4586360
Benzo(a)anthracene	<0.20		0.20	ug/L	27-MAR-19	28-MAR-19	R4586360
Benzo(a)pyrene	<0.050		0.050	ug/L	27-MAR-19	28-MAR-19	R4586360
Benzo(b)fluoranthene	<0.20		0.20	ug/L	27-MAR-19	28-MAR-19	R4586360
Benzo(ghi)perylene	<0.20		0.20	ug/L	27-MAR-19	28-MAR-19	R4586360
Benzo(k)fluoranthene	<0.20		0.20	ug/L	27-MAR-19	28-MAR-19	R4586360
4-Chloroaniline	<0.40		0.40	ug/L	27-MAR-19	28-MAR-19	R4586360
Bis(2-chloroethyl)ether	<0.40		0.40	ug/L	27-MAR-19	28-MAR-19	R4586360
2-Chlorophenol	<0.30		0.30	ug/L	27-MAR-19	28-MAR-19	R4586360
Chrysene	<0.20		0.20	ug/L	27-MAR-19	28-MAR-19	R4586360
Dibenzo(a,h)anthracene	<0.20		0.20	ug/L	27-MAR-19	28-MAR-19	R4586360
1,2-Dichlorobenzene	<0.40		0.40	ug/L	27-MAR-19	28-MAR-19	R4586360
1,3-Dichlorobenzene	<0.40		0.40	ug/L	27-MAR-19	28-MAR-19	R4586360
1,4-Dichlorobenzene	<0.40		0.40	ug/L	27-MAR-19	28-MAR-19	R4586360
3,3'-Dichlorobenzidine	<0.40		0.40	ug/L	27-MAR-19	28-MAR-19	R4586360
2,4-Dichlorophenol	<0.30		0.30	ug/L	27-MAR-19	28-MAR-19	R4586360
Diethylphthalate	<0.20		0.20	ug/L	27-MAR-19	28-MAR-19	R4586360
Dimethylphthalate	<0.20		0.20	ug/L	27-MAR-19	28-MAR-19	R4586360
2,4-Dimethylphenol	<0.50		0.50	ug/L	27-MAR-19	28-MAR-19	R4586360
2,4-Dinitrophenol	<1.0		1.0	ug/L	27-MAR-19	28-MAR-19	R4586360
2,4-Dinitrotoluene	<0.40		0.40	ug/L	27-MAR-19	28-MAR-19	R4586360
2,6-Dinitrotoluene	<0.40		0.40	ug/L	27-MAR-19	28-MAR-19	R4586360

\* 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
L2249002-2 WEST STORM WATER POND Sampled By: CLIENT on 25-MAR-19 @ 11:30 Matrix: WATER							
<b>Semi-Volatile Organics</b>							
Bis(2-ethylhexyl)phthalate	<2.0		2.0	ug/L	27-MAR-19	28-MAR-19	R4586360
Fluoranthene	<0.20		0.20	ug/L	27-MAR-19	28-MAR-19	R4586360
Fluorene	<0.20		0.20	ug/L	27-MAR-19	28-MAR-19	R4586360
Hexachlorobenzene	<0.040		0.040	ug/L	27-MAR-19	28-MAR-19	R4586360
Hexachlorobutadiene	<0.20		0.20	ug/L	27-MAR-19	28-MAR-19	R4586360
Indeno(1,2,3-cd)pyrene	<0.20		0.20	ug/L	27-MAR-19	28-MAR-19	R4586360
1-Methylnaphthalene	<0.40		0.40	ug/L	27-MAR-19	28-MAR-19	R4586360
2-Methylnaphthalene	<0.40		0.40	ug/L	27-MAR-19	28-MAR-19	R4586360
Naphthalene	<0.20		0.20	ug/L	27-MAR-19	28-MAR-19	R4586360
Pentachlorophenol	<0.50		0.50	ug/L	27-MAR-19	28-MAR-19	R4586360
Perylene	<0.20		0.20	ug/L	27-MAR-19	28-MAR-19	R4586360
Phenanthrene	<0.20		0.20	ug/L	27-MAR-19	28-MAR-19	R4586360
Pyrene	<0.20		0.20	ug/L	27-MAR-19	28-MAR-19	R4586360
2,3,4,5-Tetrachlorophenol	<0.50		0.50	ug/L	27-MAR-19	28-MAR-19	R4586360
2,3,4,6-Tetrachlorophenol	<0.50		0.50	ug/L	27-MAR-19	28-MAR-19	R4586360
1,2,4-Trichlorobenzene	<0.40		0.40	ug/L	27-MAR-19	28-MAR-19	R4586360
2,4,5-Trichlorophenol	<0.50		0.50	ug/L	27-MAR-19	28-MAR-19	R4586360
2,4,6-Trichlorophenol	<0.50		0.50	ug/L	27-MAR-19	28-MAR-19	R4586360
Surrogate: 2-Fluorobiphenyl	94.0		40-130	%	27-MAR-19	28-MAR-19	R4586360
Surrogate: Nitrobenzene d5	94.5		40-130	%	27-MAR-19	28-MAR-19	R4586360
Surrogate: p-Terphenyl d14	103.8		40-130	%	27-MAR-19	28-MAR-19	R4586360
Report Remarks : raised Cd LOR to remove potential	Mo interference						
L2249002-3 EAST STORM WATER POND Sampled By: CLIENT on 25-MAR-19 @ 11:30 Matrix: WATER							
<b>Field Tests</b>							
pH, Client Supplied	7.40		0.10	pH		27-MAR-19	R4585186
Temperature, Client	4.0		-50	Deg. C		27-MAR-19	R4585186
<b>Physical Tests</b>							
Conductivity	881		3.0	umhos/cm		27-MAR-19	R4586007
Hardness (as CaCO3)	296	HTC	1.3	mg/L		28-MAR-19	
pH	7.56		0.10	pH units		27-MAR-19	R4586007
Total Suspended Solids	10.7		2.0	mg/L	28-MAR-19	29-MAR-19	R4586819
Total Dissolved Solids	529	DLDS	20	mg/L		31-MAR-19	R4588370
<b>Anions and Nutrients</b>							
Alkalinity, Total (as CaCO3)	183		10	mg/L		27-MAR-19	R4586007
Unionized ammonia	0.00433		0.00017	mg/L		28-MAR-19	
Ammonia, Total (as N)	1.24	DLHC	0.050	mg/L		27-MAR-19	R4585509
Bromide (Br)	1.52		0.10	mg/L		27-MAR-19	R4586420
Chloride (Cl)	77.5		0.50	mg/L		27-MAR-19	R4586420
Fluoride (F)	0.680		0.020	mg/L		27-MAR-19	R4586420
Nitrate (as N)	0.062		0.020	mg/L		27-MAR-19	R4586420

\* 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
L2249002-3 EAST STORM WATER POND Sampled By: CLIENT on 25-MAR-19 @ 11:30 Matrix: WATER							
<b>Anions and Nutrients</b>							
Nitrite (as N)	<0.010		0.010	mg/L		27-MAR-19	R4586420
Total Kjeldahl Nitrogen	1.75		0.15	mg/L	29-MAR-19	29-MAR-19	R4587300
Phosphorus, Total	0.0475		0.0030	mg/L	29-MAR-19	01-APR-19	R4588063
Sulfate (SO4)	159		0.30	mg/L		27-MAR-19	R4586420
<b>Cyanides</b>							
Cyanide, Total	<0.0020		0.0020	mg/L		27-MAR-19	R4586276
<b>Organic / Inorganic Carbon</b>							
Dissolved Carbon Filtration Location	LAB					27-MAR-19	R4585382
Dissolved Organic Carbon	5.75		0.50	mg/L	27-MAR-19	28-MAR-19	R4587941
<b>Total Metals</b>							
Aluminum (Al)-Total	0.802		0.010	mg/L	27-MAR-19	27-MAR-19	R4585960
Antimony (Sb)-Total	0.00051		0.00010	mg/L	27-MAR-19	27-MAR-19	R4585960
Arsenic (As)-Total	0.00240		0.00010	mg/L	27-MAR-19	27-MAR-19	R4585960
Barium (Ba)-Total	0.0624		0.00020	mg/L	27-MAR-19	27-MAR-19	R4585960
Beryllium (Be)-Total	<0.00010		0.00010	mg/L	27-MAR-19	27-MAR-19	R4585960
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	27-MAR-19	27-MAR-19	R4585960
Boron (B)-Total	0.100		0.010	mg/L	27-MAR-19	27-MAR-19	R4585960
Cadmium (Cd)-Total	<0.00070	DLM	0.00070	mg/L	27-MAR-19	27-MAR-19	R4585960
Calcium (Ca)-Total	79.3		0.50	mg/L	27-MAR-19	27-MAR-19	R4585960
Cobalt (Co)-Total	0.00170		0.00010	mg/L	27-MAR-19	27-MAR-19	R4585960
Copper (Cu)-Total	0.0023		0.0010	mg/L	27-MAR-19	27-MAR-19	R4585960
Iron (Fe)-Total	1.20		0.050	mg/L	27-MAR-19	27-MAR-19	R4585960
Lead (Pb)-Total	0.00250		0.00010	mg/L	27-MAR-19	27-MAR-19	R4585960
Magnesium (Mg)-Total	23.9		0.050	mg/L	27-MAR-19	27-MAR-19	R4585960
Manganese (Mn)-Total	0.368		0.00050	mg/L	27-MAR-19	27-MAR-19	R4585960
Mercury (Hg)-Total	0.000028		0.000010	mg/L		27-MAR-19	R4585440
Molybdenum (Mo)-Total	0.0958		0.000050	mg/L	27-MAR-19	27-MAR-19	R4585960
Nickel (Ni)-Total	0.00714		0.00050	mg/L	27-MAR-19	27-MAR-19	R4585960
Potassium (K)-Total	20.0		0.050	mg/L	27-MAR-19	27-MAR-19	R4585960
Selenium (Se)-Total	0.00161		0.000050	mg/L	27-MAR-19	27-MAR-19	R4585960
Silicon (Si)-Total	4.06		0.10	mg/L	27-MAR-19	27-MAR-19	R4585960
Silver (Ag)-Total	<0.000050		0.000050	mg/L	27-MAR-19	27-MAR-19	R4585960
Sodium (Na)-Total	45.5		0.50	mg/L	27-MAR-19	27-MAR-19	R4585960
Strontium (Sr)-Total	0.665		0.0010	mg/L	27-MAR-19	27-MAR-19	R4585960
Thallium (Tl)-Total	0.000773		0.000010	mg/L	27-MAR-19	27-MAR-19	R4585960
Tin (Sn)-Total	<0.00010		0.00010	mg/L	27-MAR-19	27-MAR-19	R4585960
Vanadium (V)-Total	0.00201		0.00050	mg/L	27-MAR-19	27-MAR-19	R4585960
Zinc (Zn)-Total	0.0200		0.0030	mg/L	27-MAR-19	27-MAR-19	R4585960
<b>Speciated Metals</b>							
Chromium, Hexavalent	<0.00050		0.00050	mg/L		27-MAR-19	R4585961
<b>Aggregate Organics</b>							
COD	25		10	mg/L		28-MAR-19	R4586381

\* 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
L2249002-3 EAST STORM WATER POND Sampled By: CLIENT on 25-MAR-19 @ 11:30 Matrix: WATER							
<b>Aggregate Organics</b>							
Phenols (4AAP)	0.0024		0.0010	mg/L		27-MAR-19	R4586132
<b>Volatile Organic Compounds</b>							
Acetone	<20		20	ug/L		28-MAR-19	R4585953
Benzene	<0.50		0.50	ug/L		28-MAR-19	R4585953
Bromodichloromethane	<1.0		1.0	ug/L		28-MAR-19	R4585953
Bromoform	<1.0		1.0	ug/L		28-MAR-19	R4585953
Bromomethane	<0.50		0.50	ug/L		28-MAR-19	R4585953
Carbon tetrachloride	<0.50		0.50	ug/L		28-MAR-19	R4585953
Chlorobenzene	<0.50		0.50	ug/L		28-MAR-19	R4585953
Dibromochloromethane	<1.0		1.0	ug/L		28-MAR-19	R4585953
Chloroethane	<1.0		1.0	ug/L		28-MAR-19	R4585953
Chloroform	<1.0		1.0	ug/L		28-MAR-19	R4585953
1,2-Dibromoethane	<0.20		0.20	ug/L		28-MAR-19	R4585953
1,2-Dichlorobenzene	<0.50		0.50	ug/L		28-MAR-19	R4585953
1,3-Dichlorobenzene	<0.50		0.50	ug/L		28-MAR-19	R4585953
1,4-Dichlorobenzene	<0.50		0.50	ug/L		28-MAR-19	R4585953
Dichlorodifluoromethane	<1.0		1.0	ug/L		28-MAR-19	R4585953
1,1-Dichloroethane	0.74		0.50	ug/L		28-MAR-19	R4585953
1,2-Dichloroethane	<0.50		0.50	ug/L		28-MAR-19	R4585953
1,1-Dichloroethylene	<0.50		0.50	ug/L		28-MAR-19	R4585953
cis-1,2-Dichloroethylene	<0.50		0.50	ug/L		28-MAR-19	R4585953
trans-1,2-Dichloroethylene	<0.50		0.50	ug/L		28-MAR-19	R4585953
Dichloromethane	<2.0		2.0	ug/L		28-MAR-19	R4585953
1,2-Dichloropropane	<0.50		0.50	ug/L		28-MAR-19	R4585953
cis-1,3-Dichloropropene	<0.50		0.50	ug/L		28-MAR-19	R4585953
trans-1,3-Dichloropropene	<0.50		0.50	ug/L		28-MAR-19	R4585953
Ethylbenzene	<0.50		0.50	ug/L		28-MAR-19	R4585953
n-Hexane	<0.50		0.50	ug/L		28-MAR-19	R4585953
Methyl Ethyl Ketone	<20		20	ug/L		28-MAR-19	R4585953
Methyl Isobutyl Ketone	<20		20	ug/L		28-MAR-19	R4585953
MTBE	<0.50		0.50	ug/L		28-MAR-19	R4585953
Styrene	<0.50		0.50	ug/L		28-MAR-19	R4585953
1,1,1,2-Tetrachloroethane	<0.50		0.50	ug/L		28-MAR-19	R4585953
1,1,2,2-Tetrachloroethane	<0.50		0.50	ug/L		28-MAR-19	R4585953
Tetrachloroethylene	<0.50		0.50	ug/L		28-MAR-19	R4585953
Toluene	<0.50		0.50	ug/L		28-MAR-19	R4585953
1,1,1-Trichloroethane	<0.50		0.50	ug/L		28-MAR-19	R4585953
1,1,2-Trichloroethane	<0.50		0.50	ug/L		28-MAR-19	R4585953
Trichloroethylene	<0.50		0.50	ug/L		28-MAR-19	R4585953
Trichlorofluoromethane	<1.0		1.0	ug/L		28-MAR-19	R4585953
Vinyl chloride	<0.50		0.50	ug/L		28-MAR-19	R4585953

\* 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
L2249002-3 EAST STORM WATER POND Sampled By: CLIENT on 25-MAR-19 @ 11:30 Matrix: WATER							
<b>Volatile Organic Compounds</b>							
o-Xylene	<0.50		0.50	ug/L		28-MAR-19	R4585953
m+p-Xylenes	<1.0		1.0	ug/L		28-MAR-19	R4585953
Xylenes (Total)	<1.1		1.1	ug/L		28-MAR-19	
Surrogate: 4-Bromofluorobenzene	92.0		70-130	%		28-MAR-19	R4585953
Surrogate: 1,4-Difluorobenzene	97.6		70-130	%		28-MAR-19	R4585953
<b>Trihalomethanes</b>							
Total THMs	<2.0		2.0	ug/L		28-MAR-19	
<b>Acid Extractables</b>							
2,3,6-Trichlorophenol	<0.50		0.50	ug/L	27-MAR-19	28-MAR-19	R4586298
Surrogate: 2,4,6-Tribromophenol	139.9		40-150	%	27-MAR-19	28-MAR-19	R4586298
<b>Semi-Volatile Organics</b>							
Acenaphthene	<0.20		0.20	ug/L	27-MAR-19	28-MAR-19	R4586360
Acenaphthylene	<0.20		0.20	ug/L	27-MAR-19	28-MAR-19	R4586360
Anthracene	<0.20		0.20	ug/L	27-MAR-19	28-MAR-19	R4586360
Benzo(a)anthracene	<0.20		0.20	ug/L	27-MAR-19	28-MAR-19	R4586360
Benzo(a)pyrene	<0.050		0.050	ug/L	27-MAR-19	28-MAR-19	R4586360
Benzo(b)fluoranthene	<0.20		0.20	ug/L	27-MAR-19	28-MAR-19	R4586360
Benzo(ghi)perylene	<0.20		0.20	ug/L	27-MAR-19	28-MAR-19	R4586360
Benzo(k)fluoranthene	<0.20		0.20	ug/L	27-MAR-19	28-MAR-19	R4586360
4-Chloroaniline	<0.40		0.40	ug/L	27-MAR-19	28-MAR-19	R4586360
Bis(2-chloroethyl)ether	<0.40		0.40	ug/L	27-MAR-19	28-MAR-19	R4586360
2-Chlorophenol	<0.30		0.30	ug/L	27-MAR-19	28-MAR-19	R4586360
Chrysene	<0.20		0.20	ug/L	27-MAR-19	28-MAR-19	R4586360
Dibenzo(a,h)anthracene	<0.20		0.20	ug/L	27-MAR-19	28-MAR-19	R4586360
1,2-Dichlorobenzene	<0.40		0.40	ug/L	27-MAR-19	28-MAR-19	R4586360
1,3-Dichlorobenzene	<0.40		0.40	ug/L	27-MAR-19	28-MAR-19	R4586360
1,4-Dichlorobenzene	<0.40		0.40	ug/L	27-MAR-19	28-MAR-19	R4586360
3,3'-Dichlorobenzidine	<0.40		0.40	ug/L	27-MAR-19	28-MAR-19	R4586360
2,4-Dichlorophenol	<0.30		0.30	ug/L	27-MAR-19	28-MAR-19	R4586360
Diethylphthalate	<0.20		0.20	ug/L	27-MAR-19	28-MAR-19	R4586360
Dimethylphthalate	<0.20		0.20	ug/L	27-MAR-19	28-MAR-19	R4586360
2,4-Dimethylphenol	<0.50		0.50	ug/L	27-MAR-19	28-MAR-19	R4586360
2,4-Dinitrophenol	<1.0		1.0	ug/L	27-MAR-19	28-MAR-19	R4586360
2,4-Dinitrotoluene	<0.40		0.40	ug/L	27-MAR-19	28-MAR-19	R4586360
2,6-Dinitrotoluene	<0.40		0.40	ug/L	27-MAR-19	28-MAR-19	R4586360
Bis(2-ethylhexyl)phthalate	<2.0		2.0	ug/L	27-MAR-19	28-MAR-19	R4586360
Fluoranthene	<0.20		0.20	ug/L	27-MAR-19	28-MAR-19	R4586360
Fluorene	<0.20		0.20	ug/L	27-MAR-19	28-MAR-19	R4586360
Hexachlorobenzene	<0.040		0.040	ug/L	27-MAR-19	28-MAR-19	R4586360
Hexachlorobutadiene	<0.20		0.20	ug/L	27-MAR-19	28-MAR-19	R4586360
Indeno(1,2,3-cd)pyrene	<0.20		0.20	ug/L	27-MAR-19	28-MAR-19	R4586360
1-Methylnaphthalene	<0.40		0.40	ug/L	27-MAR-19	28-MAR-19	R4586360

\* 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
L2249002-3 EAST STORM WATER POND Sampled By: CLIENT on 25-MAR-19 @ 11:30 Matrix: WATER							
<b>Semi-Volatile Organics</b>							
2-Methylnaphthalene	<0.40		0.40	ug/L	27-MAR-19	28-MAR-19	R4586360
Naphthalene	<0.20		0.20	ug/L	27-MAR-19	28-MAR-19	R4586360
Pentachlorophenol	<0.50		0.50	ug/L	27-MAR-19	28-MAR-19	R4586360
Perylene	<0.20		0.20	ug/L	27-MAR-19	28-MAR-19	R4586360
Phenanthrene	<0.20		0.20	ug/L	27-MAR-19	28-MAR-19	R4586360
Pyrene	<0.20		0.20	ug/L	27-MAR-19	28-MAR-19	R4586360
2,3,4,5-Tetrachlorophenol	<0.50		0.50	ug/L	27-MAR-19	28-MAR-19	R4586360
2,3,4,6-Tetrachlorophenol	<0.50		0.50	ug/L	27-MAR-19	28-MAR-19	R4586360
1,2,4-Trichlorobenzene	<0.40		0.40	ug/L	27-MAR-19	28-MAR-19	R4586360
2,4,5-Trichlorophenol	<0.50		0.50	ug/L	27-MAR-19	28-MAR-19	R4586360
2,4,6-Trichlorophenol	<0.50		0.50	ug/L	27-MAR-19	28-MAR-19	R4586360
Surrogate: 2-Fluorobiphenyl	87.8		40-130	%	27-MAR-19	28-MAR-19	R4586360
Surrogate: Nitrobenzene d5	91.7		40-130	%	27-MAR-19	28-MAR-19	R4586360
Surrogate: p-Terphenyl d14	88.1		40-130	%	27-MAR-19	28-MAR-19	R4586360
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	Cyanide, Total	MS-B	L2249002-1, -2, -3
Matrix Spike	Aluminum (Al)-Total	MS-B	L2249002-1, -2, -3
Matrix Spike	Barium (Ba)-Total	MS-B	L2249002-1, -2, -3
Matrix Spike	Boron (B)-Total	MS-B	L2249002-1, -2, -3
Matrix Spike	Calcium (Ca)-Total	MS-B	L2249002-1, -2, -3
Matrix Spike	Iron (Fe)-Total	MS-B	L2249002-1, -2, -3
Matrix Spike	Magnesium (Mg)-Total	MS-B	L2249002-1, -2, -3
Matrix Spike	Manganese (Mn)-Total	MS-B	L2249002-1, -2, -3
Matrix Spike	Molybdenum (Mo)-Total	MS-B	L2249002-1, -2, -3
Matrix Spike	Potassium (K)-Total	MS-B	L2249002-1, -2, -3
Matrix Spike	Silicon (Si)-Total	MS-B	L2249002-1, -2, -3
Matrix Spike	Sodium (Na)-Total	MS-B	L2249002-1, -2, -3
Matrix Spike	Strontium (Sr)-Total	MS-B	L2249002-1, -2, -3
Matrix Spike	Ammonia, Total (as N)	MS-B	L2249002-1, -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 <sub>3</sub> ) 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).			

## Reference Information

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 CaCO <sub>3</sub> 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-F-WT	Water	Ammonia in Water by Fluorescence	J. ENVIRON. MONIT., 2005, 7, 37-42, RSC
This analysis is carried out, on sulfuric acid preserved samples, using procedures modified from J. Environ. Monit., 2005, 7, 37 - 42, The Royal Society of Chemistry, "Flow-injection analysis with fluorescence detection for the determination of trace levels of ammonium in seawater", Roslyn J. Waston et al.			
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.			
		Total Kjeldahl Nitrogen	APHA 4500-Norg D

## Reference Information

TKN-WT                      Water

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-      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
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WT	ALS ENVIRONMENTAL - WATERLOO, ONTARIO, CANADA
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### 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: L2249002

Report Date: 02-APR-19

Page 1 of 18

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

Contact: LAURA ERMETA

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>625-ACID-EXTRA-WT</b>	<b>Water</b>							
<b>Batch</b>	<b>R4586298</b>							
<b>WG3014907-2 LCS</b>								
2,3,6-Trichlorophenol			92.0		%		50-130	28-MAR-19
<b>WG3014907-1 MB</b>								
2,3,6-Trichlorophenol			<0.50		ug/L		0.5	28-MAR-19
Surrogate: 2,4,6-Tribromophenol			90.8		%		40-150	28-MAR-19
<b>625-WT</b>	<b>Water</b>							
<b>Batch</b>	<b>R4586360</b>							
<b>WG3014907-2 LCS</b>								
1-Methylnaphthalene			80.8		%		50-140	28-MAR-19
1,2-Dichlorobenzene			84.8		%		40-130	28-MAR-19
1,2,4-Trichlorobenzene			81.0		%		50-130	28-MAR-19
1,3-Dichlorobenzene			82.6		%		50-140	28-MAR-19
1,4-Dichlorobenzene			82.4		%		40-130	28-MAR-19
2-Chlorophenol			83.2		%		65-130	28-MAR-19
2-Methylnaphthalene			82.3		%		50-140	28-MAR-19
2,3,4,5-Tetrachlorophenol			90.6		%		50-130	28-MAR-19
2,3,4,6-Tetrachlorophenol			89.1		%		65-130	28-MAR-19
2,4-Dichlorophenol			92.2		%		65-130	28-MAR-19
2,4-Dimethylphenol			79.5		%		30-130	28-MAR-19
2,4-Dinitrophenol			75.8		%		40-140	28-MAR-19
2,4-Dinitrotoluene			92.6		%		50-140	28-MAR-19
2,4,5-Trichlorophenol			96.5		%		65-130	28-MAR-19
2,4,6-Trichlorophenol			89.2		%		65-130	28-MAR-19
2,6-Dinitrotoluene			86.7		%		50-140	28-MAR-19
3,3'-Dichlorobenzidine			59.6		%		50-140	28-MAR-19
4-Chloroaniline			65.8		%		30-140	28-MAR-19
Acenaphthene			82.0		%		50-140	28-MAR-19
Acenaphthylene			86.2		%		50-140	28-MAR-19
Anthracene			85.6		%		50-140	28-MAR-19
Benzo(a)anthracene			88.2		%		50-140	28-MAR-19
Benzo(a)pyrene			81.4		%		60-130	28-MAR-19
Benzo(b)fluoranthene			84.8		%		50-140	28-MAR-19
Benzo(ghi)perylene			80.8		%		50-140	28-MAR-19
Benzo(k)fluoranthene			90.7		%		50-140	28-MAR-19
Bis(2-chloroethyl)ether			84.9		%		50-140	28-MAR-19



### Quality Control Report

Workorder: L2249002

Report Date: 02-APR-19

Page 2 of 18

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

Contact: LAURA ERMETA

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>625-WT</b>	<b>Water</b>							
<b>Batch</b>	<b>R4586360</b>							
<b>WG3014907-2 LCS</b>								
Bis(2-ethylhexyl)phthalate			110.1		%		50-140	28-MAR-19
Chrysene			92.6		%		50-140	28-MAR-19
Dibenzo(a,h)anthracene			80.8		%		50-140	28-MAR-19
Diethylphthalate			89.9		%		50-140	28-MAR-19
Dimethylphthalate			89.1		%		50-140	28-MAR-19
Fluoranthene			100.6		%		50-140	28-MAR-19
Fluorene			87.4		%		50-140	28-MAR-19
Hexachlorobenzene			82.6		%		40-130	28-MAR-19
Hexachlorobutadiene			79.7		%		40-130	28-MAR-19
Indeno(1,2,3-cd)pyrene			78.2		%		50-140	28-MAR-19
Naphthalene			89.1		%		50-140	28-MAR-19
Pentachlorophenol			79.4		%		65-130	28-MAR-19
Perylene			84.7		%		50-140	28-MAR-19
Phenanthrene			86.4		%		50-140	28-MAR-19
Pyrene			97.4		%		50-140	28-MAR-19
<b>WG3014907-1 MB</b>								
1-Methylnaphthalene			<0.40		ug/L		0.4	28-MAR-19
1,2-Dichlorobenzene			<0.40		ug/L		0.4	28-MAR-19
1,2,4-Trichlorobenzene			<0.40		ug/L		0.4	28-MAR-19
1,3-Dichlorobenzene			<0.40		ug/L		0.4	28-MAR-19
1,4-Dichlorobenzene			<0.40		ug/L		0.4	28-MAR-19
2-Chlorophenol			<0.30		ug/L		0.3	28-MAR-19
2-Methylnaphthalene			<0.40		ug/L		0.4	28-MAR-19
2,3,4,5-Tetrachlorophenol			<0.50		ug/L		0.5	28-MAR-19
2,3,4,6-Tetrachlorophenol			<0.50		ug/L		0.5	28-MAR-19
2,4-Dichlorophenol			<0.30		ug/L		0.3	28-MAR-19
2,4-Dimethylphenol			<0.50		ug/L		0.5	28-MAR-19
2,4-Dinitrophenol			<1.0		ug/L		1	28-MAR-19
2,4-Dinitrotoluene			<0.40		ug/L		0.4	28-MAR-19
2,4,5-Trichlorophenol			<0.50		ug/L		0.5	28-MAR-19
2,4,6-Trichlorophenol			<0.50		ug/L		0.5	28-MAR-19
2,6-Dinitrotoluene			<0.40		ug/L		0.4	28-MAR-19
3,3'-Dichlorobenzidine			<0.40		ug/L		0.4	28-MAR-19
4-Chloroaniline			<0.40		ug/L		0.4	28-MAR-19





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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
<b>625-WT</b>		<b>Water</b>						
<b>Batch</b>	<b>R4586360</b>							
<b>WG3014907-1</b>	<b>MB</b>							
Acenaphthene			<0.20		ug/L		0.2	28-MAR-19
Acenaphthylene			<0.20		ug/L		0.2	28-MAR-19
Anthracene			<0.20		ug/L		0.2	28-MAR-19
Benzo(a)anthracene			<0.20		ug/L		0.2	28-MAR-19
Benzo(a)pyrene			<0.050		ug/L		0.05	28-MAR-19
Benzo(b)fluoranthene			<0.20		ug/L		0.2	28-MAR-19
Benzo(ghi)perylene			<0.20		ug/L		0.2	28-MAR-19
Benzo(k)fluoranthene			<0.20		ug/L		0.2	28-MAR-19
Bis(2-chloroethyl)ether			<0.40		ug/L		0.4	28-MAR-19
Bis(2-ethylhexyl)phthalate			<1.0		ug/L		1	28-MAR-19
Chrysene			<0.20		ug/L		0.2	28-MAR-19
Dibenzo(a,h)anthracene			<0.20		ug/L		0.2	28-MAR-19
Diethylphthalate			<0.20		ug/L		0.2	28-MAR-19
Dimethylphthalate			<0.20		ug/L		0.2	28-MAR-19
Fluoranthene			<0.20		ug/L		0.2	28-MAR-19
Fluorene			<0.20		ug/L		0.2	28-MAR-19
Hexachlorobenzene			<0.040		ug/L		0.04	28-MAR-19
Hexachlorobutadiene			<0.20		ug/L		0.2	28-MAR-19
Indeno(1,2,3-cd)pyrene			<0.20		ug/L		0.2	28-MAR-19
Naphthalene			<0.20		ug/L		0.2	28-MAR-19
Pentachlorophenol			<0.50		ug/L		0.5	28-MAR-19
Perylene			<0.20		ug/L		0.2	28-MAR-19
Phenanthrene			<0.20		ug/L		0.2	28-MAR-19
Pyrene			<0.20		ug/L		0.2	28-MAR-19
Surrogate: 2-Fluorobiphenyl			81.4		%		40-130	28-MAR-19
Surrogate: Nitrobenzene d5			85.8		%		40-130	28-MAR-19
Surrogate: p-Terphenyl d14			101.1		%		40-130	28-MAR-19
<b>ALK-WT</b>		<b>Water</b>						
<b>Batch</b>	<b>R4586007</b>							
<b>WG3014935-4</b>	<b>DUP</b>	<b>WG3014935-3</b>						
Alkalinity, Total (as CaCO3)		105	101		mg/L	4.0	20	27-MAR-19
<b>WG3014935-2</b>	<b>LCS</b>							
Alkalinity, Total (as CaCO3)			107.7		%		85-115	27-MAR-19
<b>WG3014935-1</b>	<b>MB</b>							



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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
<b>ALK-WT</b>		<b>Water</b>						
<b>Batch</b>	<b>R4586007</b>							
<b>WG3014935-1</b>	<b>MB</b>							
Alkalinity, Total (as CaCO3)			<10		mg/L		10	27-MAR-19
<b>BR-IC-N-WT</b>		<b>Water</b>						
<b>Batch</b>	<b>R4586420</b>							
<b>WG3015254-15</b>	<b>DUP</b>	<b>WG3015254-13</b>						
Bromide (Br)		<0.10	<0.10	RPD-NA	mg/L	N/A	20	27-MAR-19
<b>WG3015254-12</b>	<b>LCS</b>							
Bromide (Br)			103.5		%		85-115	27-MAR-19
<b>WG3015254-11</b>	<b>MB</b>							
Bromide (Br)			<0.10		mg/L		0.1	27-MAR-19
<b>WG3015254-14</b>	<b>MS</b>	<b>WG3015254-13</b>						
Bromide (Br)			89.6		%		75-125	27-MAR-19
<b>CL-IC-N-WT</b>		<b>Water</b>						
<b>Batch</b>	<b>R4586420</b>							
<b>WG3015254-15</b>	<b>DUP</b>	<b>WG3015254-13</b>						
Chloride (Cl)		60.0	60.0		mg/L	0.0	20	27-MAR-19
<b>WG3015254-12</b>	<b>LCS</b>							
Chloride (Cl)			99.5		%		90-110	27-MAR-19
<b>WG3015254-11</b>	<b>MB</b>							
Chloride (Cl)			<0.50		mg/L		0.5	27-MAR-19
<b>WG3015254-14</b>	<b>MS</b>	<b>WG3015254-13</b>						
Chloride (Cl)			98.6		%		75-125	27-MAR-19
<b>CN-TOT-WT</b>		<b>Water</b>						
<b>Batch</b>	<b>R4586276</b>							
<b>WG3015083-3</b>	<b>DUP</b>	<b>L2248571-1</b>						
Cyanide, Total		1.99	2.01		mg/L	1.3	20	27-MAR-19
<b>WG3015083-2</b>	<b>LCS</b>							
Cyanide, Total			84.3		%		80-120	27-MAR-19
<b>WG3015083-1</b>	<b>MB</b>							
Cyanide, Total			<0.0020		mg/L		0.002	27-MAR-19
<b>WG3015083-4</b>	<b>MS</b>	<b>L2248571-1</b>						
Cyanide, Total			N/A	MS-B	%		-	27-MAR-19
<b>COD-T-WT</b>		<b>Water</b>						



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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
<b>COD-T-WT</b>								
	Water							
Batch	R4586381							
<b>WG3015880-3</b>	<b>DUP</b>	<b>L2249002-1</b>						
COD		29	31		mg/L	7.7	20	28-MAR-19
<b>WG3015880-2</b>	<b>LCS</b>		102.4		%		85-115	28-MAR-19
COD								
<b>WG3015880-1</b>	<b>MB</b>		<10		mg/L		10	28-MAR-19
COD								
<b>WG3015880-4</b>	<b>MS</b>	<b>L2249002-1</b>	120.3		%		75-125	28-MAR-19
COD								
<b>CR-CR6-IC-WT</b>								
	Water							
Batch	R4585961							
<b>WG3015370-4</b>	<b>DUP</b>	<b>WG3015370-3</b>						
Chromium, Hexavalent		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	27-MAR-19
<b>WG3015370-2</b>	<b>LCS</b>		101.1		%		80-120	27-MAR-19
Chromium, Hexavalent								
<b>WG3015370-1</b>	<b>MB</b>		<0.00050		mg/L		0.0005	27-MAR-19
Chromium, Hexavalent								
<b>WG3015370-5</b>	<b>MS</b>	<b>WG3015370-3</b>	97.4		%		70-130	27-MAR-19
Chromium, Hexavalent								
<b>DOC-WT</b>								
	Water							
Batch	R4587941							
<b>WG3015304-3</b>	<b>DUP</b>	<b>L2249377-1</b>						
Dissolved Organic Carbon		0.83	0.87		mg/L	3.6	25	28-MAR-19
<b>WG3015304-2</b>	<b>LCS</b>		100.9		%		70-130	28-MAR-19
Dissolved Organic Carbon								
<b>WG3015304-1</b>	<b>MB</b>		<0.50		mg/L		0.5	28-MAR-19
Dissolved Organic Carbon								
<b>WG3015304-4</b>	<b>MS</b>	<b>L2249377-1</b>	105.5		%		70-130	28-MAR-19
Dissolved Organic Carbon								
<b>EC-WT</b>								
	Water							
Batch	R4586007							
<b>WG3014935-4</b>	<b>DUP</b>	<b>WG3014935-3</b>						
Conductivity		658	666		umhos/cm	1.2	10	27-MAR-19
<b>WG3014935-2</b>	<b>LCS</b>		100.2		%		90-110	27-MAR-19
Conductivity								
<b>WG3014935-1</b>	<b>MB</b>		<3.0		umhos/cm		3	27-MAR-19
Conductivity								
<b>F-IC-N-WT</b>								
	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
<b>F-IC-N-WT</b>		<b>Water</b>						
<b>Batch</b>	<b>R4586420</b>							
<b>WG3015254-15</b>	<b>DUP</b>	<b>WG3015254-13</b>						
Fluoride (F)		0.430	0.428		mg/L	0.5	20	27-MAR-19
<b>WG3015254-12</b>	<b>LCS</b>							
Fluoride (F)			100.1		%		90-110	27-MAR-19
<b>WG3015254-11</b>	<b>MB</b>							
Fluoride (F)			<0.020		mg/L		0.02	27-MAR-19
<b>WG3015254-14</b>	<b>MS</b>	<b>WG3015254-13</b>						
Fluoride (F)			94.8		%		75-125	27-MAR-19
<b>HG-T-CVAA-WT</b>		<b>Water</b>						
<b>Batch</b>	<b>R4585440</b>							
<b>WG3015152-3</b>	<b>DUP</b>	<b>L2248953-1</b>						
Mercury (Hg)-Total		<0.000010	<0.000010	RPD-NA	mg/L	N/A	20	27-MAR-19
<b>WG3015152-2</b>	<b>LCS</b>							
Mercury (Hg)-Total			91.8		%		80-120	27-MAR-19
<b>WG3015152-1</b>	<b>MB</b>							
Mercury (Hg)-Total			<0.000010		mg/L		0.00001	27-MAR-19
<b>WG3015152-4</b>	<b>MS</b>	<b>L2249002-1</b>						
Mercury (Hg)-Total			86.9		%		70-130	27-MAR-19
<b>MET-T-CCMS-WT</b>		<b>Water</b>						
<b>Batch</b>	<b>R4585960</b>							
<b>WG3014840-4</b>	<b>DUP</b>	<b>WG3014840-3</b>						
Aluminum (Al)-Total		0.566	0.579		mg/L	2.3	20	27-MAR-19
Antimony (Sb)-Total		0.00065	0.00063		mg/L	2.9	20	27-MAR-19
Arsenic (As)-Total		0.00139	0.00138		mg/L	0.2	20	27-MAR-19
Barium (Ba)-Total		0.0599	0.0601		mg/L	0.4	20	27-MAR-19
Beryllium (Be)-Total		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	27-MAR-19
Bismuth (Bi)-Total		<0.000050	<0.000050	RPD-NA	mg/L	N/A	20	27-MAR-19
Boron (B)-Total		0.156	0.161		mg/L	3.5	20	27-MAR-19
Cadmium (Cd)-Total		0.000230	0.000232		mg/L	1.0	20	27-MAR-19
Calcium (Ca)-Total		76.9	79.5		mg/L	3.4	20	27-MAR-19
Cobalt (Co)-Total		0.00186	0.00187		mg/L	0.6	20	27-MAR-19
Copper (Cu)-Total		0.0025	0.0026		mg/L	2.9	20	27-MAR-19
Iron (Fe)-Total		0.587	0.591		mg/L	0.7	20	27-MAR-19
Lead (Pb)-Total		0.000588	0.000597		mg/L	1.5	20	27-MAR-19
Magnesium (Mg)-Total		22.2	21.9		mg/L	1.8	20	27-MAR-19
Manganese (Mn)-Total		0.128	0.125		mg/L	2.0	20	27-MAR-19



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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
<b>MET-T-CCMS-WT</b>								
	<b>Water</b>							
<b>Batch</b>	<b>R4585960</b>							
<b>WG3014840-4</b>	<b>DUP</b>	<b>WG3014840-3</b>						
Molybdenum (Mo)-Total		0.0820	0.0826		mg/L	0.7	20	27-MAR-19
Nickel (Ni)-Total		0.0130	0.0126		mg/L	2.8	20	27-MAR-19
Potassium (K)-Total		16.7	16.9		mg/L	0.8	20	27-MAR-19
Selenium (Se)-Total		0.00202	0.00186		mg/L	7.8	20	27-MAR-19
Silicon (Si)-Total		3.08	2.87		mg/L	7.2	20	27-MAR-19
Silver (Ag)-Total		<0.000050	<0.000050	RPD-NA	mg/L	N/A	20	27-MAR-19
Sodium (Na)-Total		55.2	55.4		mg/L	0.3	20	27-MAR-19
Strontium (Sr)-Total		0.569	0.561		mg/L	1.4	20	27-MAR-19
Thallium (Tl)-Total		0.000372	0.000373		mg/L	0.4	20	27-MAR-19
Tin (Sn)-Total		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	27-MAR-19
Vanadium (V)-Total		0.00151	0.00157		mg/L	3.9	20	27-MAR-19
Zinc (Zn)-Total		0.0063	0.0058		mg/L	8.1	20	27-MAR-19
<b>WG3014840-2</b>	<b>LCS</b>							
Aluminum (Al)-Total			97.7		%		80-120	27-MAR-19
Antimony (Sb)-Total			96.6		%		80-120	27-MAR-19
Arsenic (As)-Total			93.6		%		80-120	27-MAR-19
Barium (Ba)-Total			96.4		%		80-120	27-MAR-19
Beryllium (Be)-Total			96.9		%		80-120	27-MAR-19
Bismuth (Bi)-Total			94.9		%		80-120	27-MAR-19
Boron (B)-Total			101.2		%		80-120	27-MAR-19
Cadmium (Cd)-Total			97.6		%		80-120	27-MAR-19
Calcium (Ca)-Total			95.7		%		80-120	27-MAR-19
Cobalt (Co)-Total			93.8		%		80-120	27-MAR-19
Copper (Cu)-Total			93.1		%		80-120	27-MAR-19
Iron (Fe)-Total			100.3		%		80-120	27-MAR-19
Lead (Pb)-Total			98.2		%		80-120	27-MAR-19
Magnesium (Mg)-Total			100.1		%		80-120	27-MAR-19
Manganese (Mn)-Total			96.8		%		80-120	27-MAR-19
Molybdenum (Mo)-Total			98.5		%		80-120	27-MAR-19
Nickel (Ni)-Total			93.1		%		80-120	27-MAR-19
Potassium (K)-Total			95.4		%		80-120	27-MAR-19
Selenium (Se)-Total			93.5		%		80-120	27-MAR-19
Silicon (Si)-Total			98.3		%		60-140	27-MAR-19



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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
<b>MET-T-CCMS-WT</b>								
	<b>Water</b>							
<b>Batch</b>	<b>R4585960</b>							
<b>WG3014840-2</b>	<b>LCS</b>							
Silver (Ag)-Total			98.8		%		80-120	27-MAR-19
Sodium (Na)-Total			93.6		%		80-120	27-MAR-19
Strontium (Sr)-Total			97.1		%		80-120	27-MAR-19
Thallium (Tl)-Total			96.3		%		80-120	27-MAR-19
Tin (Sn)-Total			96.2		%		80-120	27-MAR-19
Vanadium (V)-Total			96.3		%		80-120	27-MAR-19
Zinc (Zn)-Total			93.3		%		80-120	27-MAR-19
<b>WG3014840-1</b>	<b>MB</b>							
Aluminum (Al)-Total			<0.0050		mg/L		0.005	27-MAR-19
Antimony (Sb)-Total			<0.00010		mg/L		0.0001	27-MAR-19
Arsenic (As)-Total			<0.00010		mg/L		0.0001	27-MAR-19
Barium (Ba)-Total			<0.00010		mg/L		0.0001	27-MAR-19
Beryllium (Be)-Total			<0.00010		mg/L		0.0001	27-MAR-19
Bismuth (Bi)-Total			<0.000050		mg/L		0.00005	27-MAR-19
Boron (B)-Total			<0.010		mg/L		0.01	27-MAR-19
Cadmium (Cd)-Total			<0.0000050		mg/L		0.000005	27-MAR-19
Calcium (Ca)-Total			<0.050		mg/L		0.05	27-MAR-19
Cobalt (Co)-Total			<0.00010		mg/L		0.0001	27-MAR-19
Copper (Cu)-Total			<0.0010		mg/L		0.001	27-MAR-19
Iron (Fe)-Total			<0.010		mg/L		0.01	27-MAR-19
Lead (Pb)-Total			<0.000050		mg/L		0.00005	27-MAR-19
Magnesium (Mg)-Total			<0.0050		mg/L		0.005	27-MAR-19
Manganese (Mn)-Total			<0.00050		mg/L		0.0005	27-MAR-19
Molybdenum (Mo)-Total			<0.000050		mg/L		0.00005	27-MAR-19
Nickel (Ni)-Total			<0.00050		mg/L		0.0005	27-MAR-19
Potassium (K)-Total			<0.050		mg/L		0.05	27-MAR-19
Selenium (Se)-Total			<0.000050		mg/L		0.00005	27-MAR-19
Silicon (Si)-Total			<0.10		mg/L		0.1	27-MAR-19
Silver (Ag)-Total			<0.000050		mg/L		0.00005	27-MAR-19
Sodium (Na)-Total			<0.050		mg/L		0.05	27-MAR-19
Strontium (Sr)-Total			<0.0010		mg/L		0.001	27-MAR-19
Thallium (Tl)-Total			<0.000010		mg/L		0.00001	27-MAR-19
Tin (Sn)-Total			<0.00010		mg/L		0.0001	27-MAR-19
Vanadium (V)-Total			<0.00050		mg/L		0.0005	27-MAR-19



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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
<b>MET-T-CCMS-WT</b>								
	<b>Water</b>							
<b>Batch</b>	<b>R4585960</b>							
<b>WG3014840-1</b>	<b>MB</b>							
Zinc (Zn)-Total			<0.0030		mg/L		0.003	27-MAR-19
<b>WG3014840-5</b>	<b>MS</b>	<b>WG3014840-6</b>						
Aluminum (Al)-Total			N/A	MS-B	%		-	27-MAR-19
Antimony (Sb)-Total			91.2		%		70-130	27-MAR-19
Arsenic (As)-Total			89.3		%		70-130	27-MAR-19
Barium (Ba)-Total			N/A	MS-B	%		-	27-MAR-19
Beryllium (Be)-Total			93.2		%		70-130	27-MAR-19
Bismuth (Bi)-Total			82.3		%		70-130	27-MAR-19
Boron (B)-Total			N/A	MS-B	%		-	27-MAR-19
Cadmium (Cd)-Total			86.7		%		70-130	27-MAR-19
Calcium (Ca)-Total			N/A	MS-B	%		-	27-MAR-19
Cobalt (Co)-Total			87.4		%		70-130	27-MAR-19
Copper (Cu)-Total			84.0		%		70-130	27-MAR-19
Iron (Fe)-Total			N/A	MS-B	%		-	27-MAR-19
Lead (Pb)-Total			85.8		%		70-130	27-MAR-19
Magnesium (Mg)-Total			N/A	MS-B	%		-	27-MAR-19
Manganese (Mn)-Total			N/A	MS-B	%		-	27-MAR-19
Molybdenum (Mo)-Total			N/A	MS-B	%		-	27-MAR-19
Nickel (Ni)-Total			81.4		%		70-130	27-MAR-19
Potassium (K)-Total			N/A	MS-B	%		-	27-MAR-19
Selenium (Se)-Total			92.0		%		70-130	27-MAR-19
Silicon (Si)-Total			N/A	MS-B	%		-	27-MAR-19
Silver (Ag)-Total			89.8		%		70-130	27-MAR-19
Sodium (Na)-Total			N/A	MS-B	%		-	27-MAR-19
Strontium (Sr)-Total			N/A	MS-B	%		-	27-MAR-19
Thallium (Tl)-Total			83.4		%		70-130	27-MAR-19
Tin (Sn)-Total			90.2		%		70-130	27-MAR-19
Vanadium (V)-Total			96.9		%		70-130	27-MAR-19
Zinc (Zn)-Total			111.3		%		70-130	27-MAR-19
<b>NH3-F-WT</b>								
	<b>Water</b>							
<b>Batch</b>	<b>R4585509</b>							
<b>WG3015070-7</b>	<b>DUP</b>	<b>L2247774-1</b>						
Ammonia, Total (as N)		0.649	0.653		mg/L	0.6	20	27-MAR-19
<b>WG3015070-6</b>	<b>LCS</b>							



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

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>NH3-F-WT</b>								
	<b>Water</b>							
<b>Batch</b>	<b>R4585509</b>							
<b>WG3015070-6</b>	<b>LCS</b>							
Ammonia, Total (as N)			104.5		%		85-115	27-MAR-19
<b>WG3015070-5</b>	<b>MB</b>							
Ammonia, Total (as N)			<0.010		mg/L		0.01	27-MAR-19
<b>WG3015070-8</b>	<b>MS</b>	<b>L2247774-1</b>						
Ammonia, Total (as N)			N/A	MS-B	%		-	27-MAR-19
<b>NO2-IC-WT</b>								
	<b>Water</b>							
<b>Batch</b>	<b>R4586420</b>							
<b>WG3015254-15</b>	<b>DUP</b>	<b>WG3015254-13</b>						
Nitrite (as N)		<0.010	<0.010	RPD-NA	mg/L	N/A	20	27-MAR-19
<b>WG3015254-12</b>	<b>LCS</b>							
Nitrite (as N)			99.97		%		90-110	27-MAR-19
<b>WG3015254-11</b>	<b>MB</b>							
Nitrite (as N)			<0.010		mg/L		0.01	27-MAR-19
<b>WG3015254-14</b>	<b>MS</b>	<b>WG3015254-13</b>						
Nitrite (as N)			99.1		%		75-125	27-MAR-19
<b>NO3-IC-WT</b>								
	<b>Water</b>							
<b>Batch</b>	<b>R4586420</b>							
<b>WG3015254-15</b>	<b>DUP</b>	<b>WG3015254-13</b>						
Nitrate (as N)		0.043	0.040		mg/L	6.4	20	27-MAR-19
<b>WG3015254-12</b>	<b>LCS</b>							
Nitrate (as N)			99.5		%		90-110	27-MAR-19
<b>WG3015254-11</b>	<b>MB</b>							
Nitrate (as N)			<0.020		mg/L		0.02	27-MAR-19
<b>WG3015254-14</b>	<b>MS</b>	<b>WG3015254-13</b>						
Nitrate (as N)			94.8		%		75-125	27-MAR-19
<b>P-T-COL-WT</b>								
	<b>Water</b>							
<b>Batch</b>	<b>R4588063</b>							
<b>WG3017369-3</b>	<b>DUP</b>	<b>L2248965-1</b>						
Phosphorus, Total		0.077	0.0772		mg/L	0.0	20	01-APR-19
<b>WG3017369-2</b>	<b>LCS</b>							
Phosphorus, Total			103.8		%		80-120	01-APR-19
<b>WG3017369-1</b>	<b>MB</b>							
Phosphorus, Total			<0.0030		mg/L		0.003	01-APR-19
<b>WG3017369-4</b>	<b>MS</b>	<b>L2248965-1</b>						
Phosphorus, Total			95.9		%		70-130	01-APR-19
<b>PH-WT</b>								
	<b>Water</b>							





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Client: GHD Limited (Waterloo)  
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Contact: LAURA ERMETA

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>PH-WT</b>		<b>Water</b>						
<b>Batch</b>	<b>R4586007</b>							
<b>WG3014935-4</b>	<b>DUP</b>	<b>WG3014935-3</b>						
pH		7.34	7.34	J	pH units	0.00	0.2	27-MAR-19
<b>WG3014935-2</b>	<b>LCS</b>							
pH			7.02		pH units		6.9-7.1	27-MAR-19
<b>PHENOLS-4AAP-WT</b>		<b>Water</b>						
<b>Batch</b>	<b>R4586132</b>							
<b>WG3015122-3</b>	<b>DUP</b>	<b>L2249002-1</b>						
Phenols (4AAP)		0.0026	0.0024		mg/L	8.8	20	27-MAR-19
<b>WG3015122-2</b>	<b>LCS</b>							
Phenols (4AAP)			94.1		%		85-115	27-MAR-19
<b>WG3015122-1</b>	<b>MB</b>							
Phenols (4AAP)			<0.0010		mg/L		0.001	27-MAR-19
<b>WG3015122-4</b>	<b>MS</b>	<b>L2249002-1</b>						
Phenols (4AAP)			88.4		%		75-125	27-MAR-19
<b>SO4-IC-N-WT</b>		<b>Water</b>						
<b>Batch</b>	<b>R4586420</b>							
<b>WG3015254-15</b>	<b>DUP</b>	<b>WG3015254-13</b>						
Sulfate (SO4)		94.8	94.9		mg/L	0.1	20	27-MAR-19
<b>WG3015254-12</b>	<b>LCS</b>							
Sulfate (SO4)			100.0		%		90-110	27-MAR-19
<b>WG3015254-11</b>	<b>MB</b>							
Sulfate (SO4)			<0.30		mg/L		0.3	27-MAR-19
<b>WG3015254-14</b>	<b>MS</b>	<b>WG3015254-13</b>						
Sulfate (SO4)			96.1		%		75-125	27-MAR-19
<b>SOLIDS-TDS-WT</b>		<b>Water</b>						
<b>Batch</b>	<b>R4588370</b>							
<b>WG3017994-2</b>	<b>LCS</b>							
Total Dissolved Solids			95.6		%		85-115	31-MAR-19
<b>WG3017994-1</b>	<b>MB</b>							
Total Dissolved Solids			<10		mg/L		10	31-MAR-19
<b>SOLIDS-TSS-WT</b>		<b>Water</b>						
<b>Batch</b>	<b>R4586819</b>							
<b>WG3015934-3</b>	<b>DUP</b>	<b>L2248995-1</b>						
Total Suspended Solids		898	946		mg/L	5.2	20	29-MAR-19
<b>WG3015934-2</b>	<b>LCS</b>							
Total Suspended Solids			101.0		%		85-115	29-MAR-19
<b>WG3015934-1</b>	<b>MB</b>							



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 455 PHILLIP STREET  
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 Contact: LAURA ERMETA

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>SOLIDS-TSS-WT</b>		<b>Water</b>						
Batch	R4586819							
WG3015934-1	MB							
Total Suspended Solids			<2.0		mg/L		2	29-MAR-19
<b>TKN-WT</b>		<b>Water</b>						
Batch	R4587300							
WG3016891-3	DUP	L2248965-3						
Total Kjeldahl Nitrogen		0.76	0.62		mg/L	20	20	29-MAR-19
WG3016891-2	LCS							
Total Kjeldahl Nitrogen			105.3		%		75-125	29-MAR-19
WG3016891-1	MB							
Total Kjeldahl Nitrogen			<0.15		mg/L		0.15	29-MAR-19
WG3016891-4	MS	L2248965-3						
Total Kjeldahl Nitrogen			111.2		%		70-130	29-MAR-19
<b>VOC-ROU-HS-WT</b>		<b>Water</b>						
Batch	R4585953							
WG3008965-4	DUP	WG3008965-3						
1,1,1,2-Tetrachloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	28-MAR-19
1,1,2,2-Tetrachloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	28-MAR-19
1,1,1-Trichloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	28-MAR-19
1,1,2-Trichloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	28-MAR-19
1,2-Dibromoethane		<0.20	<0.20	RPD-NA	ug/L	N/A	30	28-MAR-19
1,1-Dichloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	28-MAR-19
1,1-Dichloroethylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	28-MAR-19
1,2-Dichlorobenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	28-MAR-19
1,2-Dichloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	28-MAR-19
1,2-Dichloropropane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	28-MAR-19
1,3-Dichlorobenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	28-MAR-19
1,4-Dichlorobenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	28-MAR-19
Acetone		22	23		ug/L	5.1	30	28-MAR-19
Benzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	28-MAR-19
Bromodichloromethane		<1.0	<1.0	RPD-NA	ug/L	N/A	30	28-MAR-19
Bromoform		<1.0	<1.0	RPD-NA	ug/L	N/A	30	28-MAR-19
Bromomethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	28-MAR-19
Carbon tetrachloride		<0.50	<0.50	RPD-NA	ug/L	N/A	30	28-MAR-19
Chlorobenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	28-MAR-19



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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
<b>VOC-ROU-HS-WT</b>		<b>Water</b>						
<b>Batch</b>	<b>R4585953</b>							
<b>WG3008965-4</b>	<b>DUP</b>	<b>WG3008965-3</b>						
Chloroethane		<1.0	<1.0	RPD-NA	ug/L	N/A	30	28-MAR-19
Chloroform		<1.0	<1.0	RPD-NA	ug/L	N/A	30	28-MAR-19
cis-1,2-Dichloroethylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	28-MAR-19
cis-1,3-Dichloropropene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	28-MAR-19
Dibromochloromethane		<1.0	<1.0	RPD-NA	ug/L	N/A	30	28-MAR-19
Dichlorodifluoromethane		<1.0	<1.0	RPD-NA	ug/L	N/A	30	28-MAR-19
Dichloromethane		2.2	2.3		ug/L	2.2	30	28-MAR-19
Ethylbenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	28-MAR-19
m+p-Xylenes		<1.0	<1.0	RPD-NA	ug/L	N/A	30	28-MAR-19
Methyl Ethyl Ketone		<20	<20	RPD-NA	ug/L	N/A	30	28-MAR-19
Methyl Isobutyl Ketone		<20	<20	RPD-NA	ug/L	N/A	30	28-MAR-19
n-Hexane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	28-MAR-19
MTBE		<0.50	<0.50	RPD-NA	ug/L	N/A	30	28-MAR-19
o-Xylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	28-MAR-19
Styrene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	28-MAR-19
Tetrachloroethylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	28-MAR-19
Toluene		0.58	0.56		ug/L	3.5	30	28-MAR-19
trans-1,2-Dichloroethylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	28-MAR-19
trans-1,3-Dichloropropene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	28-MAR-19
Trichloroethylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	28-MAR-19
Trichlorofluoromethane		<1.0	<1.0	RPD-NA	ug/L	N/A	30	28-MAR-19
Vinyl chloride		<0.50	<0.50	RPD-NA	ug/L	N/A	30	28-MAR-19
<b>WG3008965-1</b>	<b>LCS</b>							
1,1,1,2-Tetrachloroethane			99.4		%		70-130	28-MAR-19
1,1,2,2-Tetrachloroethane			99.6		%		70-130	28-MAR-19
1,1,1-Trichloroethane			102.2		%		70-130	28-MAR-19
1,1,2-Trichloroethane			100.8		%		70-130	28-MAR-19
1,2-Dibromoethane			98.7		%		70-130	28-MAR-19
1,1-Dichloroethane			105.2		%		70-130	28-MAR-19
1,1-Dichloroethylene			103.5		%		70-130	28-MAR-19
1,2-Dichlorobenzene			102.3		%		70-130	28-MAR-19
1,2-Dichloroethane			99.7		%		70-130	28-MAR-19
1,2-Dichloropropane			100.1		%		70-130	28-MAR-19



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 455 PHILLIP STREET  
 WATERLOO ON N2L 3X2

Contact: LAURA ERMETA

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>VOC-ROU-HS-WT</b>								
	<b>Water</b>							
<b>Batch</b>	<b>R4585953</b>							
<b>WG3008965-1</b>	<b>LCS</b>							
1,3-Dichlorobenzene			105.7		%		70-130	28-MAR-19
1,4-Dichlorobenzene			104.0		%		70-130	28-MAR-19
Acetone			93.3		%		60-140	28-MAR-19
Benzene			104.5		%		70-130	28-MAR-19
Bromodichloromethane			97.7		%		70-130	28-MAR-19
Bromoform			93.9		%		70-130	28-MAR-19
Bromomethane			114.2		%		60-140	28-MAR-19
Carbon tetrachloride			101.9		%		70-130	28-MAR-19
Chlorobenzene			102.4		%		70-130	28-MAR-19
Chloroethane			102.5		%		70-130	28-MAR-19
Chloroform			102.3		%		70-130	28-MAR-19
cis-1,2-Dichloroethylene			101.5		%		70-130	28-MAR-19
cis-1,3-Dichloropropene			100.5		%		70-130	28-MAR-19
Dibromochloromethane			97.7		%		70-130	28-MAR-19
Dichlorodifluoromethane			97.4		%		50-140	28-MAR-19
Dichloromethane			103.5		%		70-130	28-MAR-19
Ethylbenzene			99.5		%		70-130	28-MAR-19
m+p-Xylenes			100.4		%		70-130	28-MAR-19
Methyl Ethyl Ketone			96.2		%		60-140	28-MAR-19
Methyl Isobutyl Ketone			83.1		%		50-150	28-MAR-19
n-Hexane			102.7		%		70-130	28-MAR-19
MTBE			103.8		%		70-130	28-MAR-19
o-Xylene			96.8		%		70-130	28-MAR-19
Styrene			96.0		%		70-130	28-MAR-19
Tetrachloroethylene			105.5		%		70-130	28-MAR-19
Toluene			102.9		%		70-130	28-MAR-19
trans-1,2-Dichloroethylene			103.3		%		70-130	28-MAR-19
trans-1,3-Dichloropropene			101.6		%		70-130	28-MAR-19
Trichloroethylene			105.0		%		70-130	28-MAR-19
Trichlorofluoromethane			102.6		%		60-140	28-MAR-19
Vinyl chloride			88.6		%		60-140	28-MAR-19
<b>WG3008965-2</b>	<b>MB</b>							
1,1,1,2-Tetrachloroethane			<0.50		ug/L		0.5	28-MAR-19
1,1,1,2,2-Tetrachloroethane			<0.50		ug/L		0.5	28-MAR-19



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 WATERLOO ON N2L 3X2

Contact: LAURA ERMETA

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>VOC-ROU-HS-WT</b>								
	<b>Water</b>							
<b>Batch</b>	<b>R4585953</b>							
<b>WG3008965-2 MB</b>								
1,1,1-Trichloroethane			<0.50		ug/L		0.5	28-MAR-19
1,1,2-Trichloroethane			<0.50		ug/L		0.5	28-MAR-19
1,2-Dibromoethane			<0.20		ug/L		0.2	28-MAR-19
1,1-Dichloroethane			<0.50		ug/L		0.5	28-MAR-19
1,1-Dichloroethylene			<0.50		ug/L		0.5	28-MAR-19
1,2-Dichlorobenzene			<0.50		ug/L		0.5	28-MAR-19
1,2-Dichloroethane			<0.50		ug/L		0.5	28-MAR-19
1,2-Dichloropropane			<0.50		ug/L		0.5	28-MAR-19
1,3-Dichlorobenzene			<0.50		ug/L		0.5	28-MAR-19
1,4-Dichlorobenzene			<0.50		ug/L		0.5	28-MAR-19
Acetone			<20		ug/L		20	28-MAR-19
Benzene			<0.50		ug/L		0.5	28-MAR-19
Bromodichloromethane			<1.0		ug/L		1	28-MAR-19
Bromoform			<1.0		ug/L		1	28-MAR-19
Bromomethane			<0.50		ug/L		0.5	28-MAR-19
Carbon tetrachloride			<0.50		ug/L		0.5	28-MAR-19
Chlorobenzene			<0.50		ug/L		0.5	28-MAR-19
Chloroethane			<1.0		ug/L		1	28-MAR-19
Chloroform			<1.0		ug/L		1	28-MAR-19
cis-1,2-Dichloroethylene			<0.50		ug/L		0.5	28-MAR-19
cis-1,3-Dichloropropene			<0.50		ug/L		0.5	28-MAR-19
Dibromochloromethane			<1.0		ug/L		1	28-MAR-19
Dichlorodifluoromethane			<1.0		ug/L		1	28-MAR-19
Dichloromethane			<2.0		ug/L		2	28-MAR-19
Ethylbenzene			<0.50		ug/L		0.5	28-MAR-19
m+p-Xylenes			<1.0		ug/L		1	28-MAR-19
Methyl Ethyl Ketone			<20		ug/L		20	28-MAR-19
Methyl Isobutyl Ketone			<20		ug/L		20	28-MAR-19
n-Hexane			<0.50		ug/L		0.5	28-MAR-19
MTBE			<0.50		ug/L		0.5	28-MAR-19
o-Xylene			<0.50		ug/L		0.5	28-MAR-19
Styrene			<0.50		ug/L		0.5	28-MAR-19
Tetrachloroethylene			<0.50		ug/L		0.5	28-MAR-19



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 WATERLOO ON N2L 3X2

Contact: LAURA ERMETA

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>VOC-ROU-HS-WT</b>								
	<b>Water</b>							
<b>Batch</b>	<b>R4585953</b>							
<b>WG3008965-2 MB</b>								
Toluene			<0.50		ug/L		0.5	28-MAR-19
trans-1,2-Dichloroethylene			<0.50		ug/L		0.5	28-MAR-19
trans-1,3-Dichloropropene			<0.50		ug/L		0.5	28-MAR-19
Trichloroethylene			<0.50		ug/L		0.5	28-MAR-19
Trichlorofluoromethane			<1.0		ug/L		1	28-MAR-19
Vinyl chloride			<0.50		ug/L		0.5	28-MAR-19
Surrogate: 1,4-Difluorobenzene			98.8		%		70-130	28-MAR-19
Surrogate: 4-Bromofluorobenzene			96.0		%		70-130	28-MAR-19
<b>WG3008965-5 MS</b>		<b>WG3008965-3</b>						
1,1,1,2-Tetrachloroethane			98.8		%		50-150	28-MAR-19
1,1,2,2-Tetrachloroethane			133.7		%		50-150	28-MAR-19
1,1,1-Trichloroethane			106.0		%		50-150	28-MAR-19
1,1,2-Trichloroethane			95.3		%		50-150	28-MAR-19
1,2-Dibromoethane			91.0		%		50-150	28-MAR-19
1,1-Dichloroethane			108.3		%		50-150	28-MAR-19
1,1-Dichloroethylene			107.5		%		50-150	28-MAR-19
1,2-Dichlorobenzene			101.7		%		50-150	28-MAR-19
1,2-Dichloroethane			97.1		%		50-150	28-MAR-19
1,2-Dichloropropane			100.7		%		50-150	28-MAR-19
1,3-Dichlorobenzene			106.7		%		50-150	28-MAR-19
1,4-Dichlorobenzene			104.7		%		50-150	28-MAR-19
Acetone			84.8		%		50-150	28-MAR-19
Benzene			107.0		%		50-150	28-MAR-19
Bromodichloromethane			97.7		%		50-150	28-MAR-19
Bromoform			88.3		%		50-150	28-MAR-19
Bromomethane			110.0		%		50-150	28-MAR-19
Carbon tetrachloride			106.5		%		50-150	28-MAR-19
Chlorobenzene			103.0		%		50-150	28-MAR-19
Chloroethane			104.1		%		50-150	28-MAR-19
Chloroform			104.6		%		50-150	28-MAR-19
cis-1,2-Dichloroethylene			102.4		%		50-150	28-MAR-19
cis-1,3-Dichloropropene			92.4		%		50-150	28-MAR-19
Dibromochloromethane			94.1		%		50-150	28-MAR-19
Dichlorodifluoromethane			90.5		%		50-150	28-MAR-19



## Quality Control Report

Workorder: L2249002

Report Date: 02-APR-19

Page 17 of 18

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

Contact: LAURA ERMETA

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>VOC-ROU-HS-WT</b>								
	<b>Water</b>							
<b>Batch</b>	<b>R4585953</b>							
<b>WG3008965-5 MS</b>		<b>WG3008965-3</b>						
Dichloromethane			103.0		%		50-150	28-MAR-19
Ethylbenzene			100.6		%		50-150	28-MAR-19
m+p-Xylenes			102.9		%		50-150	28-MAR-19
Methyl Ethyl Ketone			81.7		%		50-150	28-MAR-19
Methyl Isobutyl Ketone			71.4		%		50-150	28-MAR-19
n-Hexane			106.1		%		50-150	28-MAR-19
MTBE			104.3		%		50-150	28-MAR-19
o-Xylene			97.1		%		50-150	28-MAR-19
Styrene			93.3		%		50-150	28-MAR-19
Tetrachloroethylene			109.2		%		50-150	28-MAR-19
Toluene			104.0		%		50-150	28-MAR-19
trans-1,2-Dichloroethylene			106.8		%		50-150	28-MAR-19
trans-1,3-Dichloropropene			92.0		%		50-150	28-MAR-19
Trichloroethylene			104.3		%		50-150	28-MAR-19
Trichlorofluoromethane			105.3		%		50-150	28-MAR-19
Vinyl chloride			88.6		%		50-150	28-MAR-19

# Quality Control Report

Workorder: L2249002

Report Date: 02-APR-19

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

Page 18 of 18

## 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.





www.alsglobal.com

<b>Report To</b> Acct#13791		<b>Report Format / Distribution</b>			<b>Select Service Level Below (Rush Turnaround Time (TAT) is not available for all tests)</b>												
Company: <b>GHD LIMITED</b>		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 <a href="mailto:laura.ermeta@ghd.com">laura.ermeta@ghd.com</a>			Specify Date Required for E2,E or P:												
		Email 2 See PO			<b>Analysis Request</b>												
<b>Invoice To</b> Same as Report To <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		<b>Invoice Distribution</b>			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: <b>GHD LIMITED</b>		Email 1 or Fax <a href="mailto:laura.ermeta@ghd.com">laura.ermeta@ghd.com</a>															
Contact: Laura Ermeta		Email 2															
<b>Project Information</b>		<b>Oil and Gas Required Fields (client use)</b>															
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) <b>L2249002</b>		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-8-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-CRS-IC-WT), Hardness calc	VOCs (VOC-ROL-HS-WT, WT-44985-VOC)	SVOCs (SVOC-44985-P-WT)	CLIENT SUPPLIED TEMPERATURE **	CLIENT SUPPLIED pH **	Number of Containers
	EQ Pond Discharge	25-3-19	11 30	Water	R	R	R	R	R	R	R	R	R	R	4	7.5	12
	West Storm Water Pond	25-3-19	11 30	Water	R	R	R	R	R	R	R	R	R	R	4	7.6	12
	East Storm Water Pond	25-3-19	11 30	Water	R	R	R	R	R	R	R	R	R	R	4	7.4	12
<b>Drinking Water (DW) Samples<sup>1</sup> (client use)</b>		<b>Special Instructions / Specify Criteria to add on report (client Use)</b>			<b>SAMPLE CONDITION AS RECEIVED (lab use only)</b>												
Are samples taken from a Regulated DW System? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		<b>**Please fill in Client Supplied temperature and pH for Unionized NH3 calculation**</b>			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						
					6.8												
<b>SHIPMENT RELEASE (client use)</b>				<b>INITIAL SHIPMENT RECEPTION (lab use only)</b>				<b>FINAL SHIPMENT RECEPTION (lab use only)</b>									
Released by: <b>Mei Sparks</b>		Date: <b>Mar 25/19</b>		Time: <b>1400</b>		Received by: _____		Date: _____		Time: _____		Received by: <b>AP</b>		Date: <b>26-3-19</b>		Time: <b>10:15</b>	



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

Date Received: 26-MAR-19  
Report Date: 02-APR-19 16:29 (MT)  
Version: FINAL

Client Phone: 519-884-0510

## Certificate of Analysis

Lab Work Order #: L2248969  
Project P.O. #: 73506479-1  
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
L2248969-1 EQ POND DISCHARGE Sampled By: CLIENT on 25-MAR-19 @ 11:30 Matrix: water <b>Miscellaneous</b> Special Request	See Attached					02-APR-19	R4588715

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

## Reference Information

**Test Method References:**

ALS Test Code	Matrix	Test Description	Method Reference**
SPECIAL REQUEST-CX	Misc.	Special Request - Maxxam, Edmonton	SEE SUBLET LAB RESULTS

\*\* 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
CX	MAXXAM ANALYTICS INC. - 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: L2248969

Report Date: 02-APR-19

Page 1 of 2

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

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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
------	--------	-----------	--------	-----------	-------	-----	-------	----------

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# Quality Control Report

Workorder: L2248969

Report Date: 02-APR-19

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

Page 2 of 2

## Legend:

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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

## 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.

Your P.O. #: L2248969  
Your Project #: L2248969  
Your C.O.C. #: 1 of 1

**Attention: ALS Reporting**

ALS ENVIRONMENTAL  
Bay 7, 1313 44th ave NE  
CALGARY, AB  
CANADA T2E 6L5

**Report Date: 2019/03/30**  
Report #: R2704198  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B922840**  
**Received: 2019/03/29, 11:51**

Sample Matrix: Water  
# Samples Received: 1

<b>Analyses</b>	<b>Quantity</b>	<b>Date Extracted</b>	<b>Date Analyzed</b>	<b>Laboratory Method</b>	<b>Analytical Method</b>
See Attached Results	1	N/A	2019/03/29		

**Remarks:**

Maxxam Analytics' laboratories are accredited to ISO/IEC 17025:2005 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Maxxam are based upon recognized Provincial, Federal or US method compendia such as CCME, MDDELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Maxxam's profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Maxxam in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Maxxam Analytics' liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Maxxam has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Maxxam, unless otherwise agreed in writing. Maxxam is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.

Results relate to samples tested. When sampling is not conducted by Maxxam, results relate to the supplied samples tested.

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Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.

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

Your P.O. #: L2248969  
Your Project #: L2248969  
Your C.O.C. #: 1 of 1

**Attention: ALS Reporting**

ALS ENVIRONMENTAL  
Bay 7, 1313 44th ave NE  
CALGARY, AB  
CANADA T2E 6L5

**Report Date: 2019/03/30**  
Report #: R2704198  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B922840**  
**Received: 2019/03/29, 11:51**

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.  
Omran Desouki, Junior Project Manager  
Email: ODesouki@maxxam.ca  
Phone# (780) 577-7100

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



Maxxam Job #: B922840  
Report Date: 2019/03/30

ALS ENVIRONMENTAL  
Client Project #: L2248969  
Your P.O. #: L2248969

**RESULTS OF CHEMICAL ANALYSES OF WATER**

<b>Maxxam ID</b>		VL2176	
<b>Sampling Date</b>		2019/03/25	
<b>COC Number</b>		1 of 1	
	<b>UNITS</b>	<b>L2248969-1 EQ POND DISCHARGE</b>	<b>QC Batch</b>
<b>Industrial</b>			
Remark	N/A	ATTACHED	9366630

Maxxam Job #: B922840  
Report Date: 2019/03/30

ALS ENVIRONMENTAL  
Client Project #: L2248969  
Your P.O. #: L2248969

**GENERAL COMMENTS**

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

Package 1	9.3°C
-----------	-------

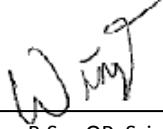
**Results relate only to the items tested.**

Maxxam Job #: B922840  
Report Date: 2019/03/30

ALS ENVIRONMENTAL  
Client Project #: L2248969  
Your P.O. #: L2248969

### VALIDATION SIGNATURE PAGE

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



---

Winnie Au, B.Sc., QP, Scientific Specialist

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



Microtox Push\*

L2248969

EDMONTON

Subcontract Request Form

Subcontract To:

MAXXAM ANALYTICS INC. - EDMONTON, ALBERTA, CANADA

9331 48 ST  
EDMONTON, AB T6B 2R4

NOTES: Please reference on final report and invoice: PO# L2248969  
ALS requires QC data to be provided with your final results.

Please see enclosed 1 sample(s) in 1 Container(s)

SAMPLE NUMBER	ANALYTICAL REQUIRED	DATE SAMPLED	Priority Flag
		DUE DATE	
L2248969-1 EQ POND DISCHARGE		3/25/2019	
	Special Request - Maxxam, Edmonton (SPECIAL REQUEST- CX 14)	4/1/2019	

Subcontract Info Contact: Rani Mangru (780) 413-5242  
Analysis and reporting info contact: Suzette Chin  
9450 17 AVENUE NW  
EDMONTON, AB T6N 1M9  
Phone: (780) 413-5242 Email: Suzette.Chin@alsglobal.com

Please email confirmation of receipt to: Suzette.Chin@alsglobal.com

Shipped By: \_\_\_\_\_ Date Shipped: \_\_\_\_\_  
Received By: [Signature] Date Received: 2019/03/29 11:51  
Verified By: \_\_\_\_\_ Date Verified: \_\_\_\_\_  
Temperature: 8.9, 11 ice - 4, seal - N

Sample Integrity Issues: \_\_\_\_\_

B922840



## Microtox Report

Project : B922840-VL2176

Analyst: MHD

## Sample Data :

Company Name : **ALS ENVIRONMENTAL**  
 City : **CALGARY, AB**  
 Sample Description : **L2248969-1 EQ POND DISCHARGE**  
 Sample Location : **n/a**

	YY MM DD	Time:	
Sample Date :	19 03 25	Time:	n/a
Date Received :	19 03 29	Time:	11:51
Date of Assay :	19 03 29	Time:	16:38
Report Date :	19 03 30		
Storage Temp :	4 ± 2 °C		
Sample Prep:	none		

## Test Data:

Appearance, Visual : **colorless**  
 Turbidity, Visual : **none**  
 Initial pH : **7.6**  
 Sample Dilution : **none**  
 IC50 (5min, 15°C) : **>81.9%** 95% Confidence Interval : **n/a**  
 IC20 (5min, 15°C) : **>81.9%** 95% Confidence Interval : **n/a**  
 IC50 (15min, 15°C) : **>81.9%** 95% Confidence Interval : **n/a**  
 IC20 (15min, 15°C) : **>81.9%** 95% Confidence Interval : **n/a**  
 Location of Testing: **Edmonton**

**Note: The results relate only to the item tested.**

## Results of Phenol Reference Test :

Current IC50 @ 5 min. : **17.7 mg/L**  
 95 % Confidence Interval : **14.3, 21.9**

*The reference toxicant is conducted under the same conditions as the definitive testing.*

## Data &amp; QA/QC

Reviewed By : \_\_\_\_\_

  
 Tami Horvath, Analyst 1

9331-48 Street, Edmonton, Alberta T6B 2R4

Tel:(780) 577-7100 Fax: (780) 450-4187 or 2021-41 Ave. NE, Calgary, AB, T2E6P2, Tel:(403) 291-3077 Fax:  
 (403) 735-2240; Website: www.maxxam.ca



Microtox Report

Project : B922840-VL2176

**Test Information :**

Sample Description : L2248969-1 EQ  
 POND DISCHARGE

*Type of Test :* **15 min. Static Bioassay**  
*Test Species :* ***Vibrio fischeri* (Bioluminescent bacteria)**  
*Source of Test Species :* **STRATEGIC DIAGNOSTICS Inc.**  
*Reagent Lot # :* **18F4145A**  
*Date Obtained :* **2019/01/04**  
*Expiry Date :* **2020/07/31**  
*Reagent Holding Temp :* **< - 20°C**  
*Laboratory Method:* **AB SOP-00083**  
*Analytical Method:* **Environmental Protection Series (EPS). 1992. Biological Test Method: Toxicity test using luminescent bacteria (*Vibrio fischeri*). Report EPS 1/RM/24.**  
*Salinity Adjustment :* **Osmotic Adjusting Solution (200 uL)**  
*Analyzer Used :* **MICROBICS Analyzer Model 500**  
*Calculation Method :* **MICROTOX OMNI Version 4.2, 2012**

**Data Table: Sample vs Light Emission at Time T**

Time (min.)	Sample Concentration [% v/v]				
	Control	10.2	20.5	41.0	81.9
T0	96	96	92	93	90
T5	97	103	102	102	105
T15	92	99	98	103	109
T30*					
T60*					

\* If applicable

**General Comments:** Sample was past hold time when received.  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_





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

Date Received: 01-MAY-19  
Report Date: 08-MAY-19 13:20 (MT)  
Version: FINAL

Client Phone: 519-884-0510

## Certificate of Analysis

Lab Work Order #: L2265498  
Project P.O. #: 73506479-1  
Job Reference: 44985-20  
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
L2265498-1 EQ POND DISCHARGE							
Sampled By: CLIENT on 30-APR-19 @ 11:00							
Matrix: WATER							
<b>Field Tests</b>							
pH, Client Supplied	8.10		0.10	pH		02-MAY-19	R4620668
Temperature, Client	6.0		-50	Deg. C		02-MAY-19	R4620668
<b>Physical Tests</b>							
Conductivity	764		3.0	umhos/cm		02-MAY-19	R4620891
Hardness (as CaCO3)	264	HTC	1.3	mg/L		02-MAY-19	
pH	8.09		0.10	pH units		02-MAY-19	R4620891
Total Suspended Solids	8.7		2.0	mg/L	03-MAY-19	04-MAY-19	R4622773
Total Dissolved Solids	472	DLDS	20	mg/L		05-MAY-19	R4624188
<b>Anions and Nutrients</b>							
Alkalinity, Total (as CaCO3)	158		10	mg/L		02-MAY-19	R4620891
Unionized ammonia	0.0563		0.0041	mg/L		07-MAY-19	
Ammonia, Total (as N)	2.77	DLHC	0.20	mg/L		06-MAY-19	R4624466
Bromide (Br)	1.49		0.10	mg/L		02-MAY-19	R4621128
Chloride (Cl)	70.3		0.50	mg/L		02-MAY-19	R4621128
Fluoride (F)	0.645		0.020	mg/L		02-MAY-19	R4621128
Nitrate (as N)	0.164		0.020	mg/L		02-MAY-19	R4621128
Nitrite (as N)	<0.010		0.010	mg/L		02-MAY-19	R4621128
Total Kjeldahl Nitrogen	3.41		0.15	mg/L	02-MAY-19	06-MAY-19	R4624410
Phosphorus, Total	0.0809		0.0030	mg/L	02-MAY-19	03-MAY-19	R4622102
Sulfate (SO4)	145		0.30	mg/L		02-MAY-19	R4621128
<b>Cyanides</b>							
Cyanide, Total	<0.0020		0.0020	mg/L		01-MAY-19	R4620023
<b>Organic / Inorganic Carbon</b>							
Dissolved Carbon Filtration Location	LAB					01-MAY-19	R4619819
Dissolved Organic Carbon	2.29		0.50	mg/L	01-MAY-19	02-MAY-19	R4623388
<b>Total Metals</b>							
Aluminum (Al)-Total	0.540		0.010	mg/L	02-MAY-19	02-MAY-19	R4620610
Antimony (Sb)-Total	0.00067		0.00010	mg/L	02-MAY-19	02-MAY-19	R4620610
Arsenic (As)-Total	0.00178		0.00010	mg/L	02-MAY-19	02-MAY-19	R4620610
Barium (Ba)-Total	0.0404		0.00020	mg/L	02-MAY-19	02-MAY-19	R4620610
Beryllium (Be)-Total	<0.00010		0.00010	mg/L	02-MAY-19	02-MAY-19	R4620610
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	02-MAY-19	02-MAY-19	R4620610
Boron (B)-Total	0.081		0.010	mg/L	02-MAY-19	02-MAY-19	R4620610
Cadmium (Cd)-Total	0.000232		0.000010	mg/L	02-MAY-19	02-MAY-19	R4620610
Calcium (Ca)-Total	69.8		0.50	mg/L	02-MAY-19	02-MAY-19	R4620610
Cobalt (Co)-Total	0.00067		0.00010	mg/L	02-MAY-19	02-MAY-19	R4620610
Copper (Cu)-Total	0.0011		0.0010	mg/L	02-MAY-19	02-MAY-19	R4620610
Iron (Fe)-Total	0.502		0.050	mg/L	02-MAY-19	02-MAY-19	R4620610
Lead (Pb)-Total	0.00108		0.00010	mg/L	02-MAY-19	02-MAY-19	R4620610
Magnesium (Mg)-Total	21.8		0.050	mg/L	02-MAY-19	02-MAY-19	R4620610
Manganese (Mn)-Total	0.0561		0.00050	mg/L	02-MAY-19	02-MAY-19	R4620610
Mercury (Hg)-Total	0.000011		0.000010	mg/L		02-MAY-19	R4620447

\* 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
L2265498-1 EQ POND DISCHARGE							
Sampled By: CLIENT on 30-APR-19 @ 11:00							
Matrix: WATER							
<b>Total Metals</b>							
Molybdenum (Mo)-Total	0.0636		0.000050	mg/L	02-MAY-19	02-MAY-19	R4620610
Nickel (Ni)-Total	0.00439		0.00050	mg/L	02-MAY-19	02-MAY-19	R4620610
Potassium (K)-Total	15.0		0.050	mg/L	02-MAY-19	02-MAY-19	R4620610
Selenium (Se)-Total	0.00136		0.000050	mg/L	02-MAY-19	02-MAY-19	R4620610
Silicon (Si)-Total	2.78		0.10	mg/L	02-MAY-19	02-MAY-19	R4620610
Silver (Ag)-Total	<0.000050		0.000050	mg/L	02-MAY-19	02-MAY-19	R4620610
Sodium (Na)-Total	44.1		0.50	mg/L	02-MAY-19	02-MAY-19	R4620610
Strontium (Sr)-Total	0.535		0.0010	mg/L	02-MAY-19	02-MAY-19	R4620610
Thallium (Tl)-Total	0.000209		0.000010	mg/L	02-MAY-19	02-MAY-19	R4620610
Tin (Sn)-Total	<0.00010		0.00010	mg/L	02-MAY-19	02-MAY-19	R4620610
Vanadium (V)-Total	0.00227		0.00050	mg/L	02-MAY-19	02-MAY-19	R4620610
Zinc (Zn)-Total	0.0075		0.0030	mg/L	02-MAY-19	02-MAY-19	R4620610
<b>Speciated Metals</b>							
Chromium, Hexavalent	<0.00050		0.00050	mg/L		01-MAY-19	R4619976
<b>Aggregate Organics</b>							
COD	17		10	mg/L		03-MAY-19	R4622154
Phenols (4AAP)	0.0015		0.0010	mg/L		02-MAY-19	R4622147
<b>Volatile Organic Compounds</b>							
Acetone	<20		20	ug/L		07-MAY-19	R4625475
Benzene	<0.50		0.50	ug/L		07-MAY-19	R4625475
Bromodichloromethane	<1.0		1.0	ug/L		07-MAY-19	R4625475
Bromoform	<1.0		1.0	ug/L		07-MAY-19	R4625475
Bromomethane	<0.50		0.50	ug/L		07-MAY-19	R4625475
Carbon tetrachloride	<0.50		0.50	ug/L		07-MAY-19	R4625475
Chlorobenzene	<0.50		0.50	ug/L		07-MAY-19	R4625475
Dibromochloromethane	<1.0		1.0	ug/L		07-MAY-19	R4625475
Chloroethane	<1.0		1.0	ug/L		07-MAY-19	R4625475
Chloroform	<1.0		1.0	ug/L		07-MAY-19	R4625475
1,2-Dibromoethane	<0.20		0.20	ug/L		07-MAY-19	R4625475
1,2-Dichlorobenzene	<0.50		0.50	ug/L		07-MAY-19	R4625475
1,3-Dichlorobenzene	<0.50		0.50	ug/L		07-MAY-19	R4625475
1,4-Dichlorobenzene	<0.50		0.50	ug/L		07-MAY-19	R4625475
Dichlorodifluoromethane	<1.0		1.0	ug/L		07-MAY-19	R4625475
1,1-Dichloroethane	<0.50		0.50	ug/L		07-MAY-19	R4625475
1,2-Dichloroethane	<0.50		0.50	ug/L		07-MAY-19	R4625475
1,1-Dichloroethylene	<0.50		0.50	ug/L		07-MAY-19	R4625475
cis-1,2-Dichloroethylene	<0.50		0.50	ug/L		07-MAY-19	R4625475
trans-1,2-Dichloroethylene	<0.50		0.50	ug/L		07-MAY-19	R4625475
Dichloromethane	<2.0		2.0	ug/L		07-MAY-19	R4625475
1,2-Dichloropropane	<0.50		0.50	ug/L		07-MAY-19	R4625475
cis-1,3-Dichloropropene	<0.50		0.50	ug/L		07-MAY-19	R4625475
trans-1,3-Dichloropropene	<0.50		0.50	ug/L		07-MAY-19	R4625475

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Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2265498-1 EQ POND DISCHARGE							
Sampled By: CLIENT on 30-APR-19 @ 11:00							
Matrix: WATER							
<b>Volatile Organic Compounds</b>							
Ethylbenzene	<0.50		0.50	ug/L		07-MAY-19	R4625475
n-Hexane	<0.50		0.50	ug/L		07-MAY-19	R4625475
Methyl Ethyl Ketone	<20		20	ug/L		07-MAY-19	R4625475
Methyl Isobutyl Ketone	<20		20	ug/L		07-MAY-19	R4625475
MTBE	<0.50		0.50	ug/L		07-MAY-19	R4625475
Styrene	<0.50		0.50	ug/L		07-MAY-19	R4625475
1,1,1,2-Tetrachloroethane	<0.50		0.50	ug/L		07-MAY-19	R4625475
1,1,2,2-Tetrachloroethane	<0.50		0.50	ug/L		07-MAY-19	R4625475
Tetrachloroethylene	<0.50		0.50	ug/L		07-MAY-19	R4625475
Toluene	<0.50		0.50	ug/L		07-MAY-19	R4625475
1,1,1-Trichloroethane	<0.50		0.50	ug/L		07-MAY-19	R4625475
1,1,2-Trichloroethane	<0.50		0.50	ug/L		07-MAY-19	R4625475
Trichloroethylene	<0.50		0.50	ug/L		07-MAY-19	R4625475
Trichlorofluoromethane	<1.0		1.0	ug/L		07-MAY-19	R4625475
Vinyl chloride	<0.50		0.50	ug/L		07-MAY-19	R4625475
o-Xylene	<0.50		0.50	ug/L		07-MAY-19	R4625475
m+p-Xylenes	<1.0		1.0	ug/L		07-MAY-19	R4625475
Xylenes (Total)	<1.1		1.1	ug/L		07-MAY-19	
Surrogate: 4-Bromofluorobenzene	99.6		70-130	%		07-MAY-19	R4625475
Surrogate: 1,4-Difluorobenzene	101.5		70-130	%		07-MAY-19	R4625475
<b>Trihalomethanes</b>							
Total THMs	<2.0		2.0	ug/L		07-MAY-19	
<b>Acid Extractables</b>							
2,3,6-Trichlorophenol	<0.50		0.50	ug/L	07-MAY-19	08-MAY-19	R4628268
Surrogate: 2,4,6-Tribromophenol	100.6		40-150	%	07-MAY-19	08-MAY-19	R4628268
<b>Semi-Volatile Organics</b>							
Acenaphthene	<0.20		0.20	ug/L	07-MAY-19	08-MAY-19	R4628213
Acenaphthylene	<0.20		0.20	ug/L	07-MAY-19	08-MAY-19	R4628213
Anthracene	<0.20		0.20	ug/L	07-MAY-19	08-MAY-19	R4628213
Benzo(a)anthracene	<0.20		0.20	ug/L	07-MAY-19	08-MAY-19	R4628213
Benzo(a)pyrene	<0.050		0.050	ug/L	07-MAY-19	08-MAY-19	R4628213
Benzo(b)fluoranthene	<0.20		0.20	ug/L	07-MAY-19	08-MAY-19	R4628213
Benzo(ghi)perylene	<0.20		0.20	ug/L	07-MAY-19	08-MAY-19	R4628213
Benzo(k)fluoranthene	<0.20		0.20	ug/L	07-MAY-19	08-MAY-19	R4628213
4-Chloroaniline	<0.40		0.40	ug/L	07-MAY-19	08-MAY-19	R4628213
Bis(2-chloroethyl)ether	<0.40		0.40	ug/L	07-MAY-19	08-MAY-19	R4628213
2-Chlorophenol	<0.30		0.30	ug/L	07-MAY-19	08-MAY-19	R4628213
Chrysene	<0.20		0.20	ug/L	07-MAY-19	08-MAY-19	R4628213
Dibenzo(a,h)anthracene	<0.20		0.20	ug/L	07-MAY-19	08-MAY-19	R4628213
1,2-Dichlorobenzene	<0.40		0.40	ug/L	07-MAY-19	08-MAY-19	R4628213
1,3-Dichlorobenzene	<0.40		0.40	ug/L	07-MAY-19	08-MAY-19	R4628213
1,4-Dichlorobenzene	<0.40		0.40	ug/L	07-MAY-19	08-MAY-19	R4628213

\* 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
L2265498-1 EQ POND DISCHARGE Sampled By: CLIENT on 30-APR-19 @ 11:00 Matrix: WATER							
<b>Semi-Volatile Organics</b>							
3,3'-Dichlorobenzidine	<0.40		0.40	ug/L	07-MAY-19	08-MAY-19	R4628213
2,4-Dichlorophenol	<0.30		0.30	ug/L	07-MAY-19	08-MAY-19	R4628213
Diethylphthalate	<0.20		0.20	ug/L	07-MAY-19	08-MAY-19	R4628213
Dimethylphthalate	<0.20		0.20	ug/L	07-MAY-19	08-MAY-19	R4628213
2,4-Dimethylphenol	<0.50		0.50	ug/L	07-MAY-19	08-MAY-19	R4628213
2,4-Dinitrophenol	<1.0		1.0	ug/L	07-MAY-19	08-MAY-19	R4628213
2,4-Dinitrotoluene	<0.40		0.40	ug/L	07-MAY-19	08-MAY-19	R4628213
2,6-Dinitrotoluene	<0.40		0.40	ug/L	07-MAY-19	08-MAY-19	R4628213
Bis(2-ethylhexyl)phthalate	<2.0		2.0	ug/L	07-MAY-19	08-MAY-19	R4628213
Fluoranthene	<0.20		0.20	ug/L	07-MAY-19	08-MAY-19	R4628213
Fluorene	<0.20		0.20	ug/L	07-MAY-19	08-MAY-19	R4628213
Hexachlorobenzene	<0.040		0.040	ug/L	07-MAY-19	08-MAY-19	R4628213
Hexachlorobutadiene	<0.20		0.20	ug/L	07-MAY-19	08-MAY-19	R4628213
Indeno(1,2,3-cd)pyrene	<0.20		0.20	ug/L	07-MAY-19	08-MAY-19	R4628213
1-Methylnaphthalene	<0.40		0.40	ug/L	07-MAY-19	08-MAY-19	R4628213
2-Methylnaphthalene	<0.40		0.40	ug/L	07-MAY-19	08-MAY-19	R4628213
Naphthalene	<0.20		0.20	ug/L	07-MAY-19	08-MAY-19	R4628213
Pentachlorophenol	<0.50		0.50	ug/L	07-MAY-19	08-MAY-19	R4628213
Perylene	<0.20		0.20	ug/L	07-MAY-19	08-MAY-19	R4628213
Phenanthrene	<0.20		0.20	ug/L	07-MAY-19	08-MAY-19	R4628213
Pyrene	<0.20		0.20	ug/L	07-MAY-19	08-MAY-19	R4628213
2,3,4,5-Tetrachlorophenol	<0.50		0.50	ug/L	07-MAY-19	08-MAY-19	R4628213
2,3,4,6-Tetrachlorophenol	<0.50		0.50	ug/L	07-MAY-19	08-MAY-19	R4628213
1,2,4-Trichlorobenzene	<0.40		0.40	ug/L	07-MAY-19	08-MAY-19	R4628213
2,4,5-Trichlorophenol	<0.50		0.50	ug/L	07-MAY-19	08-MAY-19	R4628213
2,4,6-Trichlorophenol	<0.50		0.50	ug/L	07-MAY-19	08-MAY-19	R4628213
Surrogate: 2-Fluorobiphenyl	94.8		40-130	%	07-MAY-19	08-MAY-19	R4628213
Surrogate: Nitrobenzene d5	99.3		40-130	%	07-MAY-19	08-MAY-19	R4628213
Surrogate: p-Terphenyl d14	91.8		40-130	%	07-MAY-19	08-MAY-19	R4628213
L2265498-2 WEST STORM WATER POND Sampled By: CLIENT on 30-APR-19 @ 11:30 Matrix: WATER							
<b>Field Tests</b>							
pH, Client Supplied	8.10		0.10	pH		02-MAY-19	R4620668
Temperature, Client	6.0		-50	Deg. C		02-MAY-19	R4620668
<b>Physical Tests</b>							
Conductivity	802		3.0	umhos/cm		02-MAY-19	R4620891
Hardness (as CaCO3)	262	HTC	1.3	mg/L		02-MAY-19	R4620891
pH	8.18		0.10	pH units		02-MAY-19	R4620891
Total Suspended Solids	6.1		2.0	mg/L	03-MAY-19	04-MAY-19	R4622773
Total Dissolved Solids	482	DLDS	20	mg/L		05-MAY-19	R4624188
<b>Anions and Nutrients</b>							

\* 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
L2265498-2 WEST STORM WATER POND Sampled By: CLIENT on 30-APR-19 @ 11:30 Matrix: WATER							
<b>Anions and Nutrients</b>							
Alkalinity, Total (as CaCO <sub>3</sub> )	160		10	mg/L		02-MAY-19	R4620891
Unionized ammonia	0.0784		0.0041	mg/L		07-MAY-19	
Ammonia, Total (as N)	3.85	DLHC	0.20	mg/L		06-MAY-19	R4624466
Bromide (Br)	3.75		0.10	mg/L		02-MAY-19	R4621128
Chloride (Cl)	86.8		0.50	mg/L		02-MAY-19	R4621128
Fluoride (F)	0.520		0.020	mg/L		02-MAY-19	R4621128
Nitrate (as N)	0.289		0.020	mg/L		02-MAY-19	R4621128
Nitrite (as N)	<0.010		0.010	mg/L		02-MAY-19	R4621128
Total Kjeldahl Nitrogen	4.14		0.15	mg/L	02-MAY-19	06-MAY-19	R4624410
Phosphorus, Total	0.0166		0.0030	mg/L	02-MAY-19	03-MAY-19	R4622102
Sulfate (SO <sub>4</sub> )	130		0.30	mg/L		02-MAY-19	R4621128
<b>Cyanides</b>							
Cyanide, Total	<0.0020		0.0020	mg/L		01-MAY-19	R4620023
<b>Organic / Inorganic Carbon</b>							
Dissolved Carbon Filtration Location	LAB					01-MAY-19	R4619819
Dissolved Organic Carbon	5.90		0.50	mg/L	01-MAY-19	02-MAY-19	R4623388
<b>Total Metals</b>							
Aluminum (Al)-Total	0.215		0.010	mg/L	02-MAY-19	02-MAY-19	R4620610
Antimony (Sb)-Total	0.00046		0.00010	mg/L	02-MAY-19	02-MAY-19	R4620610
Arsenic (As)-Total	0.00161		0.00010	mg/L	02-MAY-19	02-MAY-19	R4620610
Barium (Ba)-Total	0.0565		0.00020	mg/L	02-MAY-19	02-MAY-19	R4620610
Beryllium (Be)-Total	<0.00010		0.00010	mg/L	02-MAY-19	02-MAY-19	R4620610
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	02-MAY-19	02-MAY-19	R4620610
Boron (B)-Total	0.138		0.010	mg/L	02-MAY-19	02-MAY-19	R4620610
Cadmium (Cd)-Total	0.000251		0.000010	mg/L	02-MAY-19	02-MAY-19	R4620610
Calcium (Ca)-Total	71.8		0.50	mg/L	02-MAY-19	02-MAY-19	R4620610
Cobalt (Co)-Total	0.00164		0.00010	mg/L	02-MAY-19	02-MAY-19	R4620610
Copper (Cu)-Total	0.0020		0.0010	mg/L	02-MAY-19	02-MAY-19	R4620610
Iron (Fe)-Total	0.182		0.050	mg/L	02-MAY-19	02-MAY-19	R4620610
Lead (Pb)-Total	0.00023		0.00010	mg/L	02-MAY-19	02-MAY-19	R4620610
Magnesium (Mg)-Total	20.1		0.050	mg/L	02-MAY-19	02-MAY-19	R4620610
Manganese (Mn)-Total	0.0262		0.00050	mg/L	02-MAY-19	02-MAY-19	R4620610
Mercury (Hg)-Total	<0.000010		0.000010	mg/L		02-MAY-19	R4620447
Molybdenum (Mo)-Total	0.0637		0.000050	mg/L	02-MAY-19	02-MAY-19	R4620610
Nickel (Ni)-Total	0.0125		0.00050	mg/L	02-MAY-19	02-MAY-19	R4620610
Potassium (K)-Total	14.1		0.050	mg/L	02-MAY-19	02-MAY-19	R4620610
Selenium (Se)-Total	0.00152		0.000050	mg/L	02-MAY-19	02-MAY-19	R4620610
Silicon (Si)-Total	1.99		0.10	mg/L	02-MAY-19	02-MAY-19	R4620610
Silver (Ag)-Total	<0.000050		0.000050	mg/L	02-MAY-19	02-MAY-19	R4620610
Sodium (Na)-Total	53.4		0.50	mg/L	02-MAY-19	02-MAY-19	R4620610
Strontium (Sr)-Total	0.499		0.0010	mg/L	02-MAY-19	02-MAY-19	R4620610
Thallium (Tl)-Total	0.000576		0.000010	mg/L	02-MAY-19	02-MAY-19	R4620610

\* 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
L2265498-2 WEST STORM WATER POND							
Sampled By: CLIENT on 30-APR-19 @ 11:30							
Matrix: WATER							
<b>Total Metals</b>							
Tin (Sn)-Total	<0.00010		0.00010	mg/L	02-MAY-19	02-MAY-19	R4620610
Vanadium (V)-Total	0.00096		0.00050	mg/L	02-MAY-19	02-MAY-19	R4620610
Zinc (Zn)-Total	<0.0030		0.0030	mg/L	02-MAY-19	02-MAY-19	R4620610
<b>Speciated Metals</b>							
Chromium, Hexavalent	<0.00050		0.00050	mg/L		01-MAY-19	R4619976
<b>Aggregate Organics</b>							
COD	17		10	mg/L		03-MAY-19	R4622154
Phenols (4AAP)	0.0021		0.0010	mg/L		02-MAY-19	R4622147
<b>Volatile Organic Compounds</b>							
Acetone	59		20	ug/L		07-MAY-19	R4625475
Benzene	<0.50		0.50	ug/L		07-MAY-19	R4625475
Bromodichloromethane	<1.0		1.0	ug/L		07-MAY-19	R4625475
Bromoform	<1.0		1.0	ug/L		07-MAY-19	R4625475
Bromomethane	<0.50		0.50	ug/L		07-MAY-19	R4625475
Carbon tetrachloride	<0.50		0.50	ug/L		07-MAY-19	R4625475
Chlorobenzene	<0.50		0.50	ug/L		07-MAY-19	R4625475
Dibromochloromethane	<1.0		1.0	ug/L		07-MAY-19	R4625475
Chloroethane	<1.0		1.0	ug/L		07-MAY-19	R4625475
Chloroform	<1.0		1.0	ug/L		07-MAY-19	R4625475
1,2-Dibromoethane	<0.20		0.20	ug/L		07-MAY-19	R4625475
1,2-Dichlorobenzene	<0.50		0.50	ug/L		07-MAY-19	R4625475
1,3-Dichlorobenzene	<0.50		0.50	ug/L		07-MAY-19	R4625475
1,4-Dichlorobenzene	<0.50		0.50	ug/L		07-MAY-19	R4625475
Dichlorodifluoromethane	<1.0		1.0	ug/L		07-MAY-19	R4625475
1,1-Dichloroethane	<0.50		0.50	ug/L		07-MAY-19	R4625475
1,2-Dichloroethane	<0.50		0.50	ug/L		07-MAY-19	R4625475
1,1-Dichloroethylene	<0.50		0.50	ug/L		07-MAY-19	R4625475
cis-1,2-Dichloroethylene	<0.50		0.50	ug/L		07-MAY-19	R4625475
trans-1,2-Dichloroethylene	<0.50		0.50	ug/L		07-MAY-19	R4625475
Dichloromethane	<2.0		2.0	ug/L		07-MAY-19	R4625475
1,2-Dichloropropane	<0.50		0.50	ug/L		07-MAY-19	R4625475
cis-1,3-Dichloropropene	<0.50		0.50	ug/L		07-MAY-19	R4625475
trans-1,3-Dichloropropene	<0.50		0.50	ug/L		07-MAY-19	R4625475
Ethylbenzene	<0.50		0.50	ug/L		07-MAY-19	R4625475
n-Hexane	<0.50		0.50	ug/L		07-MAY-19	R4625475
Methyl Ethyl Ketone	<20		20	ug/L		07-MAY-19	R4625475
Methyl Isobutyl Ketone	<20		20	ug/L		07-MAY-19	R4625475
MTBE	<0.50		0.50	ug/L		07-MAY-19	R4625475
Styrene	<0.50		0.50	ug/L		07-MAY-19	R4625475
1,1,1,2-Tetrachloroethane	<0.50		0.50	ug/L		07-MAY-19	R4625475
1,1,2,2-Tetrachloroethane	<0.50		0.50	ug/L		07-MAY-19	R4625475
Tetrachloroethylene	<0.50		0.50	ug/L		07-MAY-19	R4625475

\* 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
L2265498-2 WEST STORM WATER POND							
Sampled By: CLIENT on 30-APR-19 @ 11:30							
Matrix: WATER							
<b>Volatile Organic Compounds</b>							
Toluene	<0.50		0.50	ug/L		07-MAY-19	R4625475
1,1,1-Trichloroethane	<0.50		0.50	ug/L		07-MAY-19	R4625475
1,1,2-Trichloroethane	<0.50		0.50	ug/L		07-MAY-19	R4625475
Trichloroethylene	<0.50		0.50	ug/L		07-MAY-19	R4625475
Trichlorofluoromethane	<1.0		1.0	ug/L		07-MAY-19	R4625475
Vinyl chloride	<0.50		0.50	ug/L		07-MAY-19	R4625475
o-Xylene	<0.50		0.50	ug/L		07-MAY-19	R4625475
m+p-Xylenes	<1.0		1.0	ug/L		07-MAY-19	R4625475
Xylenes (Total)	<1.1		1.1	ug/L		07-MAY-19	
Surrogate: 4-Bromofluorobenzene	97.4		70-130	%		07-MAY-19	R4625475
Surrogate: 1,4-Difluorobenzene	103.0		70-130	%		07-MAY-19	R4625475
<b>Trihalomethanes</b>							
Total THMs	<2.0		2.0	ug/L		07-MAY-19	
<b>Acid Extractables</b>							
2,3,6-Trichlorophenol	<0.50		0.50	ug/L	07-MAY-19	08-MAY-19	R4628268
Surrogate: 2,4,6-Tribromophenol	106.2		40-150	%	07-MAY-19	08-MAY-19	R4628268
<b>Semi-Volatile Organics</b>							
Acenaphthene	<0.20		0.20	ug/L	07-MAY-19	08-MAY-19	R4628213
Acenaphthylene	<0.20		0.20	ug/L	07-MAY-19	08-MAY-19	R4628213
Anthracene	<0.20		0.20	ug/L	07-MAY-19	08-MAY-19	R4628213
Benzo(a)anthracene	<0.20		0.20	ug/L	07-MAY-19	08-MAY-19	R4628213
Benzo(a)pyrene	<0.050		0.050	ug/L	07-MAY-19	08-MAY-19	R4628213
Benzo(b)fluoranthene	<0.20		0.20	ug/L	07-MAY-19	08-MAY-19	R4628213
Benzo(ghi)perylene	<0.20		0.20	ug/L	07-MAY-19	08-MAY-19	R4628213
Benzo(k)fluoranthene	<0.20		0.20	ug/L	07-MAY-19	08-MAY-19	R4628213
4-Chloroaniline	<0.40		0.40	ug/L	07-MAY-19	08-MAY-19	R4628213
Bis(2-chloroethyl)ether	<0.40		0.40	ug/L	07-MAY-19	08-MAY-19	R4628213
2-Chlorophenol	<0.30		0.30	ug/L	07-MAY-19	08-MAY-19	R4628213
Chrysene	<0.20		0.20	ug/L	07-MAY-19	08-MAY-19	R4628213
Dibenzo(a,h)anthracene	<0.20		0.20	ug/L	07-MAY-19	08-MAY-19	R4628213
1,2-Dichlorobenzene	<0.40		0.40	ug/L	07-MAY-19	08-MAY-19	R4628213
1,3-Dichlorobenzene	<0.40		0.40	ug/L	07-MAY-19	08-MAY-19	R4628213
1,4-Dichlorobenzene	<0.40		0.40	ug/L	07-MAY-19	08-MAY-19	R4628213
3,3'-Dichlorobenzidine	<0.40		0.40	ug/L	07-MAY-19	08-MAY-19	R4628213
2,4-Dichlorophenol	<0.30		0.30	ug/L	07-MAY-19	08-MAY-19	R4628213
Diethylphthalate	<0.20		0.20	ug/L	07-MAY-19	08-MAY-19	R4628213
Dimethylphthalate	<0.20		0.20	ug/L	07-MAY-19	08-MAY-19	R4628213
2,4-Dimethylphenol	<0.50		0.50	ug/L	07-MAY-19	08-MAY-19	R4628213
2,4-Dinitrophenol	<1.0		1.0	ug/L	07-MAY-19	08-MAY-19	R4628213
2,4-Dinitrotoluene	<0.40		0.40	ug/L	07-MAY-19	08-MAY-19	R4628213
2,6-Dinitrotoluene	<0.40		0.40	ug/L	07-MAY-19	08-MAY-19	R4628213
Bis(2-ethylhexyl)phthalate	<2.0		2.0	ug/L	07-MAY-19	08-MAY-19	R4628213

\* 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
L2265498-2 WEST STORM WATER POND Sampled By: CLIENT on 30-APR-19 @ 11:30 Matrix: WATER							
<b>Semi-Volatile Organics</b>							
Fluoranthene	<0.20		0.20	ug/L	07-MAY-19	08-MAY-19	R4628213
Fluorene	<0.20		0.20	ug/L	07-MAY-19	08-MAY-19	R4628213
Hexachlorobenzene	<0.040		0.040	ug/L	07-MAY-19	08-MAY-19	R4628213
Hexachlorobutadiene	<0.20		0.20	ug/L	07-MAY-19	08-MAY-19	R4628213
Indeno(1,2,3-cd)pyrene	<0.20		0.20	ug/L	07-MAY-19	08-MAY-19	R4628213
1-Methylnaphthalene	<0.40		0.40	ug/L	07-MAY-19	08-MAY-19	R4628213
2-Methylnaphthalene	<0.40		0.40	ug/L	07-MAY-19	08-MAY-19	R4628213
Naphthalene	<0.20		0.20	ug/L	07-MAY-19	08-MAY-19	R4628213
Pentachlorophenol	<0.50		0.50	ug/L	07-MAY-19	08-MAY-19	R4628213
Perylene	<0.20		0.20	ug/L	07-MAY-19	08-MAY-19	R4628213
Phenanthrene	<0.20		0.20	ug/L	07-MAY-19	08-MAY-19	R4628213
Pyrene	<0.20		0.20	ug/L	07-MAY-19	08-MAY-19	R4628213
2,3,4,5-Tetrachlorophenol	<0.50		0.50	ug/L	07-MAY-19	08-MAY-19	R4628213
2,3,4,6-Tetrachlorophenol	<0.50		0.50	ug/L	07-MAY-19	08-MAY-19	R4628213
1,2,4-Trichlorobenzene	<0.40		0.40	ug/L	07-MAY-19	08-MAY-19	R4628213
2,4,5-Trichlorophenol	<0.50		0.50	ug/L	07-MAY-19	08-MAY-19	R4628213
2,4,6-Trichlorophenol	<0.50		0.50	ug/L	07-MAY-19	08-MAY-19	R4628213
Surrogate: 2-Fluorobiphenyl	91.2		40-130	%	07-MAY-19	08-MAY-19	R4628213
Surrogate: Nitrobenzene d5	96.5		40-130	%	07-MAY-19	08-MAY-19	R4628213
Surrogate: p-Terphenyl d14	96.0		40-130	%	07-MAY-19	08-MAY-19	R4628213
L2265498-3 EAST STORM WATER POND Sampled By: CLIENT on 30-APR-19 @ 11:15 Matrix: WATER							
<b>Field Tests</b>							
pH, Client Supplied	7.80		0.10	pH		02-MAY-19	R4620668
Temperature, Client	7.0		-50	Deg. C		02-MAY-19	R4620668
<b>Physical Tests</b>							
Conductivity	726		3.0	umhos/cm		02-MAY-19	R4620891
Hardness (as CaCO3)	263	HTC	1.3	mg/L		02-MAY-19	
pH	7.99		0.10	pH units		02-MAY-19	R4620891
Total Suspended Solids	5.8		2.0	mg/L	03-MAY-19	04-MAY-19	R4622773
Total Dissolved Solids	448	DLDS	20	mg/L		05-MAY-19	R4624188
<b>Anions and Nutrients</b>							
Alkalinity, Total (as CaCO3)	147		10	mg/L		02-MAY-19	R4620891
Unionized ammonia	0.0446		0.0022	mg/L		07-MAY-19	
Ammonia, Total (as N)	4.01	DLHC	0.20	mg/L		06-MAY-19	R4624466
Bromide (Br)	0.85		0.10	mg/L		02-MAY-19	R4621128
Chloride (Cl)	56.9		0.50	mg/L		02-MAY-19	R4621128
Fluoride (F)	0.581		0.020	mg/L		02-MAY-19	R4621128
Nitrate (as N)	0.136		0.020	mg/L		02-MAY-19	R4621128
Nitrite (as N)	<0.010		0.010	mg/L		02-MAY-19	R4621128
Total Kjeldahl Nitrogen	5.02		0.15	mg/L	02-MAY-19	06-MAY-19	R4624410

\* 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
L2265498-3 EAST STORM WATER POND Sampled By: CLIENT on 30-APR-19 @ 11:15 Matrix: WATER							
<b>Anions and Nutrients</b>							
Phosphorus, Total	0.0288		0.0030	mg/L	02-MAY-19	03-MAY-19	R4622102
Sulfate (SO4)	150		0.30	mg/L		02-MAY-19	R4621128
<b>Cyanides</b>							
Cyanide, Total	<0.0020		0.0020	mg/L		01-MAY-19	R4620023
<b>Organic / Inorganic Carbon</b>							
Dissolved Carbon Filtration Location	LAB					01-MAY-19	R4619819
Dissolved Organic Carbon	6.25		0.50	mg/L	01-MAY-19	02-MAY-19	R4623388
<b>Total Metals</b>							
Aluminum (Al)-Total	0.499		0.010	mg/L	02-MAY-19	02-MAY-19	R4620610
Antimony (Sb)-Total	0.00050		0.00010	mg/L	02-MAY-19	02-MAY-19	R4620610
Arsenic (As)-Total	0.00151		0.00010	mg/L	02-MAY-19	02-MAY-19	R4620610
Barium (Ba)-Total	0.0451		0.00020	mg/L	02-MAY-19	02-MAY-19	R4620610
Beryllium (Be)-Total	<0.00010		0.00010	mg/L	02-MAY-19	02-MAY-19	R4620610
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	02-MAY-19	02-MAY-19	R4620610
Boron (B)-Total	0.084		0.010	mg/L	02-MAY-19	02-MAY-19	R4620610
Cadmium (Cd)-Total	0.000560		0.000010	mg/L	02-MAY-19	02-MAY-19	R4620610
Calcium (Ca)-Total	70.7		0.50	mg/L	02-MAY-19	02-MAY-19	R4620610
Cobalt (Co)-Total	0.00054		0.00010	mg/L	02-MAY-19	02-MAY-19	R4620610
Copper (Cu)-Total	0.0020		0.0010	mg/L	02-MAY-19	02-MAY-19	R4620610
Iron (Fe)-Total	0.472		0.050	mg/L	02-MAY-19	02-MAY-19	R4620610
Lead (Pb)-Total	0.00140		0.00010	mg/L	02-MAY-19	02-MAY-19	R4620610
Magnesium (Mg)-Total	21.1		0.050	mg/L	02-MAY-19	02-MAY-19	R4620610
Manganese (Mn)-Total	0.0444		0.00050	mg/L	02-MAY-19	02-MAY-19	R4620610
Mercury (Hg)-Total	0.000012		0.000010	mg/L		02-MAY-19	R4620447
Molybdenum (Mo)-Total	0.0802		0.000050	mg/L	02-MAY-19	02-MAY-19	R4620610
Nickel (Ni)-Total	0.00411		0.00050	mg/L	02-MAY-19	02-MAY-19	R4620610
Potassium (K)-Total	16.3		0.050	mg/L	02-MAY-19	02-MAY-19	R4620610
Selenium (Se)-Total	0.00167		0.000050	mg/L	02-MAY-19	02-MAY-19	R4620610
Silicon (Si)-Total	2.42		0.10	mg/L	02-MAY-19	02-MAY-19	R4620610
Silver (Ag)-Total	<0.000050		0.000050	mg/L	02-MAY-19	02-MAY-19	R4620610
Sodium (Na)-Total	35.5		0.50	mg/L	02-MAY-19	02-MAY-19	R4620610
Strontium (Sr)-Total	0.614		0.0010	mg/L	02-MAY-19	02-MAY-19	R4620610
Thallium (Tl)-Total	0.00294		0.000010	mg/L	02-MAY-19	02-MAY-19	R4620610
Tin (Sn)-Total	<0.00010		0.00010	mg/L	02-MAY-19	02-MAY-19	R4620610
Vanadium (V)-Total	0.00132		0.00050	mg/L	02-MAY-19	02-MAY-19	R4620610
Zinc (Zn)-Total	0.0116		0.0030	mg/L	02-MAY-19	02-MAY-19	R4620610
<b>Speciated Metals</b>							
Chromium, Hexavalent	0.00052		0.00050	mg/L		01-MAY-19	R4619976
<b>Aggregate Organics</b>							
COD	22		10	mg/L		03-MAY-19	R4622154
Phenols (4AAP)	0.0013		0.0010	mg/L		02-MAY-19	R4622147
<b>Volatile Organic Compounds</b>							

\* 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
L2265498-3 EAST STORM WATER POND Sampled By: CLIENT on 30-APR-19 @ 11:15 Matrix: WATER							
<b>Volatile Organic Compounds</b>							
Acetone	<20		20	ug/L		07-MAY-19	R4625475
Benzene	<0.50		0.50	ug/L		07-MAY-19	R4625475
Bromodichloromethane	<1.0		1.0	ug/L		07-MAY-19	R4625475
Bromoform	<1.0		1.0	ug/L		07-MAY-19	R4625475
Bromomethane	<0.50		0.50	ug/L		07-MAY-19	R4625475
Carbon tetrachloride	<0.50		0.50	ug/L		07-MAY-19	R4625475
Chlorobenzene	<0.50		0.50	ug/L		07-MAY-19	R4625475
Dibromochloromethane	<1.0		1.0	ug/L		07-MAY-19	R4625475
Chloroethane	<1.0		1.0	ug/L		07-MAY-19	R4625475
Chloroform	<1.0		1.0	ug/L		07-MAY-19	R4625475
1,2-Dibromoethane	<0.20		0.20	ug/L		07-MAY-19	R4625475
1,2-Dichlorobenzene	<0.50		0.50	ug/L		07-MAY-19	R4625475
1,3-Dichlorobenzene	<0.50		0.50	ug/L		07-MAY-19	R4625475
1,4-Dichlorobenzene	<0.50		0.50	ug/L		07-MAY-19	R4625475
Dichlorodifluoromethane	<1.0		1.0	ug/L		07-MAY-19	R4625475
1,1-Dichloroethane	<0.50		0.50	ug/L		07-MAY-19	R4625475
1,2-Dichloroethane	<0.50		0.50	ug/L		07-MAY-19	R4625475
1,1-Dichloroethylene	<0.50		0.50	ug/L		07-MAY-19	R4625475
cis-1,2-Dichloroethylene	<0.50		0.50	ug/L		07-MAY-19	R4625475
trans-1,2-Dichloroethylene	<0.50		0.50	ug/L		07-MAY-19	R4625475
Dichloromethane	<2.0		2.0	ug/L		07-MAY-19	R4625475
1,2-Dichloropropane	<0.50		0.50	ug/L		07-MAY-19	R4625475
cis-1,3-Dichloropropene	<0.50		0.50	ug/L		07-MAY-19	R4625475
trans-1,3-Dichloropropene	<0.50		0.50	ug/L		07-MAY-19	R4625475
Ethylbenzene	<0.50		0.50	ug/L		07-MAY-19	R4625475
n-Hexane	<0.50		0.50	ug/L		07-MAY-19	R4625475
Methyl Ethyl Ketone	<20		20	ug/L		07-MAY-19	R4625475
Methyl Isobutyl Ketone	<20		20	ug/L		07-MAY-19	R4625475
MTBE	<0.50		0.50	ug/L		07-MAY-19	R4625475
Styrene	<0.50		0.50	ug/L		07-MAY-19	R4625475
1,1,1,2-Tetrachloroethane	<0.50		0.50	ug/L		07-MAY-19	R4625475
1,1,2,2-Tetrachloroethane	<0.50		0.50	ug/L		07-MAY-19	R4625475
Tetrachloroethylene	<0.50		0.50	ug/L		07-MAY-19	R4625475
Toluene	<0.50		0.50	ug/L		07-MAY-19	R4625475
1,1,1-Trichloroethane	<0.50		0.50	ug/L		07-MAY-19	R4625475
1,1,2-Trichloroethane	<0.50		0.50	ug/L		07-MAY-19	R4625475
Trichloroethylene	<0.50		0.50	ug/L		07-MAY-19	R4625475
Trichlorofluoromethane	<1.0		1.0	ug/L		07-MAY-19	R4625475
Vinyl chloride	<0.50		0.50	ug/L		07-MAY-19	R4625475
o-Xylene	<0.50		0.50	ug/L		07-MAY-19	R4625475
m+p-Xylenes	<1.0		1.0	ug/L		07-MAY-19	R4625475

\* 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
L2265498-3 EAST STORM WATER POND Sampled By: CLIENT on 30-APR-19 @ 11:15 Matrix: WATER							
<b>Volatile Organic Compounds</b>							
Xylenes (Total)	<1.1		1.1	ug/L		07-MAY-19	
Surrogate: 4-Bromofluorobenzene	97.5		70-130	%		07-MAY-19	R4625475
Surrogate: 1,4-Difluorobenzene	103.4		70-130	%		07-MAY-19	R4625475
<b>Trihalomethanes</b>							
Total THMs	<2.0		2.0	ug/L		07-MAY-19	
<b>Acid Extractables</b>							
2,3,6-Trichlorophenol	<0.50		0.50	ug/L	07-MAY-19	08-MAY-19	R4628268
Surrogate: 2,4,6-Tribromophenol	112.1		40-150	%	07-MAY-19	08-MAY-19	R4628268
<b>Semi-Volatile Organics</b>							
Acenaphthene	<0.20		0.20	ug/L	07-MAY-19	08-MAY-19	R4628213
Acenaphthylene	<0.20		0.20	ug/L	07-MAY-19	08-MAY-19	R4628213
Anthracene	<0.20		0.20	ug/L	07-MAY-19	08-MAY-19	R4628213
Benzo(a)anthracene	<0.20		0.20	ug/L	07-MAY-19	08-MAY-19	R4628213
Benzo(a)pyrene	<0.050		0.050	ug/L	07-MAY-19	08-MAY-19	R4628213
Benzo(b)fluoranthene	<0.20		0.20	ug/L	07-MAY-19	08-MAY-19	R4628213
Benzo(ghi)perylene	<0.20		0.20	ug/L	07-MAY-19	08-MAY-19	R4628213
Benzo(k)fluoranthene	<0.20		0.20	ug/L	07-MAY-19	08-MAY-19	R4628213
4-Chloroaniline	<0.40		0.40	ug/L	07-MAY-19	08-MAY-19	R4628213
Bis(2-chloroethyl)ether	<0.40		0.40	ug/L	07-MAY-19	08-MAY-19	R4628213
2-Chlorophenol	<0.30		0.30	ug/L	07-MAY-19	08-MAY-19	R4628213
Chrysene	<0.20		0.20	ug/L	07-MAY-19	08-MAY-19	R4628213
Dibenzo(a,h)anthracene	<0.20		0.20	ug/L	07-MAY-19	08-MAY-19	R4628213
1,2-Dichlorobenzene	<0.40		0.40	ug/L	07-MAY-19	08-MAY-19	R4628213
1,3-Dichlorobenzene	<0.40		0.40	ug/L	07-MAY-19	08-MAY-19	R4628213
1,4-Dichlorobenzene	<0.40		0.40	ug/L	07-MAY-19	08-MAY-19	R4628213
3,3'-Dichlorobenzidine	<0.40		0.40	ug/L	07-MAY-19	08-MAY-19	R4628213
2,4-Dichlorophenol	<0.30		0.30	ug/L	07-MAY-19	08-MAY-19	R4628213
Diethylphthalate	<0.20		0.20	ug/L	07-MAY-19	08-MAY-19	R4628213
Dimethylphthalate	<0.20		0.20	ug/L	07-MAY-19	08-MAY-19	R4628213
2,4-Dimethylphenol	<0.50		0.50	ug/L	07-MAY-19	08-MAY-19	R4628213
2,4-Dinitrophenol	<1.0		1.0	ug/L	07-MAY-19	08-MAY-19	R4628213
2,4-Dinitrotoluene	<0.40		0.40	ug/L	07-MAY-19	08-MAY-19	R4628213
2,6-Dinitrotoluene	<0.40		0.40	ug/L	07-MAY-19	08-MAY-19	R4628213
Bis(2-ethylhexyl)phthalate	<2.0		2.0	ug/L	07-MAY-19	08-MAY-19	R4628213
Fluoranthene	<0.20		0.20	ug/L	07-MAY-19	08-MAY-19	R4628213
Fluorene	<0.20		0.20	ug/L	07-MAY-19	08-MAY-19	R4628213
Hexachlorobenzene	<0.040		0.040	ug/L	07-MAY-19	08-MAY-19	R4628213
Hexachlorobutadiene	<0.20		0.20	ug/L	07-MAY-19	08-MAY-19	R4628213
Indeno(1,2,3-cd)pyrene	<0.20		0.20	ug/L	07-MAY-19	08-MAY-19	R4628213
1-Methylnaphthalene	<0.40		0.40	ug/L	07-MAY-19	08-MAY-19	R4628213
2-Methylnaphthalene	<0.40		0.40	ug/L	07-MAY-19	08-MAY-19	R4628213
Naphthalene	<0.20		0.20	ug/L	07-MAY-19	08-MAY-19	R4628213

\* 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
L2265498-3 EAST STORM WATER POND Sampled By: CLIENT on 30-APR-19 @ 11:15 Matrix: WATER							
<b>Semi-Volatile Organics</b>							
Pentachlorophenol	<0.50		0.50	ug/L	07-MAY-19	08-MAY-19	R4628213
Perylene	<0.20		0.20	ug/L	07-MAY-19	08-MAY-19	R4628213
Phenanthrene	<0.20		0.20	ug/L	07-MAY-19	08-MAY-19	R4628213
Pyrene	<0.20		0.20	ug/L	07-MAY-19	08-MAY-19	R4628213
2,3,4,5-Tetrachlorophenol	<0.50		0.50	ug/L	07-MAY-19	08-MAY-19	R4628213
2,3,4,6-Tetrachlorophenol	<0.50		0.50	ug/L	07-MAY-19	08-MAY-19	R4628213
1,2,4-Trichlorobenzene	<0.40		0.40	ug/L	07-MAY-19	08-MAY-19	R4628213
2,4,5-Trichlorophenol	<0.50		0.50	ug/L	07-MAY-19	08-MAY-19	R4628213
2,4,6-Trichlorophenol	<0.50		0.50	ug/L	07-MAY-19	08-MAY-19	R4628213
Surrogate: 2-Fluorobiphenyl	98.6		40-130	%	07-MAY-19	08-MAY-19	R4628213
Surrogate: Nitrobenzene d5	100.7		40-130	%	07-MAY-19	08-MAY-19	R4628213
Surrogate: p-Terphenyl d14	99.8		40-130	%	07-MAY-19	08-MAY-19	R4628213

\* 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	2,4-Dinitrophenol	LCS-H	L2265498-1, -2, -3
Matrix Spike	Aluminum (Al)-Total	MS-B	L2265498-1, -2, -3
Matrix Spike	Barium (Ba)-Total	MS-B	L2265498-1, -2, -3
Matrix Spike	Calcium (Ca)-Total	MS-B	L2265498-1, -2, -3
Matrix Spike	Iron (Fe)-Total	MS-B	L2265498-1, -2, -3
Matrix Spike	Magnesium (Mg)-Total	MS-B	L2265498-1, -2, -3
Matrix Spike	Manganese (Mn)-Total	MS-B	L2265498-1, -2, -3
Matrix Spike	Silicon (Si)-Total	MS-B	L2265498-1, -2, -3
Matrix Spike	Sodium (Na)-Total	MS-B	L2265498-1, -2, -3
Matrix Spike	Strontium (Sr)-Total	MS-B	L2265498-1, -2, -3
Matrix Spike	Ammonia, Total (as N)	MS-B	L2265498-1, -2, -3
Matrix Spike	Nitrite (as N)	MS-B	L2265498-1, -2, -3
Matrix Spike	Nitrate (as N)	MS-B	L2265498-1, -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).
HTC	Hardness was calculated from Total Ca and/or Mg concentrations and may be biased high (dissolved Ca/Mg results unavailable).
LCS-H	Lab Control Sample recovery was above ALS DQO. Non-detected sample results are considered reliable. Other results, if reported, have been qualified.
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 <sub>3</sub> ) 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).			

## Reference Information

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 CaCO <sub>3</sub> 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 ICPMS	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-F-WT	Water	Ammonia in Water by Fluorescence	J. ENVIRON. MONIT., 2005, 7, 37-42, RSC
This analysis is carried out, on sulfuric acid preserved samples, using procedures modified from J. Environ. Monit., 2005, 7, 37 - 42, The Royal Society of Chemistry, "Flow-injection analysis with fluorescence detection for the determination of trace levels of ammonium in seawater", Roslyn J. Weston et al.			
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.			

## Reference Information

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.			

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

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*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:*

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

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### Chain of Custody Numbers:

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#### 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: L2265498

Report Date: 08-MAY-19

Page 1 of 18

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

Contact: LAURA ERMETA

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>625-ACID-EXTRA-WT</b>	<b>Water</b>							
<b>Batch</b>	<b>R4628268</b>							
<b>WG3043492-2</b>	<b>LCS</b>							
2,3,6-Trichlorophenol			85.7		%		50-130	08-MAY-19
<b>WG3043492-1</b>	<b>MB</b>							
2,3,6-Trichlorophenol			<0.50		ug/L		0.5	08-MAY-19
Surrogate: 2,4,6-Tribromophenol			85.6		%		40-150	08-MAY-19
<b>625-WT</b>	<b>Water</b>							
<b>Batch</b>	<b>R4628213</b>							
<b>WG3043492-2</b>	<b>LCS</b>							
1-Methylnaphthalene			94.9		%		50-140	08-MAY-19
1,2-Dichlorobenzene			77.0		%		40-130	08-MAY-19
1,2,4-Trichlorobenzene			80.9		%		50-130	08-MAY-19
1,3-Dichlorobenzene			74.0		%		50-140	08-MAY-19
1,4-Dichlorobenzene			75.8		%		40-130	08-MAY-19
2-Chlorophenol			88.5		%		65-130	08-MAY-19
2-Methylnaphthalene			92.4		%		50-140	08-MAY-19
2,3,4,5-Tetrachlorophenol			110.7		%		50-130	08-MAY-19
2,3,4,6-Tetrachlorophenol			106.4		%		65-130	08-MAY-19
2,4-Dichlorophenol			105.0		%		65-130	08-MAY-19
2,4-Dimethylphenol			98.9		%		30-130	08-MAY-19
2,4-Dinitrophenol			146.5	LCS-H	%		40-140	08-MAY-19
2,4-Dinitrotoluene			111.9		%		50-140	08-MAY-19
2,4,5-Trichlorophenol			115.1		%		65-130	08-MAY-19
2,4,6-Trichlorophenol			107.4		%		65-130	08-MAY-19
2,6-Dinitrotoluene			114.1		%		50-140	08-MAY-19
3,3'-Dichlorobenzidine			99.6		%		50-140	08-MAY-19
4-Chloroaniline			78.8		%		30-140	08-MAY-19
Acenaphthene			99.7		%		50-140	08-MAY-19
Acenaphthylene			101.0		%		50-140	08-MAY-19
Anthracene			103.8		%		50-140	08-MAY-19
Benzo(a)anthracene			106.4		%		50-140	08-MAY-19
Benzo(a)pyrene			101.5		%		60-130	08-MAY-19
Benzo(b)fluoranthene			108.5		%		50-140	08-MAY-19
Benzo(ghi)perylene			84.0		%		50-140	08-MAY-19
Benzo(k)fluoranthene			109.8		%		50-140	08-MAY-19
Bis(2-chloroethyl)ether			96.6		%		50-140	08-MAY-19





### Quality Control Report

Workorder: L2265498

Report Date: 08-MAY-19

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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
<b>625-WT</b>	<b>Water</b>							
<b>Batch</b>	<b>R4628213</b>							
<b>WG3043492-2 LCS</b>								
Bis(2-ethylhexyl)phthalate			115.7		%		50-140	08-MAY-19
Chrysene			99.2		%		50-140	08-MAY-19
Dibenzo(a,h)anthracene			85.1		%		50-140	08-MAY-19
Diethylphthalate			104.6		%		50-140	08-MAY-19
Dimethylphthalate			108.5		%		50-140	08-MAY-19
Fluoranthene			99.0		%		50-140	08-MAY-19
Fluorene			96.0		%		50-140	08-MAY-19
Hexachlorobenzene			92.6		%		40-130	08-MAY-19
Hexachlorobutadiene			73.1		%		40-130	08-MAY-19
Indeno(1,2,3-cd)pyrene			88.5		%		50-140	08-MAY-19
Naphthalene			96.6		%		50-140	08-MAY-19
Pentachlorophenol			127.4		%		65-130	08-MAY-19
Perylene			95.6		%		50-140	08-MAY-19
Phenanthrene			99.5		%		50-140	08-MAY-19
Pyrene			100.4		%		50-140	08-MAY-19
<b>WG3043492-1 MB</b>								
1-Methylnaphthalene			<0.40		ug/L		0.4	08-MAY-19
1,2-Dichlorobenzene			<0.40		ug/L		0.4	08-MAY-19
1,2,4-Trichlorobenzene			<0.40		ug/L		0.4	08-MAY-19
1,3-Dichlorobenzene			<0.40		ug/L		0.4	08-MAY-19
1,4-Dichlorobenzene			<0.40		ug/L		0.4	08-MAY-19
2-Chlorophenol			<0.30		ug/L		0.3	08-MAY-19
2-Methylnaphthalene			<0.40		ug/L		0.4	08-MAY-19
2,3,4,5-Tetrachlorophenol			<0.50		ug/L		0.5	08-MAY-19
2,3,4,6-Tetrachlorophenol			<0.50		ug/L		0.5	08-MAY-19
2,4-Dichlorophenol			<0.30		ug/L		0.3	08-MAY-19
2,4-Dimethylphenol			<0.50		ug/L		0.5	08-MAY-19
2,4-Dinitrophenol			<1.0		ug/L		1	08-MAY-19
2,4-Dinitrotoluene			<0.40		ug/L		0.4	08-MAY-19
2,4,5-Trichlorophenol			<0.50		ug/L		0.5	08-MAY-19
2,4,6-Trichlorophenol			<0.50		ug/L		0.5	08-MAY-19
2,6-Dinitrotoluene			<0.40		ug/L		0.4	08-MAY-19
3,3'-Dichlorobenzidine			<0.40		ug/L		0.4	08-MAY-19
4-Chloroaniline			<0.40		ug/L		0.4	08-MAY-19





### Quality Control Report

Workorder: L2265498

Report Date: 08-MAY-19

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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
<b>ALK-WT Water</b>								
Batch	R4620891							
WG3039680-5	MB							
Alkalinity, Total (as CaCO3)			<10		mg/L		10	02-MAY-19
<b>BR-IC-N-WT Water</b>								
Batch	R4621128							
WG3040039-4	DUP	WG3040039-3						
Bromide (Br)		<0.10	<0.10	RPD-NA	mg/L	N/A	20	02-MAY-19
WG3040039-2	LCS							
Bromide (Br)			103.4		%		85-115	02-MAY-19
WG3040039-1	MB							
Bromide (Br)			<0.10		mg/L		0.1	02-MAY-19
WG3040039-5	MS	WG3040039-3						
Bromide (Br)			103.0		%		75-125	02-MAY-19
<b>CL-IC-N-WT Water</b>								
Batch	R4621128							
WG3040039-4	DUP	WG3040039-3						
Chloride (Cl)		14.8	14.8		mg/L	0.0	20	02-MAY-19
WG3040039-2	LCS							
Chloride (Cl)			101.2		%		90-110	02-MAY-19
WG3040039-1	MB							
Chloride (Cl)			<0.50		mg/L		0.5	02-MAY-19
WG3040039-5	MS	WG3040039-3						
Chloride (Cl)			101.9		%		75-125	02-MAY-19
<b>CN-TOT-WT Water</b>								
Batch	R4620023							
WG3039063-8	DUP	L2265295-1						
Cyanide, Total		<0.0020	<0.0020	RPD-NA	mg/L	N/A	20	01-MAY-19
WG3039063-6	LCS							
Cyanide, Total			91.9		%		80-120	01-MAY-19
WG3039063-5	MB							
Cyanide, Total			<0.0020		mg/L		0.002	01-MAY-19
WG3039063-7	MS	L2265295-1						
Cyanide, Total			82.6		%		70-130	01-MAY-19
<b>COD-T-WT Water</b>								



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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
<b>COD-T-WT</b>								
	<b>Water</b>							
<b>Batch</b>	<b>R4622154</b>							
<b>WG3040686-3</b>	<b>DUP</b>	<b>L2266207-6</b>						
COD		15	17		mg/L	15	20	03-MAY-19
<b>WG3040686-2</b>	<b>LCS</b>		98.6		%		85-115	03-MAY-19
COD								
<b>WG3040686-1</b>	<b>MB</b>		<10		mg/L		10	03-MAY-19
COD								
<b>WG3040686-4</b>	<b>MS</b>	<b>L2266207-6</b>	101.9		%		75-125	03-MAY-19
COD								
<b>CR-CR6-IC-WT</b>								
	<b>Water</b>							
<b>Batch</b>	<b>R4619976</b>							
<b>WG3038165-14</b>	<b>DUP</b>	<b>WG3038165-13</b>						
Chromium, Hexavalent		<0.025	<0.025	RPD-NA	mg/L	N/A	20	02-MAY-19
<b>WG3038165-12</b>	<b>LCS</b>		94.7		%		80-120	01-MAY-19
Chromium, Hexavalent								
<b>WG3038165-11</b>	<b>MB</b>		<0.00050		mg/L		0.0005	01-MAY-19
Chromium, Hexavalent								
<b>WG3038165-15</b>	<b>MS</b>	<b>WG3038165-13</b>	84.9		%		70-130	02-MAY-19
Chromium, Hexavalent								
<b>DOC-WT</b>								
	<b>Water</b>							
<b>Batch</b>	<b>R4623388</b>							
<b>WG3039468-3</b>	<b>DUP</b>	<b>L2265308-1</b>						
Dissolved Organic Carbon		1.21	1.24		mg/L	2.6	25	02-MAY-19
<b>WG3039468-2</b>	<b>LCS</b>		98.8		%		70-130	02-MAY-19
Dissolved Organic Carbon								
<b>WG3039468-1</b>	<b>MB</b>		<0.50		mg/L		0.5	02-MAY-19
Dissolved Organic Carbon								
<b>WG3039468-4</b>	<b>MS</b>	<b>L2265308-1</b>	102.7		%		70-130	02-MAY-19
Dissolved Organic Carbon								
<b>EC-WT</b>								
	<b>Water</b>							
<b>Batch</b>	<b>R4620891</b>							
<b>WG3039680-8</b>	<b>DUP</b>	<b>WG3039680-7</b>						
Conductivity		1390	1410		umhos/cm	0.9	10	02-MAY-19
<b>WG3039680-6</b>	<b>LCS</b>		96.9		%		90-110	02-MAY-19
Conductivity								
<b>WG3039680-5</b>	<b>MB</b>		<3.0		umhos/cm		3	02-MAY-19
Conductivity								
<b>F-IC-N-WT</b>								
	<b>Water</b>							



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

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>F-IC-N-WT</b>		<b>Water</b>						
<b>Batch</b>	<b>R4621128</b>							
<b>WG3040039-4</b>	<b>DUP</b>	<b>WG3040039-3</b>						
Fluoride (F)		0.181	0.182		mg/L	0.7	20	02-MAY-19
<b>WG3040039-2</b>	<b>LCS</b>							
Fluoride (F)			103.1		%		90-110	02-MAY-19
<b>WG3040039-1</b>	<b>MB</b>							
Fluoride (F)			<0.020		mg/L		0.02	02-MAY-19
<b>WG3040039-5</b>	<b>MS</b>	<b>WG3040039-3</b>						
Fluoride (F)			102.0		%		75-125	02-MAY-19
<b>HG-T-CVAA-WT</b>		<b>Water</b>						
<b>Batch</b>	<b>R4620447</b>							
<b>WG3039074-3</b>	<b>DUP</b>	<b>L2263402-1</b>						
Mercury (Hg)-Total		<0.000010	<0.000010	RPD-NA	mg/L	N/A	20	02-MAY-19
<b>WG3039074-2</b>	<b>LCS</b>							
Mercury (Hg)-Total			99.5		%		80-120	02-MAY-19
<b>WG3039074-1</b>	<b>MB</b>							
Mercury (Hg)-Total			<0.000010		mg/L		0.00001	02-MAY-19
<b>WG3039074-4</b>	<b>MS</b>	<b>L2263402-2</b>						
Mercury (Hg)-Total			86.2		%		70-130	02-MAY-19
<b>MET-T-CCMS-WT</b>		<b>Water</b>						
<b>Batch</b>	<b>R4620610</b>							
<b>WG3039571-4</b>	<b>DUP</b>	<b>WG3039571-3</b>						
Aluminum (Al)-Total		0.346	0.384		mg/L	10	20	02-MAY-19
Antimony (Sb)-Total		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	02-MAY-19
Arsenic (As)-Total		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	02-MAY-19
Barium (Ba)-Total		0.0366	0.0354		mg/L	3.1	20	02-MAY-19
Beryllium (Be)-Total		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	02-MAY-19
Bismuth (Bi)-Total		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	02-MAY-19
Boron (B)-Total		<0.10	<0.10	RPD-NA	mg/L	N/A	20	02-MAY-19
Cadmium (Cd)-Total		<0.000050	<0.000050	RPD-NA	mg/L	N/A	20	02-MAY-19
Calcium (Ca)-Total		63.3	62.7		mg/L	0.9	20	02-MAY-19
Cobalt (Co)-Total		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	02-MAY-19
Copper (Cu)-Total		<0.010	<0.010	RPD-NA	mg/L	N/A	20	02-MAY-19
Iron (Fe)-Total		0.52	0.53		mg/L	2.6	20	02-MAY-19
Lead (Pb)-Total		0.00141	0.00141		mg/L	0.0	20	02-MAY-19
Magnesium (Mg)-Total		11.5	11.2		mg/L	2.5	20	02-MAY-19
Manganese (Mn)-Total		0.0416	0.0408		mg/L	2.1	20	02-MAY-19



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455 PHILLIP STREET  
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Contact: LAURA ERMETA

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>MET-T-CCMS-WT</b>								
	<b>Water</b>							
<b>Batch</b>	<b>R4620610</b>							
<b>WG3039571-4</b>	<b>DUP</b>	<b>WG3039571-3</b>						
Molybdenum (Mo)-Total		0.00052	0.00057		mg/L	9.2	20	02-MAY-19
Nickel (Ni)-Total		<0.0050	<0.0050	RPD-NA	mg/L	N/A	20	02-MAY-19
Potassium (K)-Total		1.60	1.57		mg/L	2.2	20	02-MAY-19
Selenium (Se)-Total		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	02-MAY-19
Silicon (Si)-Total		2.1	2.2		mg/L	4.8	20	02-MAY-19
Silver (Ag)-Total		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	02-MAY-19
Sodium (Na)-Total		124	122		mg/L	1.4	20	02-MAY-19
Strontium (Sr)-Total		0.178	0.170		mg/L	4.6	20	02-MAY-19
Thallium (Tl)-Total		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	02-MAY-19
Tin (Sn)-Total		0.0014	<0.0010	RPD-NA	mg/L	N/A	20	02-MAY-19
Vanadium (V)-Total		<0.0050	<0.0050	RPD-NA	mg/L	N/A	20	02-MAY-19
Zinc (Zn)-Total		<0.030	<0.030	RPD-NA	mg/L	N/A	20	02-MAY-19
<b>WG3039571-2</b>	<b>LCS</b>							
Aluminum (Al)-Total			96.7		%		80-120	02-MAY-19
Antimony (Sb)-Total			106.0		%		80-120	02-MAY-19
Arsenic (As)-Total			98.3		%		80-120	02-MAY-19
Barium (Ba)-Total			92.6		%		80-120	02-MAY-19
Beryllium (Be)-Total			93.7		%		80-120	02-MAY-19
Bismuth (Bi)-Total			96.2		%		80-120	02-MAY-19
Boron (B)-Total			92.1		%		80-120	02-MAY-19
Cadmium (Cd)-Total			98.7		%		80-120	02-MAY-19
Calcium (Ca)-Total			97.6		%		80-120	02-MAY-19
Cobalt (Co)-Total			94.0		%		80-120	02-MAY-19
Copper (Cu)-Total			97.1		%		80-120	02-MAY-19
Iron (Fe)-Total			101.5		%		80-120	02-MAY-19
Lead (Pb)-Total			95.7		%		80-120	02-MAY-19
Magnesium (Mg)-Total			99.3		%		80-120	02-MAY-19
Manganese (Mn)-Total			98.0		%		80-120	02-MAY-19
Molybdenum (Mo)-Total			99.5		%		80-120	02-MAY-19
Nickel (Ni)-Total			97.2		%		80-120	02-MAY-19
Potassium (K)-Total			101.6		%		80-120	02-MAY-19
Selenium (Se)-Total			99.9		%		80-120	02-MAY-19
Silicon (Si)-Total			99.3		%		60-140	02-MAY-19



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Contact: LAURA ERMETA

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>MET-T-CCMS-WT</b>		<b>Water</b>						
<b>Batch</b>	<b>R4620610</b>							
<b>WG3039571-2</b>	<b>LCS</b>							
Silver (Ag)-Total			94.0		%		80-120	02-MAY-19
Sodium (Na)-Total			100.1		%		80-120	02-MAY-19
Strontium (Sr)-Total			97.9		%		80-120	02-MAY-19
Thallium (Tl)-Total			97.7		%		80-120	02-MAY-19
Tin (Sn)-Total			97.3		%		80-120	02-MAY-19
Vanadium (V)-Total			98.5		%		80-120	02-MAY-19
Zinc (Zn)-Total			99.7		%		80-120	02-MAY-19
<b>WG3039571-1</b>	<b>MB</b>							
Aluminum (Al)-Total			<0.0050		mg/L		0.005	02-MAY-19
Antimony (Sb)-Total			<0.00010		mg/L		0.0001	02-MAY-19
Arsenic (As)-Total			<0.00010		mg/L		0.0001	02-MAY-19
Barium (Ba)-Total			<0.00010		mg/L		0.0001	02-MAY-19
Beryllium (Be)-Total			<0.00010		mg/L		0.0001	02-MAY-19
Bismuth (Bi)-Total			<0.000050		mg/L		0.00005	02-MAY-19
Boron (B)-Total			<0.010		mg/L		0.01	02-MAY-19
Cadmium (Cd)-Total			<0.0000050		mg/L		0.000005	02-MAY-19
Calcium (Ca)-Total			<0.050		mg/L		0.05	02-MAY-19
Cobalt (Co)-Total			<0.00010		mg/L		0.0001	02-MAY-19
Copper (Cu)-Total			<0.0010		mg/L		0.001	02-MAY-19
Iron (Fe)-Total			<0.010		mg/L		0.01	02-MAY-19
Lead (Pb)-Total			<0.000050		mg/L		0.00005	02-MAY-19
Magnesium (Mg)-Total			<0.0050		mg/L		0.005	02-MAY-19
Manganese (Mn)-Total			<0.00050		mg/L		0.0005	02-MAY-19
Molybdenum (Mo)-Total			<0.000050		mg/L		0.00005	02-MAY-19
Nickel (Ni)-Total			<0.00050		mg/L		0.0005	02-MAY-19
Potassium (K)-Total			<0.050		mg/L		0.05	02-MAY-19
Selenium (Se)-Total			<0.000050		mg/L		0.00005	02-MAY-19
Silicon (Si)-Total			<0.10		mg/L		0.1	02-MAY-19
Silver (Ag)-Total			<0.000050		mg/L		0.00005	02-MAY-19
Sodium (Na)-Total			<0.050		mg/L		0.05	02-MAY-19
Strontium (Sr)-Total			<0.0010		mg/L		0.001	02-MAY-19
Thallium (Tl)-Total			<0.000010		mg/L		0.00001	02-MAY-19
Tin (Sn)-Total			<0.00010		mg/L		0.0001	02-MAY-19
Vanadium (V)-Total			<0.00050		mg/L		0.0005	02-MAY-19



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Contact: LAURA ERMETA

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>MET-T-CCMS-WT</b>								
	<b>Water</b>							
<b>Batch</b>	<b>R4620610</b>							
<b>WG3039571-1</b>	<b>MB</b>							
Zinc (Zn)-Total			<0.0030		mg/L		0.003	02-MAY-19
<b>WG3039571-5</b>	<b>MS</b>	<b>WG3039571-6</b>						
Aluminum (Al)-Total			N/A	MS-B	%		-	02-MAY-19
Antimony (Sb)-Total			94.9		%		70-130	02-MAY-19
Arsenic (As)-Total			97.0		%		70-130	02-MAY-19
Barium (Ba)-Total			N/A	MS-B	%		-	02-MAY-19
Beryllium (Be)-Total			97.0		%		70-130	02-MAY-19
Bismuth (Bi)-Total			93.8		%		70-130	02-MAY-19
Boron (B)-Total			91.0		%		70-130	02-MAY-19
Cadmium (Cd)-Total			95.3		%		70-130	02-MAY-19
Calcium (Ca)-Total			N/A	MS-B	%		-	02-MAY-19
Cobalt (Co)-Total			92.1		%		70-130	02-MAY-19
Copper (Cu)-Total			92.6		%		70-130	02-MAY-19
Iron (Fe)-Total			N/A	MS-B	%		-	02-MAY-19
Lead (Pb)-Total			92.5		%		70-130	02-MAY-19
Magnesium (Mg)-Total			N/A	MS-B	%		-	02-MAY-19
Manganese (Mn)-Total			N/A	MS-B	%		-	02-MAY-19
Molybdenum (Mo)-Total			97.5		%		70-130	02-MAY-19
Nickel (Ni)-Total			97.6		%		70-130	02-MAY-19
Potassium (K)-Total			93.3		%		70-130	02-MAY-19
Selenium (Se)-Total			97.4		%		70-130	02-MAY-19
Silicon (Si)-Total			N/A	MS-B	%		-	02-MAY-19
Silver (Ag)-Total			91.0		%		70-130	02-MAY-19
Sodium (Na)-Total			N/A	MS-B	%		-	02-MAY-19
Strontium (Sr)-Total			N/A	MS-B	%		-	02-MAY-19
Thallium (Tl)-Total			92.4		%		70-130	02-MAY-19
Tin (Sn)-Total			93.1		%		70-130	02-MAY-19
Vanadium (V)-Total			96.8		%		70-130	02-MAY-19
Zinc (Zn)-Total			89.8		%		70-130	02-MAY-19
<b>NH3-F-WT</b>								
	<b>Water</b>							
<b>Batch</b>	<b>R4624466</b>							
<b>WG3042337-3</b>	<b>DUP</b>	<b>L2266205-5</b>						
Ammonia, Total (as N)		0.640	0.641		mg/L	0.1	20	06-MAY-19
<b>WG3042337-2</b>	<b>LCS</b>							





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Contact: LAURA ERMETA

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>NH3-F-WT</b>								
	<b>Water</b>							
<b>Batch</b>	<b>R4624466</b>							
<b>WG3042337-2</b>	<b>LCS</b>							
Ammonia, Total (as N)			96.4		%		85-115	06-MAY-19
<b>WG3042337-1</b>	<b>MB</b>							
Ammonia, Total (as N)			<0.010		mg/L		0.01	06-MAY-19
<b>WG3042337-4</b>	<b>MS</b>	<b>L2266205-5</b>						
Ammonia, Total (as N)			N/A	MS-B	%		-	06-MAY-19
<b>NO2-IC-WT</b>								
	<b>Water</b>							
<b>Batch</b>	<b>R4621128</b>							
<b>WG3040039-4</b>	<b>DUP</b>	<b>WG3040039-3</b>						
Nitrite (as N)		1.01	1.01		mg/L	0.1	20	02-MAY-19
<b>WG3040039-2</b>	<b>LCS</b>							
Nitrite (as N)			103.0		%		90-110	02-MAY-19
<b>WG3040039-1</b>	<b>MB</b>							
Nitrite (as N)			<0.010		mg/L		0.01	02-MAY-19
<b>WG3040039-5</b>	<b>MS</b>	<b>WG3040039-3</b>						
Nitrite (as N)			N/A	MS-B	%		-	02-MAY-19
<b>NO3-IC-WT</b>								
	<b>Water</b>							
<b>Batch</b>	<b>R4621128</b>							
<b>WG3040039-4</b>	<b>DUP</b>	<b>WG3040039-3</b>						
Nitrate (as N)		30.4	30.4		mg/L	0.0	20	02-MAY-19
<b>WG3040039-2</b>	<b>LCS</b>							
Nitrate (as N)			99.7		%		90-110	02-MAY-19
<b>WG3040039-1</b>	<b>MB</b>							
Nitrate (as N)			<0.020		mg/L		0.02	02-MAY-19
<b>WG3040039-5</b>	<b>MS</b>	<b>WG3040039-3</b>						
Nitrate (as N)			N/A	MS-B	%		-	02-MAY-19
<b>P-T-COL-WT</b>								
	<b>Water</b>							
<b>Batch</b>	<b>R4622102</b>							
<b>WG3040170-3</b>	<b>DUP</b>	<b>L2265505-1</b>						
Phosphorus, Total		0.0151	0.0130		mg/L	15	20	03-MAY-19
<b>WG3040170-2</b>	<b>LCS</b>							
Phosphorus, Total			98.4		%		80-120	03-MAY-19
<b>WG3040170-1</b>	<b>MB</b>							
Phosphorus, Total			<0.0030		mg/L		0.003	03-MAY-19
<b>WG3040170-4</b>	<b>MS</b>	<b>L2265505-1</b>						
Phosphorus, Total			95.6		%		70-130	03-MAY-19
<b>PH-WT</b>								
	<b>Water</b>							



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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
<b>PH-WT</b>		<b>Water</b>						
Batch	R4620891							
WG3039680-8	DUP	WG3039680-7						
pH		11.74	11.71	J	pH units	0.03	0.2	02-MAY-19
WG3039680-6	LCS							
pH			7.00		pH units		6.9-7.1	02-MAY-19
<b>PHENOLS-4AAP-WT</b>		<b>Water</b>						
Batch	R4622147							
WG3039805-7	DUP	L2265316-2						
Phenols (4AAP)		0.0032	0.0026	J	mg/L	0.0006	0.002	02-MAY-19
WG3039805-6	LCS							
Phenols (4AAP)			87.6		%		85-115	02-MAY-19
WG3039805-5	MB							
Phenols (4AAP)			<0.0010		mg/L		0.001	02-MAY-19
WG3039805-8	MS	L2265316-2						
Phenols (4AAP)			83.6		%		75-125	02-MAY-19
<b>SO4-IC-N-WT</b>		<b>Water</b>						
Batch	R4621128							
WG3040039-4	DUP	WG3040039-3						
Sulfate (SO4)		74.6	74.6		mg/L	0.1	20	02-MAY-19
WG3040039-2	LCS							
Sulfate (SO4)			101.8		%		90-110	02-MAY-19
WG3040039-1	MB							
Sulfate (SO4)			<0.30		mg/L		0.3	02-MAY-19
WG3040039-5	MS	WG3040039-3						
Sulfate (SO4)			100.6		%		75-125	02-MAY-19
<b>SOLIDS-TDS-WT</b>		<b>Water</b>						
Batch	R4624188							
WG3041957-3	DUP	L2264938-3						
Total Dissolved Solids		370	367		mg/L	0.7	20	05-MAY-19
WG3041957-2	LCS							
Total Dissolved Solids			96.2		%		85-115	05-MAY-19
WG3041957-1	MB							
Total Dissolved Solids			<10		mg/L		10	05-MAY-19
<b>SOLIDS-TSS-WT</b>		<b>Water</b>						
Batch	R4622773							
WG3040743-3	DUP	L2266800-7						
Total Suspended Solids		5890	5890		mg/L	0.1	20	04-MAY-19
WG3040743-2	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
<b>SOLIDS-TSS-WT</b>		<b>Water</b>						
<b>Batch</b>	<b>R4622773</b>							
<b>WG3040743-2</b>	<b>LCS</b>							
Total Suspended Solids			100.1		%		85-115	04-MAY-19
<b>WG3040743-1</b>	<b>MB</b>							
Total Suspended Solids			<2.0		mg/L		2	04-MAY-19
<b>TKN-WT</b>		<b>Water</b>						
<b>Batch</b>	<b>R4624410</b>							
<b>WG3040096-3</b>	<b>DUP</b>	<b>L2265355-3</b>						
Total Kjeldahl Nitrogen		<1.5	<1.5	RPD-NA	mg/L	N/A	20	06-MAY-19
<b>WG3040096-2</b>	<b>LCS</b>							
Total Kjeldahl Nitrogen			100.3		%		75-125	06-MAY-19
<b>WG3040096-1</b>	<b>MB</b>							
Total Kjeldahl Nitrogen			<0.15		mg/L		0.15	06-MAY-19
<b>WG3040096-4</b>	<b>MS</b>	<b>L2265355-3</b>						
Total Kjeldahl Nitrogen			120.9		%		70-130	06-MAY-19
<b>VOC-ROU-HS-WT</b>		<b>Water</b>						
<b>Batch</b>	<b>R4625475</b>							
<b>WG3042293-4</b>	<b>DUP</b>	<b>WG3042293-3</b>						
1,1,1,2-Tetrachloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	07-MAY-19
1,1,2,2-Tetrachloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	07-MAY-19
1,1,1-Trichloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	07-MAY-19
1,1,2-Trichloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	07-MAY-19
1,2-Dibromoethane		<0.20	<0.20	RPD-NA	ug/L	N/A	30	07-MAY-19
1,1-Dichloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	07-MAY-19
1,1-Dichloroethylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	07-MAY-19
1,2-Dichlorobenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	07-MAY-19
1,2-Dichloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	07-MAY-19
1,2-Dichloropropane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	07-MAY-19
1,3-Dichlorobenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	07-MAY-19
1,4-Dichlorobenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	07-MAY-19
Acetone		<20	<20	RPD-NA	ug/L	N/A	30	07-MAY-19
Benzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	07-MAY-19
Bromodichloromethane		<1.0	<1.0	RPD-NA	ug/L	N/A	30	07-MAY-19
Bromoform		<1.0	<1.0	RPD-NA	ug/L	N/A	30	07-MAY-19
Bromomethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	07-MAY-19
Carbon tetrachloride		<0.50	<0.50	RPD-NA	ug/L	N/A	30	07-MAY-19



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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
<b>VOC-ROU-HS-WT</b>								
	Water							
<b>Batch</b>	<b>R4625475</b>							
<b>WG3042293-4</b>	<b>DUP</b>	<b>WG3042293-3</b>						
Chlorobenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	07-MAY-19
Chloroethane		<1.0	<1.0	RPD-NA	ug/L	N/A	30	07-MAY-19
Chloroform		<1.0	<1.0	RPD-NA	ug/L	N/A	30	07-MAY-19
cis-1,2-Dichloroethylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	07-MAY-19
cis-1,3-Dichloropropene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	07-MAY-19
Dibromochloromethane		<1.0	<1.0	RPD-NA	ug/L	N/A	30	07-MAY-19
Dichlorodifluoromethane		<1.0	<1.0	RPD-NA	ug/L	N/A	30	07-MAY-19
Dichloromethane		<2.0	<2.0	RPD-NA	ug/L	N/A	30	07-MAY-19
Ethylbenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	07-MAY-19
m+p-Xylenes		<1.0	<1.0	RPD-NA	ug/L	N/A	30	07-MAY-19
Methyl Ethyl Ketone		<20	<20	RPD-NA	ug/L	N/A	30	07-MAY-19
Methyl Isobutyl Ketone		<20	<20	RPD-NA	ug/L	N/A	30	07-MAY-19
n-Hexane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	07-MAY-19
MTBE		<0.50	<0.50	RPD-NA	ug/L	N/A	30	07-MAY-19
o-Xylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	07-MAY-19
Styrene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	07-MAY-19
Tetrachloroethylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	07-MAY-19
Toluene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	07-MAY-19
trans-1,2-Dichloroethylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	07-MAY-19
trans-1,3-Dichloropropene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	07-MAY-19
Trichloroethylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	07-MAY-19
Trichlorofluoromethane		<1.0	<1.0	RPD-NA	ug/L	N/A	30	07-MAY-19
Vinyl chloride		<0.50	<0.50	RPD-NA	ug/L	N/A	30	07-MAY-19
<b>WG3042293-1</b>	<b>LCS</b>							
1,1,1,2-Tetrachloroethane			106.9		%		70-130	07-MAY-19
1,1,2,2-Tetrachloroethane			101.2		%		70-130	07-MAY-19
1,1,1-Trichloroethane			109.4		%		70-130	07-MAY-19
1,1,2-Trichloroethane			105.0		%		70-130	07-MAY-19
1,2-Dibromoethane			102.4		%		70-130	07-MAY-19
1,1-Dichloroethane			114.4		%		70-130	07-MAY-19
1,1-Dichloroethylene			117.0		%		70-130	07-MAY-19
1,2-Dichlorobenzene			110.3		%		70-130	07-MAY-19
1,2-Dichloroethane			102.5		%		70-130	07-MAY-19



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 455 PHILLIP STREET  
 WATERLOO ON N2L 3X2

Contact: LAURA ERMETA

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>VOC-ROU-HS-WT</b>								
	<b>Water</b>							
<b>Batch</b>	<b>R4625475</b>							
<b>WG3042293-1</b>	<b>LCS</b>							
1,2-Dichloropropane			110.5		%		70-130	07-MAY-19
1,3-Dichlorobenzene			114.9		%		70-130	07-MAY-19
1,4-Dichlorobenzene			114.3		%		70-130	07-MAY-19
Acetone			120.3		%		60-140	07-MAY-19
Benzene			112.4		%		70-130	07-MAY-19
Bromodichloromethane			102.5		%		70-130	07-MAY-19
Bromoform			95.8		%		70-130	07-MAY-19
Bromomethane			126.9		%		60-140	07-MAY-19
Carbon tetrachloride			108.5		%		70-130	07-MAY-19
Chlorobenzene			110.2		%		70-130	07-MAY-19
Chloroethane			120.0		%		70-130	07-MAY-19
Chloroform			108.8		%		70-130	07-MAY-19
cis-1,2-Dichloroethylene			107.1		%		70-130	07-MAY-19
cis-1,3-Dichloropropene			103.6		%		70-130	07-MAY-19
Dibromochloromethane			101.5		%		70-130	07-MAY-19
Dichlorodifluoromethane			133.1		%		50-140	07-MAY-19
Dichloromethane			113.3		%		70-130	07-MAY-19
Ethylbenzene			110.5		%		70-130	07-MAY-19
m+p-Xylenes			109.8		%		70-130	07-MAY-19
Methyl Ethyl Ketone			101.1		%		60-140	07-MAY-19
Methyl Isobutyl Ketone			99.5		%		50-150	07-MAY-19
n-Hexane			121.8		%		70-130	07-MAY-19
MTBE			110.9		%		70-130	07-MAY-19
o-Xylene			108.6		%		70-130	07-MAY-19
Styrene			110.9		%		70-130	07-MAY-19
Tetrachloroethylene			113.9		%		70-130	07-MAY-19
Toluene			110.3		%		70-130	07-MAY-19
trans-1,2-Dichloroethylene			118.3		%		70-130	07-MAY-19
trans-1,3-Dichloropropene			105.3		%		70-130	07-MAY-19
Trichloroethylene			111.4		%		70-130	07-MAY-19
Trichlorofluoromethane			119.2		%		60-140	07-MAY-19
Vinyl chloride			109.7		%		60-140	07-MAY-19
<b>WG3042293-2</b>	<b>MB</b>							
1,1,1,2-Tetrachloroethane			<0.50		ug/L		0.5	07-MAY-19



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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
<b>VOC-ROU-HS-WT</b>								
	<b>Water</b>							
<b>Batch</b>	<b>R4625475</b>							
<b>WG3042293-2 MB</b>								
1,1,2,2-Tetrachloroethane			<0.50		ug/L		0.5	07-MAY-19
1,1,1-Trichloroethane			<0.50		ug/L		0.5	07-MAY-19
1,1,2-Trichloroethane			<0.50		ug/L		0.5	07-MAY-19
1,2-Dibromoethane			<0.20		ug/L		0.2	07-MAY-19
1,1-Dichloroethane			<0.50		ug/L		0.5	07-MAY-19
1,1-Dichloroethylene			<0.50		ug/L		0.5	07-MAY-19
1,2-Dichlorobenzene			<0.50		ug/L		0.5	07-MAY-19
1,2-Dichloroethane			<0.50		ug/L		0.5	07-MAY-19
1,2-Dichloropropane			<0.50		ug/L		0.5	07-MAY-19
1,3-Dichlorobenzene			<0.50		ug/L		0.5	07-MAY-19
1,4-Dichlorobenzene			<0.50		ug/L		0.5	07-MAY-19
Acetone			<20		ug/L		20	07-MAY-19
Benzene			<0.50		ug/L		0.5	07-MAY-19
Bromodichloromethane			<1.0		ug/L		1	07-MAY-19
Bromoform			<1.0		ug/L		1	07-MAY-19
Bromomethane			<0.50		ug/L		0.5	07-MAY-19
Carbon tetrachloride			<0.50		ug/L		0.5	07-MAY-19
Chlorobenzene			<0.50		ug/L		0.5	07-MAY-19
Chloroethane			<1.0		ug/L		1	07-MAY-19
Chloroform			<1.0		ug/L		1	07-MAY-19
cis-1,2-Dichloroethylene			<0.50		ug/L		0.5	07-MAY-19
cis-1,3-Dichloropropene			<0.50		ug/L		0.5	07-MAY-19
Dibromochloromethane			<1.0		ug/L		1	07-MAY-19
Dichlorodifluoromethane			<1.0		ug/L		1	07-MAY-19
Dichloromethane			<2.0		ug/L		2	07-MAY-19
Ethylbenzene			<0.50		ug/L		0.5	07-MAY-19
m+p-Xylenes			<1.0		ug/L		1	07-MAY-19
Methyl Ethyl Ketone			<20		ug/L		20	07-MAY-19
Methyl Isobutyl Ketone			<20		ug/L		20	07-MAY-19
n-Hexane			<0.50		ug/L		0.5	07-MAY-19
MTBE			<0.50		ug/L		0.5	07-MAY-19
o-Xylene			<0.50		ug/L		0.5	07-MAY-19
Styrene			<0.50		ug/L		0.5	07-MAY-19



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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
<b>VOC-ROU-HS-WT</b>								
	<b>Water</b>							
<b>Batch</b>	<b>R4625475</b>							
<b>WG3042293-2 MB</b>								
Tetrachloroethylene			<0.50		ug/L		0.5	07-MAY-19
Toluene			<0.50		ug/L		0.5	07-MAY-19
trans-1,2-Dichloroethylene			<0.50		ug/L		0.5	07-MAY-19
trans-1,3-Dichloropropene			<0.50		ug/L		0.5	07-MAY-19
Trichloroethylene			<0.50		ug/L		0.5	07-MAY-19
Trichlorofluoromethane			<1.0		ug/L		1	07-MAY-19
Vinyl chloride			<0.50		ug/L		0.5	07-MAY-19
Surrogate: 1,4-Difluorobenzene			102.5		%		70-130	07-MAY-19
Surrogate: 4-Bromofluorobenzene			100.1		%		70-130	07-MAY-19
<b>WG3042293-5 MS</b>		<b>WG3042293-3</b>						
1,1,1,2-Tetrachloroethane			108.4		%		50-150	07-MAY-19
1,1,1,2,2-Tetrachloroethane			103.0		%		50-150	07-MAY-19
1,1,1-Trichloroethane			107.1		%		50-150	07-MAY-19
1,1,2-Trichloroethane			106.0		%		50-150	07-MAY-19
1,2-Dibromoethane			103.4		%		50-150	07-MAY-19
1,1-Dichloroethane			112.1		%		50-150	07-MAY-19
1,1-Dichloroethylene			107.2		%		50-150	07-MAY-19
1,2-Dichlorobenzene			109.5		%		50-150	07-MAY-19
1,2-Dichloroethane			104.3		%		50-150	07-MAY-19
1,2-Dichloropropane			112.3		%		50-150	07-MAY-19
1,3-Dichlorobenzene			114.4		%		50-150	07-MAY-19
1,4-Dichlorobenzene			113.6		%		50-150	07-MAY-19
Acetone			119.1		%		50-150	07-MAY-19
Benzene			111.4		%		50-150	07-MAY-19
Bromodichloromethane			106.0		%		50-150	07-MAY-19
Bromoform			98.0		%		50-150	07-MAY-19
Bromomethane			113.5		%		50-150	07-MAY-19
Carbon tetrachloride			105.8		%		50-150	07-MAY-19
Chlorobenzene			110.4		%		50-150	07-MAY-19
Chloroethane			108.4		%		50-150	07-MAY-19
Chloroform			109.7		%		50-150	07-MAY-19
cis-1,2-Dichloroethylene			106.8		%		50-150	07-MAY-19
cis-1,3-Dichloropropene			103.9		%		50-150	07-MAY-19
Dibromochloromethane			103.3		%		50-150	07-MAY-19



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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
<b>VOC-ROU-HS-WT</b>	<b>Water</b>							
<b>Batch</b>	<b>R4625475</b>							
<b>WG3042293-5 MS</b>		<b>WG3042293-3</b>						
Dichlorodifluoromethane			103.6		%		50-150	07-MAY-19
Dichloromethane			111.2		%		50-150	07-MAY-19
Ethylbenzene			109.6		%		50-150	07-MAY-19
m+p-Xylenes			109.0		%		50-150	07-MAY-19
Methyl Ethyl Ketone			102.1		%		50-150	07-MAY-19
Methyl Isobutyl Ketone			101.8		%		50-150	07-MAY-19
n-Hexane			107.6		%		50-150	07-MAY-19
MTBE			110.3		%		50-150	07-MAY-19
o-Xylene			108.6		%		50-150	07-MAY-19
Styrene			111.3		%		50-150	07-MAY-19
Tetrachloroethylene			110.8		%		50-150	07-MAY-19
Toluene			109.1		%		50-150	07-MAY-19
trans-1,2-Dichloroethylene			112.2		%		50-150	07-MAY-19
trans-1,3-Dichloropropene			104.9		%		50-150	07-MAY-19
Trichloroethylene			110.2		%		50-150	07-MAY-19
Trichlorofluoromethane			106.2		%		50-150	07-MAY-19
Vinyl chloride			93.3		%		50-150	07-MAY-19



# Quality Control Report

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Report Date: 08-MAY-19

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

Page 18 of 18

## Legend:

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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:

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Qualifier	Description
J	Duplicate results and limits are expressed in terms of absolute difference.
LCS-H	Lab Control Sample recovery was above ALS DQO. Non-detected sample results are considered reliable. Other results, if reported, have been qualified.
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.

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

Date Received: 01-MAY-19  
Report Date: 02-MAY-19 14:46 (MT)  
Version: FINAL

Client Phone: 519-884-0510

## Certificate of Analysis

Lab Work Order #: L2265467  
Project P.O. #: 73506479-1  
Job Reference: 44985-20  
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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## 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: L2265467

Report Date: 02-MAY-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
<b>MICROTOX-ORG-ED</b>								
	Water							
<b>Batch</b>	<b>R4620096</b>							
<b>WG3039856-2 CRM</b>		<b>PHENOL_ED</b>						
EC50 (5min) Original			14.6		mg/L		13-26	02-MAY-19
<b>WG3039856-3 CRM</b>		<b>PHENOL_ED</b>						
EC50 (5min) Original			15.6		mg/L		13-26	02-MAY-19
<b>WG3039856-4 DUP</b>		<b>L2265467-1</b>						
EC50 (15min) Original		>100	>100	RPD-NA	%	N/A		02-MAY-19
EC20 (15min) Original		>100	>100	RPD-NA	%	N/A		02-MAY-19
EC50 (5min) Original		>100	>100	RPD-NA	%	N/A		02-MAY-19
EC20 (5min) Original		>100	>100	RPD-NA	%	N/A		02-MAY-19
<b>WG3039856-1 MB</b>								
EC50 (15min) Original			PASS					02-MAY-19
EC20 (15min) Original			PASS					02-MAY-19
EC50 (5min) Original			PASS					02-MAY-19
EC20 (5min) Original			PASS					02-MAY-19

# Quality Control Report

Workorder: L2265467

Report Date: 02-MAY-19

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

Page 2 of 2

## Legend:

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Limit	ALS Control Limit (Data Quality Objectives)
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MB	Method Blank
IRM	Internal Reference Material
CRM	Certified Reference Material
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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.

---

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---

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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: 30-MAY-19  
Report Date: 10-JUN-19 09:07 (MT)  
Version: FINAL

Client Phone: 519-884-0510

## Certificate of Analysis

Lab Work Order #: L2281993  
Project P.O. #: 73506479-1  
Job Reference: 44985-20-19  
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
L2281993-1 EQ POND DISCHARGE							
Sampled By: CLIENT on 29-MAY-19 @ 13:00							
Matrix: WATER							
<b>Field Tests</b>							
pH, Client Supplied	7.49		0.10	pH		30-MAY-19	R4651070
Temperature, Client	17.0		-50	Deg. C		30-MAY-19	R4651070
<b>Physical Tests</b>							
Conductivity	765		3.0	umhos/cm		04-JUN-19	R4652234
Hardness (as CaCO3)	274	HTC	1.3	mg/L		03-JUN-19	
pH	8.20		0.10	pH units		04-JUN-19	R4652234
Total Suspended Solids	2.6		2.0	mg/L	04-JUN-19	05-JUN-19	R4658803
Total Dissolved Solids	451	DLDS	20	mg/L		05-JUN-19	R4660544
<b>Anions and Nutrients</b>							
Alkalinity, Total (as CaCO3)	157		10	mg/L		04-JUN-19	R4652234
Unionized ammonia	0.0318		0.0012	mg/L		06-JUN-19	
Ammonia, Total (as N)	2.69	DLHC	0.10	mg/L		06-JUN-19	R4660257
Bromide (Br)	1.26		0.10	mg/L		31-MAY-19	R4653909
Chloride (Cl)	60.8		0.50	mg/L		31-MAY-19	R4653909
Fluoride (F)	0.586		0.020	mg/L		31-MAY-19	R4653909
Nitrate (as N)	0.073		0.020	mg/L		31-MAY-19	R4653909
Nitrite (as N)	<0.010		0.010	mg/L		31-MAY-19	R4653909
Total Kjeldahl Nitrogen	3.03		0.15	mg/L	07-JUN-19	07-JUN-19	R4661592
Phosphorus, Total	0.0201		0.0030	mg/L	05-JUN-19	06-JUN-19	R4660040
Sulfate (SO4)	141		0.30	mg/L		31-MAY-19	R4653909
<b>Cyanides</b>							
Cyanide, Total	<0.0020		0.0020	mg/L		30-MAY-19	R4652630
<b>Organic / Inorganic Carbon</b>							
Dissolved Carbon Filtration Location	LAB	PEHR				03-JUN-19	R4654546
Dissolved Organic Carbon	5.00		0.50	mg/L	03-JUN-19	04-JUN-19	R4656380
<b>Total Metals</b>							
Aluminum (Al)-Total	0.074		0.010	mg/L	30-MAY-19	31-MAY-19	R4651650
Antimony (Sb)-Total	0.00045		0.00010	mg/L	30-MAY-19	31-MAY-19	R4651650
Arsenic (As)-Total	0.00126		0.00010	mg/L	30-MAY-19	31-MAY-19	R4651650
Barium (Ba)-Total	0.0379		0.00020	mg/L	30-MAY-19	31-MAY-19	R4651650
Beryllium (Be)-Total	<0.00010		0.00010	mg/L	30-MAY-19	31-MAY-19	R4651650
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	30-MAY-19	31-MAY-19	R4651650
Boron (B)-Total	0.096		0.010	mg/L	30-MAY-19	31-MAY-19	R4651650
Cadmium (Cd)-Total	<0.00010	DLM	0.00010	mg/L	30-MAY-19	31-MAY-19	R4651650
Calcium (Ca)-Total	72.3		0.50	mg/L	30-MAY-19	31-MAY-19	R4651650
Cobalt (Co)-Total	0.00025		0.00010	mg/L	30-MAY-19	31-MAY-19	R4651650
Copper (Cu)-Total	<0.0010		0.0010	mg/L	30-MAY-19	31-MAY-19	R4651650
Iron (Fe)-Total	0.065		0.050	mg/L	30-MAY-19	31-MAY-19	R4651650
Lead (Pb)-Total	0.00016		0.00010	mg/L	30-MAY-19	31-MAY-19	R4651650
Magnesium (Mg)-Total	22.8		0.050	mg/L	30-MAY-19	31-MAY-19	R4651650
Manganese (Mn)-Total	0.0186		0.00050	mg/L	30-MAY-19	31-MAY-19	R4651650
Mercury (Hg)-Total	<0.000010		0.000010	mg/L		31-MAY-19	R4652427

\* 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
L2281993-1 EQ POND DISCHARGE							
Sampled By: CLIENT on 29-MAY-19 @ 13:00							
Matrix: WATER							
<b>Total Metals</b>							
Molybdenum (Mo)-Total	0.0762		0.000050	mg/L	30-MAY-19	31-MAY-19	R4651650
Nickel (Ni)-Total	0.00325		0.00050	mg/L	30-MAY-19	31-MAY-19	R4651650
Potassium (K)-Total	16.7		0.050	mg/L	30-MAY-19	31-MAY-19	R4651650
Selenium (Se)-Total	0.00103		0.000050	mg/L	30-MAY-19	31-MAY-19	R4651650
Silicon (Si)-Total	1.26		0.10	mg/L	30-MAY-19	31-MAY-19	R4651650
Silver (Ag)-Total	<0.000050		0.000050	mg/L	30-MAY-19	31-MAY-19	R4651650
Sodium (Na)-Total	40.8		0.50	mg/L	30-MAY-19	31-MAY-19	R4651650
Strontium (Sr)-Total	0.608		0.0010	mg/L	30-MAY-19	31-MAY-19	R4651650
Thallium (Tl)-Total	0.00152		0.000010	mg/L	30-MAY-19	31-MAY-19	R4651650
Tin (Sn)-Total	<0.00010		0.00010	mg/L	30-MAY-19	31-MAY-19	R4651650
Vanadium (V)-Total	0.00050		0.00050	mg/L	30-MAY-19	31-MAY-19	R4651650
Zinc (Zn)-Total	<0.0030		0.0030	mg/L	30-MAY-19	31-MAY-19	R4651650
<b>Speciated Metals</b>							
Chromium, Hexavalent	<0.00050		0.00050	mg/L		31-MAY-19	R4652852
<b>Aggregate Organics</b>							
COD	<10		10	mg/L		06-JUN-19	R4660149
Phenols (4AAP)	0.0022		0.0010	mg/L		03-JUN-19	R4656031
<b>Volatile Organic Compounds</b>							
Acetone	<20	VOCHS	20	ug/L		05-JUN-19	R4658551
Benzene	<0.50	VOCHS	0.50	ug/L		05-JUN-19	R4658551
Bromodichloromethane	<1.0	VOCHS	1.0	ug/L		05-JUN-19	R4658551
Bromoform	<1.0	VOCHS	1.0	ug/L		05-JUN-19	R4658551
Bromomethane	<0.50	VOCHS	0.50	ug/L		05-JUN-19	R4658551
Carbon tetrachloride	<0.50	VOCHS	0.50	ug/L		05-JUN-19	R4658551
Chlorobenzene	<0.50	VOCHS	0.50	ug/L		05-JUN-19	R4658551
Dibromochloromethane	<1.0	VOCHS	1.0	ug/L		05-JUN-19	R4658551
Chloroethane	<1.0	VOCHS	1.0	ug/L		05-JUN-19	R4658551
Chloroform	<1.0	VOCHS	1.0	ug/L		05-JUN-19	R4658551
1,2-Dibromoethane	<0.20	VOCHS	0.20	ug/L		05-JUN-19	R4658551
1,2-Dichlorobenzene	<0.50	VOCHS	0.50	ug/L		05-JUN-19	R4658551
1,3-Dichlorobenzene	<0.50	VOCHS	0.50	ug/L		05-JUN-19	R4658551
1,4-Dichlorobenzene	<0.50	VOCHS	0.50	ug/L		05-JUN-19	R4658551
Dichlorodifluoromethane	<1.0	VOCHS	1.0	ug/L		05-JUN-19	R4658551
1,1-Dichloroethane	<0.50	VOCHS	0.50	ug/L		05-JUN-19	R4658551
1,2-Dichloroethane	<0.50	VOCHS	0.50	ug/L		05-JUN-19	R4658551
1,1-Dichloroethylene	<0.50	VOCHS	0.50	ug/L		05-JUN-19	R4658551
cis-1,2-Dichloroethylene	<0.50	VOCHS	0.50	ug/L		05-JUN-19	R4658551
trans-1,2-Dichloroethylene	<0.50	VOCHS	0.50	ug/L		05-JUN-19	R4658551
Dichloromethane	<2.0	VOCHS	2.0	ug/L		05-JUN-19	R4658551
1,2-Dichloropropane	<0.50	VOCHS	0.50	ug/L		05-JUN-19	R4658551
cis-1,3-Dichloropropene	<0.50	VOCHS	0.50	ug/L		05-JUN-19	R4658551
trans-1,3-Dichloropropene	<0.50	VOCHS	0.50	ug/L		05-JUN-19	R4658551

\* 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
L2281993-1 EQ POND DISCHARGE							
Sampled By: CLIENT on 29-MAY-19 @ 13:00							
Matrix: WATER							
<b>Volatile Organic Compounds</b>							
Ethylbenzene	<0.50	VOCHS	0.50	ug/L		05-JUN-19	R4658551
n-Hexane	<0.50	VOCHS	0.50	ug/L		05-JUN-19	R4658551
Methyl Ethyl Ketone	<20	VOCHS	20	ug/L		05-JUN-19	R4658551
Methyl Isobutyl Ketone	<20	VOCHS	20	ug/L		05-JUN-19	R4658551
MTBE	<0.50	VOCHS	0.50	ug/L		05-JUN-19	R4658551
Styrene	<0.50	VOCHS	0.50	ug/L		05-JUN-19	R4658551
1,1,1,2-Tetrachloroethane	<0.50	VOCHS	0.50	ug/L		05-JUN-19	R4658551
1,1,2,2-Tetrachloroethane	<0.50	VOCHS	0.50	ug/L		05-JUN-19	R4658551
Tetrachloroethylene	<0.50	VOCHS	0.50	ug/L		05-JUN-19	R4658551
Toluene	<0.50	VOCHS	0.50	ug/L		05-JUN-19	R4658551
1,1,1-Trichloroethane	<0.50	VOCHS	0.50	ug/L		05-JUN-19	R4658551
1,1,2-Trichloroethane	<0.50	VOCHS	0.50	ug/L		05-JUN-19	R4658551
Trichloroethylene	<0.50	VOCHS	0.50	ug/L		05-JUN-19	R4658551
Trichlorofluoromethane	<1.0	VOCHS	1.0	ug/L		05-JUN-19	R4658551
Vinyl chloride	<0.50	VOCHS	0.50	ug/L		05-JUN-19	R4658551
o-Xylene	<0.50	VOCHS	0.50	ug/L		05-JUN-19	R4658551
m+p-Xylenes	<1.0	VOCHS	1.0	ug/L		05-JUN-19	R4658551
Xylenes (Total)	<1.1		1.1	ug/L		05-JUN-19	
Surrogate: 4-Bromofluorobenzene	101.3		70-130	%		05-JUN-19	R4658551
Surrogate: 1,4-Difluorobenzene	102.1		70-130	%		05-JUN-19	R4658551
<b>Trihalomethanes</b>							
Total THMs	<2.0		2.0	ug/L		05-JUN-19	
<b>Acid Extractables</b>							
2,3,6-Trichlorophenol	<0.50		0.50	ug/L	30-MAY-19	04-JUN-19	R4654907
Surrogate: 2,4,6-Tribromophenol	122.5		40-150	%	30-MAY-19	04-JUN-19	R4654907
<b>Semi-Volatile Organics</b>							
Acenaphthene	<0.20		0.20	ug/L	03-JUN-19	04-JUN-19	R4655744
Acenaphthylene	<0.20		0.20	ug/L	03-JUN-19	04-JUN-19	R4655744
Anthracene	<0.20		0.20	ug/L	03-JUN-19	04-JUN-19	R4655744
Benzo(a)anthracene	<0.20		0.20	ug/L	03-JUN-19	04-JUN-19	R4655744
Benzo(a)pyrene	<0.050		0.050	ug/L	03-JUN-19	04-JUN-19	R4655744
Benzo(b)fluoranthene	<0.20		0.20	ug/L	03-JUN-19	04-JUN-19	R4655744
Benzo(ghi)perylene	<0.20		0.20	ug/L	03-JUN-19	04-JUN-19	R4655744
Benzo(k)fluoranthene	<0.20		0.20	ug/L	03-JUN-19	04-JUN-19	R4655744
4-Chloroaniline	<0.40		0.40	ug/L	03-JUN-19	04-JUN-19	R4655744
Bis(2-chloroethyl)ether	<0.40		0.40	ug/L	03-JUN-19	04-JUN-19	R4655744
2-Chlorophenol	<0.30		0.30	ug/L	03-JUN-19	04-JUN-19	R4655744
Chrysene	<0.20		0.20	ug/L	03-JUN-19	04-JUN-19	R4655744
Dibenzo(a,h)anthracene	<0.20		0.20	ug/L	03-JUN-19	04-JUN-19	R4655744
1,2-Dichlorobenzene	<0.40		0.40	ug/L	03-JUN-19	04-JUN-19	R4655744
1,3-Dichlorobenzene	<0.40		0.40	ug/L	03-JUN-19	04-JUN-19	R4655744
1,4-Dichlorobenzene	<0.40		0.40	ug/L	03-JUN-19	04-JUN-19	R4655744

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## ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2281993-1 EQ POND DISCHARGE Sampled By: CLIENT on 29-MAY-19 @ 13:00 Matrix: WATER							
<b>Semi-Volatile Organics</b>							
3,3'-Dichlorobenzidine	<0.40		0.40	ug/L	03-JUN-19	04-JUN-19	R4655744
2,4-Dichlorophenol	<0.30		0.30	ug/L	03-JUN-19	04-JUN-19	R4655744
Diethylphthalate	<0.20		0.20	ug/L	03-JUN-19	04-JUN-19	R4655744
Dimethylphthalate	<0.20		0.20	ug/L	03-JUN-19	04-JUN-19	R4655744
2,4-Dimethylphenol	<0.50		0.50	ug/L	03-JUN-19	04-JUN-19	R4655744
2,4-Dinitrophenol	<1.0		1.0	ug/L	03-JUN-19	04-JUN-19	R4655744
2,4-Dinitrotoluene	<0.40		0.40	ug/L	03-JUN-19	04-JUN-19	R4655744
2,6-Dinitrotoluene	<0.40		0.40	ug/L	03-JUN-19	04-JUN-19	R4655744
Bis(2-ethylhexyl)phthalate	<2.0		2.0	ug/L	03-JUN-19	04-JUN-19	R4655744
Fluoranthene	<0.20		0.20	ug/L	03-JUN-19	04-JUN-19	R4655744
Fluorene	<0.20		0.20	ug/L	03-JUN-19	04-JUN-19	R4655744
Hexachlorobenzene	<0.040		0.040	ug/L	03-JUN-19	04-JUN-19	R4655744
Hexachlorobutadiene	<0.20		0.20	ug/L	03-JUN-19	04-JUN-19	R4655744
Indeno(1,2,3-cd)pyrene	<0.20		0.20	ug/L	03-JUN-19	04-JUN-19	R4655744
1-Methylnaphthalene	<0.40		0.40	ug/L	03-JUN-19	04-JUN-19	R4655744
2-Methylnaphthalene	<0.40		0.40	ug/L	03-JUN-19	04-JUN-19	R4655744
Naphthalene	<0.20		0.20	ug/L	03-JUN-19	04-JUN-19	R4655744
Pentachlorophenol	<0.50		0.50	ug/L	03-JUN-19	04-JUN-19	R4655744
Perylene	<0.20		0.20	ug/L	03-JUN-19	04-JUN-19	R4655744
Phenanthrene	<0.20		0.20	ug/L	03-JUN-19	04-JUN-19	R4655744
Pyrene	<0.20		0.20	ug/L	03-JUN-19	04-JUN-19	R4655744
2,3,4,5-Tetrachlorophenol	<0.50		0.50	ug/L	03-JUN-19	04-JUN-19	R4655744
2,3,4,6-Tetrachlorophenol	<0.50		0.50	ug/L	03-JUN-19	04-JUN-19	R4655744
1,2,4-Trichlorobenzene	<0.40		0.40	ug/L	03-JUN-19	04-JUN-19	R4655744
2,4,5-Trichlorophenol	<0.50		0.50	ug/L	03-JUN-19	04-JUN-19	R4655744
2,4,6-Trichlorophenol	<0.50		0.50	ug/L	03-JUN-19	04-JUN-19	R4655744
Surrogate: 2-Fluorobiphenyl	95.4		40-130	%	03-JUN-19	04-JUN-19	R4655744
Surrogate: Nitrobenzene d5	97.7		40-130	%	03-JUN-19	04-JUN-19	R4655744
Surrogate: p-Terphenyl d14	106.2		40-130	%	03-JUN-19	04-JUN-19	R4655744
Report Remarks : raised Cd LOR to remove potential Mo interference							
L2281993-2 WEST STORM WATER POND Sampled By: CLIENT on 29-MAY-19 @ 13:00 Matrix: WATER							
<b>Field Tests</b>							
pH, Client Supplied	7.45		0.10	pH		30-MAY-19	R4651070
Temperature, Client	17.0		-50	Deg. C		30-MAY-19	R4651070
<b>Physical Tests</b>							
Conductivity	810		3.0	umhos/cm		04-JUN-19	R4652234
Hardness (as CaCO3)	264	HTC	1.3	mg/L		03-JUN-19	
pH	8.10		0.10	pH units		04-JUN-19	R4652234
Total Suspended Solids	5.6		2.0	mg/L	04-JUN-19	05-JUN-19	R4658803
Total Dissolved Solids	484	DLDS	20	mg/L		05-JUN-19	R4660544

\* 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
L2281993-2 WEST STORM WATER POND Sampled By: CLIENT on 29-MAY-19 @ 13:00 Matrix: WATER							
<b>Physical Tests</b>							
<b>Anions and Nutrients</b>							
Alkalinity, Total (as CaCO <sub>3</sub> )	155		10	mg/L		04-JUN-19	R4652234
Unionized ammonia	0.0481		0.0011	mg/L		06-JUN-19	
Ammonia, Total (as N)	4.46	DLHC	0.10	mg/L		06-JUN-19	R4660257
Bromide (Br)	3.32		0.10	mg/L		31-MAY-19	R4653909
Chloride (Cl)	81.8		0.50	mg/L		31-MAY-19	R4653909
Fluoride (F)	0.521		0.020	mg/L		31-MAY-19	R4653909
Nitrate (as N)	0.252		0.020	mg/L		31-MAY-19	R4653909
Nitrite (as N)	<0.010		0.010	mg/L		31-MAY-19	R4653909
Total Kjeldahl Nitrogen	4.94		0.15	mg/L	05-JUN-19	05-JUN-19	R4659531
Phosphorus, Total	0.0236		0.0030	mg/L	05-JUN-19	06-JUN-19	R4660040
Sulfate (SO <sub>4</sub> )	125		0.30	mg/L		31-MAY-19	R4653909
<b>Cyanides</b>							
Cyanide, Total	<0.0020		0.0020	mg/L		30-MAY-19	R4652630
<b>Organic / Inorganic Carbon</b>							
Dissolved Carbon Filtration Location	LAB	PEHR				04-JUN-19	R4657726
Dissolved Organic Carbon	4.99		0.50	mg/L	04-JUN-19	05-JUN-19	R4659308
<b>Total Metals</b>							
Aluminum (Al)-Total	0.193		0.010	mg/L	30-MAY-19	31-MAY-19	R4651650
Antimony (Sb)-Total	0.00046		0.00010	mg/L	30-MAY-19	31-MAY-19	R4651650
Arsenic (As)-Total	0.00141		0.00010	mg/L	30-MAY-19	31-MAY-19	R4651650
Barium (Ba)-Total	0.0593		0.00020	mg/L	30-MAY-19	31-MAY-19	R4651650
Beryllium (Be)-Total	<0.00010		0.00010	mg/L	30-MAY-19	31-MAY-19	R4651650
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	30-MAY-19	31-MAY-19	R4651650
Boron (B)-Total	0.129		0.010	mg/L	30-MAY-19	31-MAY-19	R4651650
Cadmium (Cd)-Total	<0.00020	DLM	0.000020	mg/L	30-MAY-19	31-MAY-19	R4651650
Calcium (Ca)-Total	71.2		0.50	mg/L	30-MAY-19	31-MAY-19	R4651650
Cobalt (Co)-Total	0.00088		0.00010	mg/L	30-MAY-19	31-MAY-19	R4651650
Copper (Cu)-Total	0.0017		0.0010	mg/L	30-MAY-19	31-MAY-19	R4651650
Iron (Fe)-Total	0.286		0.050	mg/L	30-MAY-19	31-MAY-19	R4651650
Lead (Pb)-Total	0.00048		0.00010	mg/L	30-MAY-19	31-MAY-19	R4651650
Magnesium (Mg)-Total	21.1		0.050	mg/L	30-MAY-19	31-MAY-19	R4651650
Manganese (Mn)-Total	0.0312		0.00050	mg/L	30-MAY-19	31-MAY-19	R4651650
Mercury (Hg)-Total	<0.000010		0.000010	mg/L		31-MAY-19	R4652427
Molybdenum (Mo)-Total	0.0581		0.000050	mg/L	30-MAY-19	31-MAY-19	R4651650
Nickel (Ni)-Total	0.0105		0.00050	mg/L	30-MAY-19	31-MAY-19	R4651650
Potassium (K)-Total	13.3		0.050	mg/L	30-MAY-19	31-MAY-19	R4651650
Selenium (Se)-Total	0.00133		0.000050	mg/L	30-MAY-19	31-MAY-19	R4651650
Silicon (Si)-Total	1.87		0.10	mg/L	30-MAY-19	31-MAY-19	R4651650
Silver (Ag)-Total	<0.000050		0.000050	mg/L	30-MAY-19	31-MAY-19	R4651650
Sodium (Na)-Total	52.6		0.50	mg/L	30-MAY-19	31-MAY-19	R4651650
Strontium (Sr)-Total	0.512		0.0010	mg/L	30-MAY-19	31-MAY-19	R4651650

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## ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2281993-2 WEST STORM WATER POND Sampled By: CLIENT on 29-MAY-19 @ 13:00 Matrix: WATER							
<b>Total Metals</b>							
Thallium (Tl)-Total	0.000303		0.000010	mg/L	30-MAY-19	31-MAY-19	R4651650
Tin (Sn)-Total	0.00016		0.00010	mg/L	30-MAY-19	31-MAY-19	R4651650
Vanadium (V)-Total	0.00085		0.00050	mg/L	30-MAY-19	31-MAY-19	R4651650
Zinc (Zn)-Total	<0.0030		0.0030	mg/L	30-MAY-19	31-MAY-19	R4651650
<b>Speciated Metals</b>							
Chromium, Hexavalent	<0.00050		0.00050	mg/L		31-MAY-19	R4652852
<b>Aggregate Organics</b>							
COD	18		10	mg/L		06-JUN-19	R4660149
Phenols (4AAP)	0.0013		0.0010	mg/L		03-JUN-19	R4656031
<b>Volatile Organic Compounds</b>							
Acetone	<20	VOCHS	20	ug/L		05-JUN-19	R4658551
Benzene	<0.50	VOCHS	0.50	ug/L		05-JUN-19	R4658551
Bromodichloromethane	<1.0	VOCHS	1.0	ug/L		05-JUN-19	R4658551
Bromoform	<1.0	VOCHS	1.0	ug/L		05-JUN-19	R4658551
Bromomethane	<0.50	VOCHS	0.50	ug/L		05-JUN-19	R4658551
Carbon tetrachloride	<0.50	VOCHS	0.50	ug/L		05-JUN-19	R4658551
Chlorobenzene	<0.50	VOCHS	0.50	ug/L		05-JUN-19	R4658551
Dibromochloromethane	<1.0	VOCHS	1.0	ug/L		05-JUN-19	R4658551
Chloroethane	<1.0	VOCHS	1.0	ug/L		05-JUN-19	R4658551
Chloroform	<1.0	VOCHS	1.0	ug/L		05-JUN-19	R4658551
1,2-Dibromoethane	<0.20	VOCHS	0.20	ug/L		05-JUN-19	R4658551
1,2-Dichlorobenzene	<0.50	VOCHS	0.50	ug/L		05-JUN-19	R4658551
1,3-Dichlorobenzene	<0.50	VOCHS	0.50	ug/L		05-JUN-19	R4658551
1,4-Dichlorobenzene	<0.50	VOCHS	0.50	ug/L		05-JUN-19	R4658551
Dichlorodifluoromethane	<1.0	VOCHS	1.0	ug/L		05-JUN-19	R4658551
1,1-Dichloroethane	<0.50	VOCHS	0.50	ug/L		05-JUN-19	R4658551
1,2-Dichloroethane	<0.50	VOCHS	0.50	ug/L		05-JUN-19	R4658551
1,1-Dichloroethylene	<0.50	VOCHS	0.50	ug/L		05-JUN-19	R4658551
cis-1,2-Dichloroethylene	<0.50	VOCHS	0.50	ug/L		05-JUN-19	R4658551
trans-1,2-Dichloroethylene	<0.50	VOCHS	0.50	ug/L		05-JUN-19	R4658551
Dichloromethane	<2.0	VOCHS	2.0	ug/L		05-JUN-19	R4658551
1,2-Dichloropropane	<0.50	VOCHS	0.50	ug/L		05-JUN-19	R4658551
cis-1,3-Dichloropropene	<0.50	VOCHS	0.50	ug/L		05-JUN-19	R4658551
trans-1,3-Dichloropropene	<0.50	VOCHS	0.50	ug/L		05-JUN-19	R4658551
Ethylbenzene	<0.50	VOCHS	0.50	ug/L		05-JUN-19	R4658551
n-Hexane	<0.50	VOCHS	0.50	ug/L		05-JUN-19	R4658551
Methyl Ethyl Ketone	<20	VOCHS	20	ug/L		05-JUN-19	R4658551
Methyl Isobutyl Ketone	<20	VOCHS	20	ug/L		05-JUN-19	R4658551
MTBE	<0.50	VOCHS	0.50	ug/L		05-JUN-19	R4658551
Styrene	<0.50	VOCHS	0.50	ug/L		05-JUN-19	R4658551
1,1,1,2-Tetrachloroethane	<0.50	VOCHS	0.50	ug/L		05-JUN-19	R4658551
1,1,2,2-Tetrachloroethane	<0.50	VOCHS	0.50	ug/L		05-JUN-19	R4658551

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## ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2281993-2 WEST STORM WATER POND Sampled By: CLIENT on 29-MAY-19 @ 13:00 Matrix: WATER							
<b>Volatile Organic Compounds</b>							
Tetrachloroethylene	<0.50	VOCHS	0.50	ug/L		05-JUN-19	R4658551
Toluene	<0.50	VOCHS	0.50	ug/L		05-JUN-19	R4658551
1,1,1-Trichloroethane	<0.50	VOCHS	0.50	ug/L		05-JUN-19	R4658551
1,1,2-Trichloroethane	<0.50	VOCHS	0.50	ug/L		05-JUN-19	R4658551
Trichloroethylene	<0.50	VOCHS	0.50	ug/L		05-JUN-19	R4658551
Trichlorofluoromethane	<1.0	VOCHS	1.0	ug/L		05-JUN-19	R4658551
Vinyl chloride	<0.50	VOCHS	0.50	ug/L		05-JUN-19	R4658551
o-Xylene	<0.50	VOCHS	0.50	ug/L		05-JUN-19	R4658551
m+p-Xylenes	<1.0	VOCHS	1.0	ug/L		05-JUN-19	R4658551
Xylenes (Total)	<1.1		1.1	ug/L		05-JUN-19	
Surrogate: 4-Bromofluorobenzene	100.0		70-130	%		05-JUN-19	R4658551
Surrogate: 1,4-Difluorobenzene	102.1		70-130	%		05-JUN-19	R4658551
<b>Trihalomethanes</b>							
Total THMs	<2.0		2.0	ug/L		05-JUN-19	
<b>Acid Extractables</b>							
2,3,6-Trichlorophenol	<0.50		0.50	ug/L	30-MAY-19	04-JUN-19	R4654907
Surrogate: 2,4,6-Tribromophenol	155.7	SURR-ND	40-150	%	30-MAY-19	04-JUN-19	R4654907
<b>Semi-Volatile Organics</b>							
Acenaphthene	<0.20		0.20	ug/L	03-JUN-19	04-JUN-19	R4655744
Acenaphthylene	<0.20		0.20	ug/L	03-JUN-19	04-JUN-19	R4655744
Anthracene	<0.20		0.20	ug/L	03-JUN-19	04-JUN-19	R4655744
Benzo(a)anthracene	<0.20		0.20	ug/L	03-JUN-19	04-JUN-19	R4655744
Benzo(a)pyrene	<0.050		0.050	ug/L	03-JUN-19	04-JUN-19	R4655744
Benzo(b)fluoranthene	<0.20		0.20	ug/L	03-JUN-19	04-JUN-19	R4655744
Benzo(ghi)perylene	<0.20		0.20	ug/L	03-JUN-19	04-JUN-19	R4655744
Benzo(k)fluoranthene	<0.20		0.20	ug/L	03-JUN-19	04-JUN-19	R4655744
4-Chloroaniline	<0.40		0.40	ug/L	03-JUN-19	04-JUN-19	R4655744
Bis(2-chloroethyl)ether	<0.40		0.40	ug/L	03-JUN-19	04-JUN-19	R4655744
2-Chlorophenol	<0.30		0.30	ug/L	03-JUN-19	04-JUN-19	R4655744
Chrysene	<0.20		0.20	ug/L	03-JUN-19	04-JUN-19	R4655744
Dibenzo(a,h)anthracene	<0.20		0.20	ug/L	03-JUN-19	04-JUN-19	R4655744
1,2-Dichlorobenzene	<0.40		0.40	ug/L	03-JUN-19	04-JUN-19	R4655744
1,3-Dichlorobenzene	<0.40		0.40	ug/L	03-JUN-19	04-JUN-19	R4655744
1,4-Dichlorobenzene	<0.40		0.40	ug/L	03-JUN-19	04-JUN-19	R4655744
3,3'-Dichlorobenzidine	<0.40		0.40	ug/L	03-JUN-19	04-JUN-19	R4655744
2,4-Dichlorophenol	<0.30		0.30	ug/L	03-JUN-19	04-JUN-19	R4655744
Diethylphthalate	<0.20		0.20	ug/L	03-JUN-19	04-JUN-19	R4655744
Dimethylphthalate	<0.20		0.20	ug/L	03-JUN-19	04-JUN-19	R4655744
2,4-Dimethylphenol	<0.50		0.50	ug/L	03-JUN-19	04-JUN-19	R4655744
2,4-Dinitrophenol	<1.0		1.0	ug/L	03-JUN-19	04-JUN-19	R4655744
2,4-Dinitrotoluene	<0.40		0.40	ug/L	03-JUN-19	04-JUN-19	R4655744
2,6-Dinitrotoluene	<0.40		0.40	ug/L	03-JUN-19	04-JUN-19	R4655744

\* 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
L2281993-2 WEST STORM WATER POND Sampled By: CLIENT on 29-MAY-19 @ 13:00 Matrix: WATER							
<b>Semi-Volatile Organics</b>							
Bis(2-ethylhexyl)phthalate	<2.0		2.0	ug/L	03-JUN-19	04-JUN-19	R4655744
Fluoranthene	<0.20		0.20	ug/L	03-JUN-19	04-JUN-19	R4655744
Fluorene	<0.20		0.20	ug/L	03-JUN-19	04-JUN-19	R4655744
Hexachlorobenzene	<0.040		0.040	ug/L	03-JUN-19	04-JUN-19	R4655744
Hexachlorobutadiene	<0.20		0.20	ug/L	03-JUN-19	04-JUN-19	R4655744
Indeno(1,2,3-cd)pyrene	<0.20		0.20	ug/L	03-JUN-19	04-JUN-19	R4655744
1-Methylnaphthalene	<0.40		0.40	ug/L	03-JUN-19	04-JUN-19	R4655744
2-Methylnaphthalene	<0.40		0.40	ug/L	03-JUN-19	04-JUN-19	R4655744
Naphthalene	<0.20		0.20	ug/L	03-JUN-19	04-JUN-19	R4655744
Pentachlorophenol	<0.50		0.50	ug/L	03-JUN-19	04-JUN-19	R4655744
Perylene	<0.20		0.20	ug/L	03-JUN-19	04-JUN-19	R4655744
Phenanthrene	<0.20		0.20	ug/L	03-JUN-19	04-JUN-19	R4655744
Pyrene	<0.20		0.20	ug/L	03-JUN-19	04-JUN-19	R4655744
2,3,4,5-Tetrachlorophenol	<0.50		0.50	ug/L	03-JUN-19	04-JUN-19	R4655744
2,3,4,6-Tetrachlorophenol	<0.50		0.50	ug/L	03-JUN-19	04-JUN-19	R4655744
1,2,4-Trichlorobenzene	<0.40		0.40	ug/L	03-JUN-19	04-JUN-19	R4655744
2,4,5-Trichlorophenol	<0.50		0.50	ug/L	03-JUN-19	04-JUN-19	R4655744
2,4,6-Trichlorophenol	<0.50		0.50	ug/L	03-JUN-19	04-JUN-19	R4655744
Surrogate: 2-Fluorobiphenyl	102.2		40-130	%	03-JUN-19	04-JUN-19	R4655744
Surrogate: Nitrobenzene d5	103.3		40-130	%	03-JUN-19	04-JUN-19	R4655744
Surrogate: p-Terphenyl d14	111.0		40-130	%	03-JUN-19	04-JUN-19	R4655744
Report Remarks : raised Cd LOR to remove potential Mo interference							
L2281993-3 EAST STORM WATER POND Sampled By: CLIENT on 29-MAY-19 @ 13:00 Matrix: WATER							
<b>Field Tests</b>							
pH, Client Supplied	7.30		0.10	pH		30-MAY-19	R4651070
Temperature, Client	17.0		-50	Deg. C		30-MAY-19	R4651070
<b>Physical Tests</b>							
Conductivity	787		3.0	umhos/cm		04-JUN-19	R4652234
Hardness (as CaCO3)	288	HTC	1.3	mg/L		03-JUN-19	
pH	7.81		0.10	pH units		04-JUN-19	R4652234
Total Suspended Solids	23.0		2.0	mg/L	04-JUN-19	05-JUN-19	R4658803
Total Dissolved Solids	481	DLDS	20	mg/L		05-JUN-19	R4660544
<b>Anions and Nutrients</b>							
Alkalinity, Total (as CaCO3)	166		10	mg/L		04-JUN-19	R4652234
Unionized ammonia	0.0192		0.00077	mg/L		06-JUN-19	
Ammonia, Total (as N)	2.51	DLHC	0.10	mg/L		06-JUN-19	R4660257
Bromide (Br)	1.09		0.10	mg/L		31-MAY-19	R4653909
Chloride (Cl)	59.8		0.50	mg/L		31-MAY-19	R4653909
Fluoride (F)	0.629		0.020	mg/L		31-MAY-19	R4653909
Nitrate (as N)	0.030		0.020	mg/L		31-MAY-19	R4653909

\* 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
L2281993-3 EAST STORM WATER POND Sampled By: CLIENT on 29-MAY-19 @ 13:00 Matrix: WATER							
<b>Anions and Nutrients</b>							
Nitrite (as N)	<0.010		0.010	mg/L		31-MAY-19	R4653909
Total Kjeldahl Nitrogen	2.85		0.15	mg/L	05-JUN-19	05-JUN-19	R4659531
Phosphorus, Total	0.0670		0.0030	mg/L	05-JUN-19	06-JUN-19	R4660040
Sulfate (SO4)	144		0.30	mg/L		31-MAY-19	R4653909
<b>Cyanides</b>							
Cyanide, Total	<0.0020		0.0020	mg/L		30-MAY-19	R4652630
<b>Organic / Inorganic Carbon</b>							
Dissolved Carbon Filtration Location	LAB	PEHR				04-JUN-19	R4657726
Dissolved Organic Carbon	6.23		0.50	mg/L	04-JUN-19	05-JUN-19	R4659308
<b>Total Metals</b>							
Aluminum (Al)-Total	1.15		0.010	mg/L	30-MAY-19	31-MAY-19	R4651650
Antimony (Sb)-Total	0.00046		0.00010	mg/L	30-MAY-19	31-MAY-19	R4651650
Arsenic (As)-Total	0.00284		0.00010	mg/L	30-MAY-19	31-MAY-19	R4651650
Barium (Ba)-Total	0.0551		0.00020	mg/L	30-MAY-19	31-MAY-19	R4651650
Beryllium (Be)-Total	<0.00010		0.00010	mg/L	30-MAY-19	31-MAY-19	R4651650
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	30-MAY-19	31-MAY-19	R4651650
Boron (B)-Total	0.107		0.010	mg/L	30-MAY-19	31-MAY-19	R4651650
Cadmium (Cd)-Total	<0.00040	DLM	0.000040	mg/L	30-MAY-19	31-MAY-19	R4651650
Calcium (Ca)-Total	76.2		0.50	mg/L	30-MAY-19	31-MAY-19	R4651650
Cobalt (Co)-Total	0.00159		0.00010	mg/L	30-MAY-19	31-MAY-19	R4651650
Copper (Cu)-Total	0.0024		0.0010	mg/L	30-MAY-19	31-MAY-19	R4651650
Iron (Fe)-Total	1.56		0.050	mg/L	30-MAY-19	31-MAY-19	R4651650
Lead (Pb)-Total	0.00304		0.00010	mg/L	30-MAY-19	31-MAY-19	R4651650
Magnesium (Mg)-Total	23.7		0.050	mg/L	30-MAY-19	31-MAY-19	R4651650
Manganese (Mn)-Total	0.334		0.00050	mg/L	30-MAY-19	31-MAY-19	R4651650
Mercury (Hg)-Total	0.000037		0.000010	mg/L		31-MAY-19	R4652427
Molybdenum (Mo)-Total	0.0855		0.000050	mg/L	30-MAY-19	31-MAY-19	R4651650
Nickel (Ni)-Total	0.00714		0.00050	mg/L	30-MAY-19	31-MAY-19	R4651650
Potassium (K)-Total	17.0		0.050	mg/L	30-MAY-19	31-MAY-19	R4651650
Selenium (Se)-Total	0.00119		0.000050	mg/L	30-MAY-19	31-MAY-19	R4651650
Silicon (Si)-Total	3.44		0.10	mg/L	30-MAY-19	31-MAY-19	R4651650
Silver (Ag)-Total	<0.000050		0.000050	mg/L	30-MAY-19	31-MAY-19	R4651650
Sodium (Na)-Total	39.7		0.50	mg/L	30-MAY-19	31-MAY-19	R4651650
Strontium (Sr)-Total	0.657		0.0010	mg/L	30-MAY-19	31-MAY-19	R4651650
Thallium (Tl)-Total	0.00142		0.000010	mg/L	30-MAY-19	31-MAY-19	R4651650
Tin (Sn)-Total	<0.00010		0.00010	mg/L	30-MAY-19	31-MAY-19	R4651650
Vanadium (V)-Total	0.00270		0.00050	mg/L	30-MAY-19	31-MAY-19	R4651650
Zinc (Zn)-Total	0.0154		0.0030	mg/L	30-MAY-19	31-MAY-19	R4651650
<b>Speciated Metals</b>							
Chromium, Hexavalent	<0.00050		0.00050	mg/L		31-MAY-19	R4652852
<b>Aggregate Organics</b>							
COD	24		10	mg/L		06-JUN-19	R4660149

\* 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
L2281993-3 EAST STORM WATER POND Sampled By: CLIENT on 29-MAY-19 @ 13:00 Matrix: WATER							
<b>Aggregate Organics</b>							
Phenols (4AAP)	0.0020		0.0010	mg/L		03-JUN-19	R4656031
<b>Volatile Organic Compounds</b>							
Acetone	<20		20	ug/L		05-JUN-19	R4658551
Benzene	<0.50		0.50	ug/L		05-JUN-19	R4658551
Bromodichloromethane	<1.0		1.0	ug/L		05-JUN-19	R4658551
Bromoform	<1.0		1.0	ug/L		05-JUN-19	R4658551
Bromomethane	<0.50		0.50	ug/L		05-JUN-19	R4658551
Carbon tetrachloride	<0.50		0.50	ug/L		05-JUN-19	R4658551
Chlorobenzene	<0.50		0.50	ug/L		05-JUN-19	R4658551
Dibromochloromethane	<1.0		1.0	ug/L		05-JUN-19	R4658551
Chloroethane	<1.0		1.0	ug/L		05-JUN-19	R4658551
Chloroform	<1.0		1.0	ug/L		05-JUN-19	R4658551
1,2-Dibromoethane	<0.20		0.20	ug/L		05-JUN-19	R4658551
1,2-Dichlorobenzene	<0.50		0.50	ug/L		05-JUN-19	R4658551
1,3-Dichlorobenzene	<0.50		0.50	ug/L		05-JUN-19	R4658551
1,4-Dichlorobenzene	<0.50		0.50	ug/L		05-JUN-19	R4658551
Dichlorodifluoromethane	<1.0		1.0	ug/L		05-JUN-19	R4658551
1,1-Dichloroethane	<0.50		0.50	ug/L		05-JUN-19	R4658551
1,2-Dichloroethane	<0.50		0.50	ug/L		05-JUN-19	R4658551
1,1-Dichloroethylene	<0.50		0.50	ug/L		05-JUN-19	R4658551
cis-1,2-Dichloroethylene	<0.50		0.50	ug/L		05-JUN-19	R4658551
trans-1,2-Dichloroethylene	<0.50		0.50	ug/L		05-JUN-19	R4658551
Dichloromethane	<2.0		2.0	ug/L		05-JUN-19	R4658551
1,2-Dichloropropane	<0.50		0.50	ug/L		05-JUN-19	R4658551
cis-1,3-Dichloropropene	<0.50		0.50	ug/L		05-JUN-19	R4658551
trans-1,3-Dichloropropene	<0.50		0.50	ug/L		05-JUN-19	R4658551
Ethylbenzene	<0.50		0.50	ug/L		05-JUN-19	R4658551
n-Hexane	<0.50		0.50	ug/L		05-JUN-19	R4658551
Methyl Ethyl Ketone	<20		20	ug/L		05-JUN-19	R4658551
Methyl Isobutyl Ketone	<20		20	ug/L		05-JUN-19	R4658551
MTBE	<0.50		0.50	ug/L		05-JUN-19	R4658551
Styrene	<0.50		0.50	ug/L		05-JUN-19	R4658551
1,1,1,2-Tetrachloroethane	<0.50		0.50	ug/L		05-JUN-19	R4658551
1,1,2,2-Tetrachloroethane	<0.50		0.50	ug/L		05-JUN-19	R4658551
Tetrachloroethylene	<0.50		0.50	ug/L		05-JUN-19	R4658551
Toluene	<0.50		0.50	ug/L		05-JUN-19	R4658551
1,1,1-Trichloroethane	<0.50		0.50	ug/L		05-JUN-19	R4658551
1,1,2-Trichloroethane	<0.50		0.50	ug/L		05-JUN-19	R4658551
Trichloroethylene	<0.50		0.50	ug/L		05-JUN-19	R4658551
Trichlorofluoromethane	<1.0		1.0	ug/L		05-JUN-19	R4658551
Vinyl chloride	<0.50		0.50	ug/L		05-JUN-19	R4658551

\* 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
L2281993-3 EAST STORM WATER POND Sampled By: CLIENT on 29-MAY-19 @ 13:00 Matrix: WATER							
<b>Volatile Organic Compounds</b>							
o-Xylene	<0.50		0.50	ug/L		05-JUN-19	R4658551
m+p-Xylenes	<1.0		1.0	ug/L		05-JUN-19	R4658551
Xylenes (Total)	<1.1		1.1	ug/L		05-JUN-19	
Surrogate: 4-Bromofluorobenzene	100.2		70-130	%		05-JUN-19	R4658551
Surrogate: 1,4-Difluorobenzene	102.0		70-130	%		05-JUN-19	R4658551
<b>Trihalomethanes</b>							
Total THMs	<2.0		2.0	ug/L		05-JUN-19	
<b>Acid Extractables</b>							
2,3,6-Trichlorophenol	<0.50		0.50	ug/L	30-MAY-19	04-JUN-19	R4654907
Surrogate: 2,4,6-Tribromophenol	153.6	SURR-ND	40-150	%	30-MAY-19	04-JUN-19	R4654907
<b>Semi-Volatile Organics</b>							
Acenaphthene	<0.20		0.20	ug/L	03-JUN-19	04-JUN-19	R4655744
Acenaphthylene	<0.20		0.20	ug/L	03-JUN-19	04-JUN-19	R4655744
Anthracene	<0.20		0.20	ug/L	03-JUN-19	04-JUN-19	R4655744
Benzo(a)anthracene	<0.20		0.20	ug/L	03-JUN-19	04-JUN-19	R4655744
Benzo(a)pyrene	<0.050		0.050	ug/L	03-JUN-19	04-JUN-19	R4655744
Benzo(b)fluoranthene	<0.20		0.20	ug/L	03-JUN-19	04-JUN-19	R4655744
Benzo(ghi)perylene	<0.20		0.20	ug/L	03-JUN-19	04-JUN-19	R4655744
Benzo(k)fluoranthene	<0.20		0.20	ug/L	03-JUN-19	04-JUN-19	R4655744
4-Chloroaniline	<0.40		0.40	ug/L	03-JUN-19	04-JUN-19	R4655744
Bis(2-chloroethyl)ether	<0.40		0.40	ug/L	03-JUN-19	04-JUN-19	R4655744
2-Chlorophenol	<0.30		0.30	ug/L	03-JUN-19	04-JUN-19	R4655744
Chrysene	<0.20		0.20	ug/L	03-JUN-19	04-JUN-19	R4655744
Dibenzo(a,h)anthracene	<0.20		0.20	ug/L	03-JUN-19	04-JUN-19	R4655744
1,2-Dichlorobenzene	<0.40		0.40	ug/L	03-JUN-19	04-JUN-19	R4655744
1,3-Dichlorobenzene	<0.40		0.40	ug/L	03-JUN-19	04-JUN-19	R4655744
1,4-Dichlorobenzene	<0.40		0.40	ug/L	03-JUN-19	04-JUN-19	R4655744
3,3'-Dichlorobenzidine	<0.40		0.40	ug/L	03-JUN-19	04-JUN-19	R4655744
2,4-Dichlorophenol	<0.30		0.30	ug/L	03-JUN-19	04-JUN-19	R4655744
Diethylphthalate	<0.20		0.20	ug/L	03-JUN-19	04-JUN-19	R4655744
Dimethylphthalate	<0.20		0.20	ug/L	03-JUN-19	04-JUN-19	R4655744
2,4-Dimethylphenol	<0.50		0.50	ug/L	03-JUN-19	04-JUN-19	R4655744
2,4-Dinitrophenol	<1.0		1.0	ug/L	03-JUN-19	04-JUN-19	R4655744
2,4-Dinitrotoluene	<0.40		0.40	ug/L	03-JUN-19	04-JUN-19	R4655744
2,6-Dinitrotoluene	<0.40		0.40	ug/L	03-JUN-19	04-JUN-19	R4655744
Bis(2-ethylhexyl)phthalate	<2.0		2.0	ug/L	03-JUN-19	04-JUN-19	R4655744
Fluoranthene	<0.20		0.20	ug/L	03-JUN-19	04-JUN-19	R4655744
Fluorene	<0.20		0.20	ug/L	03-JUN-19	04-JUN-19	R4655744
Hexachlorobenzene	<0.040		0.040	ug/L	03-JUN-19	04-JUN-19	R4655744
Hexachlorobutadiene	<0.20		0.20	ug/L	03-JUN-19	04-JUN-19	R4655744
Indeno(1,2,3-cd)pyrene	<0.20		0.20	ug/L	03-JUN-19	04-JUN-19	R4655744
1-Methylnaphthalene	<0.40		0.40	ug/L	03-JUN-19	04-JUN-19	R4655744

\* 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
L2281993-3 EAST STORM WATER POND Sampled By: CLIENT on 29-MAY-19 @ 13:00 Matrix: WATER							
<b>Semi-Volatile Organics</b>							
2-Methylnaphthalene	<0.40		0.40	ug/L	03-JUN-19	04-JUN-19	R4655744
Naphthalene	<0.20		0.20	ug/L	03-JUN-19	04-JUN-19	R4655744
Pentachlorophenol	<0.50		0.50	ug/L	03-JUN-19	04-JUN-19	R4655744
Perylene	<0.20		0.20	ug/L	03-JUN-19	04-JUN-19	R4655744
Phenanthrene	<0.20		0.20	ug/L	03-JUN-19	04-JUN-19	R4655744
Pyrene	<0.20		0.20	ug/L	03-JUN-19	04-JUN-19	R4655744
2,3,4,5-Tetrachlorophenol	<0.50		0.50	ug/L	03-JUN-19	04-JUN-19	R4655744
2,3,4,6-Tetrachlorophenol	<0.50		0.50	ug/L	03-JUN-19	04-JUN-19	R4655744
1,2,4-Trichlorobenzene	<0.40		0.40	ug/L	03-JUN-19	04-JUN-19	R4655744
2,4,5-Trichlorophenol	<0.50		0.50	ug/L	03-JUN-19	04-JUN-19	R4655744
2,4,6-Trichlorophenol	<0.50		0.50	ug/L	03-JUN-19	04-JUN-19	R4655744
Surrogate: 2-Fluorobiphenyl	95.8		40-130	%	03-JUN-19	04-JUN-19	R4655744
Surrogate: Nitrobenzene d5	96.3		40-130	%	03-JUN-19	04-JUN-19	R4655744
Surrogate: p-Terphenyl d14	109.8		40-130	%	03-JUN-19	04-JUN-19	R4655744
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	Boron (B)-Total	MS-B	L2281993-1, -2, -3
Matrix Spike	Calcium (Ca)-Total	MS-B	L2281993-1, -2, -3
Matrix Spike	Magnesium (Mg)-Total	MS-B	L2281993-1, -2, -3
Matrix Spike	Manganese (Mn)-Total	MS-B	L2281993-1, -2, -3
Matrix Spike	Silicon (Si)-Total	MS-B	L2281993-1, -2, -3
Matrix Spike	Sodium (Na)-Total	MS-B	L2281993-1, -2, -3
Matrix Spike	Strontium (Sr)-Total	MS-B	L2281993-1, -2, -3
Matrix Spike	Ammonia, Total (as N)	MS-B	L2281993-1, -2, -3
Matrix Spike	Sulfate (SO4)	MS-B	L2281993-1, -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.
PEHR	Parameter Exceeded Recommended Holding Time On Receipt: Proceed With Analysis As Requested.
SURR-ND	Surrogate recovery marginally exceeded ALS DQO. Reported non-detect results for associated samples were deemed to be unaffected.
VOCHS	VOC analysis was conducted for a water sample that contained > 5% 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.  N-nitrosodiphenylamine is reported as diphenylamine. N-nitrosodiphenylamine decomposes in the gas chromatographic inlet and cannot be separated from diphenylamine. (EPA 8270D)	SW846 8270
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.  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).	EPA 300.1 (mod)
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 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).	EPA 7199

## Reference Information

DOC-WT	Water		
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 CaCO <sub>3</sub> 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 ICPMS	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-F-WT	Water	Ammonia in Water by Fluorescence	J. ENVIRON. MONIT., 2005, 7, 37-42, RSC
This analysis is carried out, on sulfuric acid preserved samples, using procedures modified from J. Environ. Monit., 2005, 7, 37 - 42, The Royal Society of Chemistry, "Flow-injection analysis with fluorescence detection for the determination of trace levels of ammonium in seawater", Roslyn J. Weston et al.			
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.			

## Reference Information

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.			

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

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*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:*

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

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### Chain of Custody Numbers:

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#### 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: L2281993

Report Date: 10-JUN-19

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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
<b>625-ACID-EXTRA-WT</b>	<b>Water</b>							
<b>Batch</b>	<b>R4654907</b>							
<b>WG3062879-2 LCS</b>								
2,3,6-Trichlorophenol			116.3		%		50-130	04-JUN-19
<b>WG3062879-1 MB</b>								
2,3,6-Trichlorophenol			<0.50		ug/L		0.5	04-JUN-19
Surrogate: 2,4,6-Tribromophenol			114.3		%		40-150	04-JUN-19
<b>625-WT</b>	<b>Water</b>							
<b>Batch</b>	<b>R4655744</b>							
<b>WG3065352-2 LCS</b>								
1-Methylnaphthalene			95.5		%		50-140	04-JUN-19
1,2-Dichlorobenzene			91.1		%		40-130	04-JUN-19
1,2,4-Trichlorobenzene			101.2		%		50-130	04-JUN-19
1,3-Dichlorobenzene			91.2		%		50-140	04-JUN-19
1,4-Dichlorobenzene			88.8		%		40-130	04-JUN-19
2-Chlorophenol			93.7		%		65-130	04-JUN-19
2-Methylnaphthalene			96.8		%		50-140	04-JUN-19
2,3,4,5-Tetrachlorophenol			120.0		%		50-130	04-JUN-19
2,3,4,6-Tetrachlorophenol			114.2		%		65-130	04-JUN-19
2,4-Dichlorophenol			114.3		%		65-130	04-JUN-19
2,4-Dimethylphenol			70.6		%		30-130	04-JUN-19
2,4-Dinitrophenol			119.3		%		40-140	04-JUN-19
2,4-Dinitrotoluene			114.3		%		50-140	04-JUN-19
2,4,5-Trichlorophenol			121.9		%		65-130	04-JUN-19
2,4,6-Trichlorophenol			116.4		%		65-130	04-JUN-19
2,6-Dinitrotoluene			115.2		%		50-140	04-JUN-19
3,3'-Dichlorobenzidine			87.5		%		50-140	04-JUN-19
4-Chloroaniline			95.6		%		30-140	04-JUN-19
Acenaphthene			102.8		%		50-140	04-JUN-19
Acenaphthylene			106.8		%		50-140	04-JUN-19
Anthracene			102.1		%		50-140	04-JUN-19
Benzo(a)anthracene			101.5		%		50-140	04-JUN-19
Benzo(a)pyrene			103.7		%		60-130	04-JUN-19
Benzo(b)fluoranthene			101.1		%		50-140	04-JUN-19
Benzo(ghi)perylene			103.3		%		50-140	04-JUN-19
Benzo(k)fluoranthene			101.1		%		50-140	04-JUN-19
Bis(2-chloroethyl)ether			91.6		%		50-140	04-JUN-19



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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
<b>625-WT</b>	<b>Water</b>							
<b>Batch</b>	<b>R4655744</b>							
<b>WG3065352-2 LCS</b>								
Bis(2-ethylhexyl)phthalate			121.4		%		50-140	04-JUN-19
Chrysene			101.9		%		50-140	04-JUN-19
Dibenzo(a,h)anthracene			102.9		%		50-140	04-JUN-19
Diethylphthalate			111.6		%		50-140	04-JUN-19
Dimethylphthalate			109.3		%		50-140	04-JUN-19
Fluoranthene			113.8		%		50-140	04-JUN-19
Fluorene			103.6		%		50-140	04-JUN-19
Hexachlorobenzene			91.1		%		40-130	04-JUN-19
Hexachlorobutadiene			87.1		%		40-130	04-JUN-19
Indeno(1,2,3-cd)pyrene			102.6		%		50-140	04-JUN-19
Naphthalene			101.2		%		50-140	04-JUN-19
Pentachlorophenol			121.3		%		65-130	04-JUN-19
Perylene			92.0		%		50-140	04-JUN-19
Phenanthrene			97.4		%		50-140	04-JUN-19
Pyrene			104.0		%		50-140	04-JUN-19
<b>WG3065352-4 LCS</b>								
1-Methylnaphthalene			95.5		%		50-140	05-JUN-19
1,2-Dichlorobenzene			91.2		%		40-130	05-JUN-19
1,2,4-Trichlorobenzene			101.2		%		50-130	05-JUN-19
1,3-Dichlorobenzene			90.8		%		50-140	05-JUN-19
1,4-Dichlorobenzene			88.7		%		40-130	05-JUN-19
2-Chlorophenol			93.5		%		65-130	05-JUN-19
2-Methylnaphthalene			96.8		%		50-140	05-JUN-19
2,3,4,5-Tetrachlorophenol			120.0		%		50-130	05-JUN-19
2,3,4,6-Tetrachlorophenol			114.2		%		65-130	05-JUN-19
2,4-Dichlorophenol			114.3		%		65-130	05-JUN-19
2,4-Dimethylphenol			70.6		%		30-130	05-JUN-19
2,4-Dinitrophenol			119.3		%		40-140	05-JUN-19
2,4-Dinitrotoluene			114.3		%		50-140	05-JUN-19
2,4,5-Trichlorophenol			121.9		%		65-130	05-JUN-19
2,4,6-Trichlorophenol			116.4		%		65-130	05-JUN-19
2,6-Dinitrotoluene			115.2		%		50-140	05-JUN-19
3,3'-Dichlorobenzidine			87.5		%		50-140	05-JUN-19
4-Chloroaniline			95.6		%		30-140	05-JUN-19



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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
<b>625-WT</b>	<b>Water</b>							
<b>Batch</b>	<b>R4655744</b>							
<b>WG3065352-4</b>	<b>LCS</b>							
Acenaphthene			102.8		%		50-140	05-JUN-19
Acenaphthylene			106.8		%		50-140	05-JUN-19
Anthracene			102.1		%		50-140	05-JUN-19
Benzo(a)anthracene			101.5		%		50-140	05-JUN-19
Benzo(a)pyrene			96.2		%		60-130	05-JUN-19
Benzo(b)fluoranthene			101.1		%		50-140	05-JUN-19
Benzo(ghi)perylene			103.3		%		50-140	05-JUN-19
Benzo(k)fluoranthene			101.1		%		50-140	05-JUN-19
Bis(2-chloroethyl)ether			91.4		%		50-140	05-JUN-19
Bis(2-ethylhexyl)phthalate			121.4		%		50-140	05-JUN-19
Chrysene			101.9		%		50-140	05-JUN-19
Dibenzo(a,h)anthracene			102.9		%		50-140	05-JUN-19
Diethylphthalate			111.6		%		50-140	05-JUN-19
Dimethylphthalate			109.3		%		50-140	05-JUN-19
Fluoranthene			113.8		%		50-140	05-JUN-19
Fluorene			103.6		%		50-140	05-JUN-19
Hexachlorobenzene			91.1		%		40-130	05-JUN-19
Hexachlorobutadiene			87.1		%		40-130	05-JUN-19
Indeno(1,2,3-cd)pyrene			102.6		%		50-140	05-JUN-19
Naphthalene			101.2		%		50-140	05-JUN-19
Pentachlorophenol			121.3		%		65-130	05-JUN-19
Perylene			92.0		%		50-140	05-JUN-19
Phenanthrene			97.4		%		50-140	05-JUN-19
Pyrene			104.0		%		50-140	05-JUN-19
<b>WG3065352-1</b>	<b>MB</b>							
1-Methylnaphthalene			<0.40		ug/L		0.4	04-JUN-19
1,2-Dichlorobenzene			<0.40		ug/L		0.4	04-JUN-19
1,2,4-Trichlorobenzene			<0.40		ug/L		0.4	04-JUN-19
1,3-Dichlorobenzene			<0.40		ug/L		0.4	04-JUN-19
1,4-Dichlorobenzene			<0.40		ug/L		0.4	04-JUN-19
2-Chlorophenol			<0.30		ug/L		0.3	04-JUN-19
2-Methylnaphthalene			<0.40		ug/L		0.4	04-JUN-19
2,3,4,5-Tetrachlorophenol			<0.50		ug/L		0.5	04-JUN-19
2,3,4,6-Tetrachlorophenol			<0.50		ug/L		0.5	04-JUN-19



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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
<b>625-WT</b>	<b>Water</b>							
<b>Batch</b>	<b>R4655744</b>							
<b>WG3065352-1 MB</b>								
2,4-Dichlorophenol			<0.30		ug/L		0.3	04-JUN-19
2,4-Dimethylphenol			<0.50		ug/L		0.5	04-JUN-19
2,4-Dinitrophenol			<1.0		ug/L		1	04-JUN-19
2,4-Dinitrotoluene			<0.40		ug/L		0.4	04-JUN-19
2,4,5-Trichlorophenol			<0.50		ug/L		0.5	04-JUN-19
2,4,6-Trichlorophenol			<0.50		ug/L		0.5	04-JUN-19
2,6-Dinitrotoluene			<0.40		ug/L		0.4	04-JUN-19
3,3'-Dichlorobenzidine			<0.40		ug/L		0.4	04-JUN-19
4-Chloroaniline			<0.40		ug/L		0.4	04-JUN-19
Acenaphthene			<0.20		ug/L		0.2	04-JUN-19
Acenaphthylene			<0.20		ug/L		0.2	04-JUN-19
Anthracene			<0.20		ug/L		0.2	04-JUN-19
Benzo(a)anthracene			<0.20		ug/L		0.2	04-JUN-19
Benzo(a)pyrene			<0.050		ug/L		0.05	04-JUN-19
Benzo(b)fluoranthene			<0.20		ug/L		0.2	04-JUN-19
Benzo(ghi)perylene			<0.20		ug/L		0.2	04-JUN-19
Benzo(k)fluoranthene			<0.20		ug/L		0.2	04-JUN-19
Bis(2-chloroethyl)ether			<0.40		ug/L		0.4	04-JUN-19
Bis(2-ethylhexyl)phthalate			<1.0		ug/L		1	04-JUN-19
Chrysene			<0.20		ug/L		0.2	04-JUN-19
Dibenzo(a,h)anthracene			<0.20		ug/L		0.2	04-JUN-19
Diethylphthalate			<0.20		ug/L		0.2	04-JUN-19
Dimethylphthalate			<0.20		ug/L		0.2	04-JUN-19
Fluoranthene			<0.20		ug/L		0.2	04-JUN-19
Fluorene			<0.20		ug/L		0.2	04-JUN-19
Hexachlorobenzene			<0.040		ug/L		0.04	04-JUN-19
Hexachlorobutadiene			<0.20		ug/L		0.2	04-JUN-19
Indeno(1,2,3-cd)pyrene			<0.20		ug/L		0.2	04-JUN-19
Naphthalene			<0.20		ug/L		0.2	04-JUN-19
Pentachlorophenol			<0.50		ug/L		0.5	04-JUN-19
Perylene			<0.20		ug/L		0.2	04-JUN-19
Phenanthrene			<0.20		ug/L		0.2	04-JUN-19
Pyrene			<0.20		ug/L		0.2	04-JUN-19



### 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
<b>625-WT</b>	<b>Water</b>							
<b>Batch</b>	<b>R4655744</b>							
<b>WG3065352-1 MB</b>								
Surrogate: 2-Fluorobiphenyl			89.7		%		40-130	04-JUN-19
Surrogate: Nitrobenzene d5			95.2		%		40-130	04-JUN-19
Surrogate: p-Terphenyl d14			124.3		%		40-130	04-JUN-19
<b>WG3065352-3 MB</b>								
1-Methylnaphthalene			<0.40		ug/L		0.4	05-JUN-19
1,2-Dichlorobenzene			<0.40		ug/L		0.4	05-JUN-19
1,2,4-Trichlorobenzene			<0.40		ug/L		0.4	05-JUN-19
1,3-Dichlorobenzene			<0.40		ug/L		0.4	05-JUN-19
1,4-Dichlorobenzene			<0.40		ug/L		0.4	05-JUN-19
2-Chlorophenol			<0.30		ug/L		0.3	05-JUN-19
2-Methylnaphthalene			<0.40		ug/L		0.4	05-JUN-19
2,3,4,5-Tetrachlorophenol			<0.50		ug/L		0.5	05-JUN-19
2,3,4,6-Tetrachlorophenol			<0.50		ug/L		0.5	05-JUN-19
2,4-Dichlorophenol			<0.30		ug/L		0.3	05-JUN-19
2,4-Dimethylphenol			<0.50		ug/L		0.5	05-JUN-19
2,4-Dinitrophenol			<1.0		ug/L		1	05-JUN-19
2,4-Dinitrotoluene			<0.40		ug/L		0.4	05-JUN-19
2,4,5-Trichlorophenol			<0.50		ug/L		0.5	05-JUN-19
2,4,6-Trichlorophenol			<0.50		ug/L		0.5	05-JUN-19
2,6-Dinitrotoluene			<0.40		ug/L		0.4	05-JUN-19
3,3'-Dichlorobenzidine			<0.40		ug/L		0.4	05-JUN-19
4-Chloroaniline			<0.40		ug/L		0.4	05-JUN-19
Acenaphthene			<0.20		ug/L		0.2	05-JUN-19
Acenaphthylene			<0.20		ug/L		0.2	05-JUN-19
Anthracene			<0.20		ug/L		0.2	05-JUN-19
Benzo(a)anthracene			<0.20		ug/L		0.2	05-JUN-19
Benzo(a)pyrene			<0.050		ug/L		0.05	05-JUN-19
Benzo(b)fluoranthene			<0.20		ug/L		0.2	05-JUN-19
Benzo(ghi)perylene			<0.20		ug/L		0.2	05-JUN-19
Benzo(k)fluoranthene			<0.20		ug/L		0.2	05-JUN-19
Bis(2-chloroethyl)ether			<0.40		ug/L		0.4	05-JUN-19
Bis(2-ethylhexyl)phthalate			<1.0		ug/L		1	05-JUN-19
Chrysene			<0.20		ug/L		0.2	05-JUN-19
Dibenzo(a,h)anthracene			<0.20		ug/L		0.2	05-JUN-19



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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
<b>625-WT</b>		<b>Water</b>						
<b>Batch R4655744</b>								
<b>WG3065352-3 MB</b>								
	Diethylphthalate		<0.20		ug/L		0.2	05-JUN-19
	Dimethylphthalate		<0.20		ug/L		0.2	05-JUN-19
	Fluoranthene		<0.20		ug/L		0.2	05-JUN-19
	Fluorene		<0.20		ug/L		0.2	05-JUN-19
	Hexachlorobenzene		<0.040		ug/L		0.04	05-JUN-19
	Hexachlorobutadiene		<0.20		ug/L		0.2	05-JUN-19
	Indeno(1,2,3-cd)pyrene		<0.20		ug/L		0.2	05-JUN-19
	Naphthalene		<0.20		ug/L		0.2	05-JUN-19
	Pentachlorophenol		<0.50		ug/L		0.5	05-JUN-19
	Perylene		<0.20		ug/L		0.2	05-JUN-19
	Phenanthrene		<0.20		ug/L		0.2	05-JUN-19
	Pyrene		<0.20		ug/L		0.2	05-JUN-19
	Surrogate: 2-Fluorobiphenyl		89.7		%		40-130	05-JUN-19
	Surrogate: Nitrobenzene d5		95.2		%		40-130	05-JUN-19
	Surrogate: p-Terphenyl d14		124.3		%		40-130	05-JUN-19
<b>ALK-WT</b>		<b>Water</b>						
<b>Batch R4652234</b>								
<b>WG3063939-20 DUP</b>		<b>WG3063939-19</b>						
	Alkalinity, Total (as CaCO3)	269	268		mg/L	0.4	20	04-JUN-19
<b>WG3063939-18 LCS</b>								
	Alkalinity, Total (as CaCO3)		102.4		%		85-115	04-JUN-19
<b>WG3063939-17 MB</b>								
	Alkalinity, Total (as CaCO3)		<10		mg/L		10	04-JUN-19
<b>BR-IC-N-WT</b>		<b>Water</b>						
<b>Batch R4653909</b>								
<b>WG3064277-19 DUP</b>		<b>WG3064277-20</b>						
	Bromide (Br)	<0.10	<0.10	RPD-NA	mg/L	N/A	20	31-MAY-19
<b>WG3064277-17 LCS</b>								
	Bromide (Br)		100.6		%		85-115	31-MAY-19
<b>WG3064277-16 MB</b>								
	Bromide (Br)		<0.10		mg/L		0.1	31-MAY-19
<b>WG3064277-18 MS</b>		<b>WG3064277-20</b>						
	Bromide (Br)		90.8		%		75-125	31-MAY-19
<b>CL-IC-N-WT</b>		<b>Water</b>						



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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
<b>CL-IC-N-WT</b>		<b>Water</b>						
<b>Batch</b>	<b>R4653909</b>							
<b>WG3064277-19</b>	<b>DUP</b>	<b>WG3064277-20</b>						
Chloride (Cl)		22.4	22.4		mg/L	0.1	20	31-MAY-19
<b>WG3064277-17</b>	<b>LCS</b>							
Chloride (Cl)			101.8		%		90-110	31-MAY-19
<b>WG3064277-16</b>	<b>MB</b>							
Chloride (Cl)			<0.50		mg/L		0.5	31-MAY-19
<b>WG3064277-18</b>	<b>MS</b>	<b>WG3064277-20</b>						
Chloride (Cl)			103.0		%		75-125	31-MAY-19
<b>CN-TOT-WT</b>		<b>Water</b>						
<b>Batch</b>	<b>R4652630</b>							
<b>WG3063105-11</b>	<b>DUP</b>	<b>L2281048-5</b>						
Cyanide, Total		<0.0020	<0.0020	RPD-NA	mg/L	N/A	20	30-MAY-19
<b>WG3063105-7</b>	<b>DUP</b>	<b>WG3063105-14</b>						
Cyanide, Total		<0.0020	<0.0020	RPD-NA	mg/L	N/A	20	30-MAY-19
<b>WG3063105-10</b>	<b>LCS</b>							
Cyanide, Total			87.1		%		80-120	30-MAY-19
<b>WG3063105-6</b>	<b>LCS</b>							
Cyanide, Total			86.9		%		80-120	30-MAY-19
<b>WG3063105-5</b>	<b>MB</b>							
Cyanide, Total			<0.0020		mg/L		0.002	30-MAY-19
<b>WG3063105-9</b>	<b>MB</b>							
Cyanide, Total			<0.0020		mg/L		0.002	30-MAY-19
<b>WG3063105-12</b>	<b>MS</b>	<b>L2281048-5</b>						
Cyanide, Total			89.5		%		70-130	30-MAY-19
<b>WG3063105-8</b>	<b>MS</b>	<b>WG3063105-14</b>						
Cyanide, Total			87.4		%		70-130	30-MAY-19
<b>COD-T-WT</b>		<b>Water</b>						
<b>Batch</b>	<b>R4660149</b>							
<b>WG3069025-3</b>	<b>DUP</b>	<b>L2281993-1</b>						
COD		<10	<10	RPD-NA	mg/L	N/A	20	06-JUN-19
<b>WG3069025-2</b>	<b>LCS</b>							
COD			99.4		%		85-115	06-JUN-19
<b>WG3069025-1</b>	<b>MB</b>							
COD			<10		mg/L		10	06-JUN-19
<b>WG3069025-4</b>	<b>MS</b>	<b>L2281993-1</b>						
COD			111.0		%		75-125	06-JUN-19
<b>CR-CR6-IC-WT</b>		<b>Water</b>						



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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
<b>CR-CR6-IC-WT</b>		<b>Water</b>						
<b>Batch</b>	<b>R4652852</b>							
<b>WG3064231-4</b>	<b>DUP</b>	<b>WG3064231-3</b>						
Chromium, Hexavalent		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	31-MAY-19
<b>WG3064231-2</b>	<b>LCS</b>							
Chromium, Hexavalent			95.0		%		80-120	31-MAY-19
<b>WG3064231-1</b>	<b>MB</b>							
Chromium, Hexavalent			<0.00050		mg/L		0.0005	31-MAY-19
<b>WG3064231-5</b>	<b>MS</b>	<b>WG3064231-3</b>						
Chromium, Hexavalent			103.0		%		70-130	31-MAY-19
<b>DOC-WT</b>		<b>Water</b>						
<b>Batch</b>	<b>R4656380</b>							
<b>WG3066305-3</b>	<b>DUP</b>	<b>L2281169-18</b>						
Dissolved Organic Carbon		3.86	4.64		mg/L	18	25	04-JUN-19
<b>WG3066305-2</b>	<b>LCS</b>							
Dissolved Organic Carbon			96.7		%		70-130	04-JUN-19
<b>WG3066305-1</b>	<b>MB</b>							
Dissolved Organic Carbon			<0.50		mg/L		0.5	04-JUN-19
<b>WG3066305-4</b>	<b>MS</b>	<b>L2281169-18</b>						
Dissolved Organic Carbon			94.1		%		70-130	04-JUN-19
<b>Batch</b>	<b>R4659308</b>							
<b>WG3067501-3</b>	<b>DUP</b>	<b>L2281993-2</b>						
Dissolved Organic Carbon		4.99	5.05		mg/L	1.2	25	05-JUN-19
<b>WG3067501-2</b>	<b>LCS</b>							
Dissolved Organic Carbon			96.8		%		70-130	05-JUN-19
<b>WG3067501-1</b>	<b>MB</b>							
Dissolved Organic Carbon			<0.50		mg/L		0.5	05-JUN-19
<b>WG3067501-4</b>	<b>MS</b>	<b>L2281993-2</b>						
Dissolved Organic Carbon			91.9		%		70-130	05-JUN-19
<b>EC-WT</b>		<b>Water</b>						
<b>Batch</b>	<b>R4652234</b>							
<b>WG3063939-20</b>	<b>DUP</b>	<b>WG3063939-19</b>						
Conductivity		624	624		umhos/cm	0.0	10	04-JUN-19
<b>WG3063939-18</b>	<b>LCS</b>							
Conductivity			101.5		%		90-110	04-JUN-19
<b>WG3063939-17</b>	<b>MB</b>							
Conductivity			<3.0		umhos/cm		3	04-JUN-19
<b>F-IC-N-WT</b>		<b>Water</b>						





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

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>F-IC-N-WT</b>		<b>Water</b>						
<b>Batch</b>	<b>R4653909</b>							
<b>WG3064277-19</b>	<b>DUP</b>	<b>WG3064277-20</b>						
Fluoride (F)		0.303	0.304		mg/L	0.3	20	31-MAY-19
<b>WG3064277-17</b>	<b>LCS</b>							
Fluoride (F)			103.3		%		90-110	31-MAY-19
<b>WG3064277-16</b>	<b>MB</b>							
Fluoride (F)			<0.020		mg/L		0.02	31-MAY-19
<b>WG3064277-18</b>	<b>MS</b>	<b>WG3064277-20</b>						
Fluoride (F)			99.6		%		75-125	31-MAY-19
<b>HG-T-CVAA-WT</b>		<b>Water</b>						
<b>Batch</b>	<b>R4652427</b>							
<b>WG3062950-3</b>	<b>DUP</b>	<b>L2279467-1</b>						
Mercury (Hg)-Total		<0.000010	<0.000010	RPD-NA	mg/L	N/A	20	31-MAY-19
<b>WG3062950-2</b>	<b>LCS</b>							
Mercury (Hg)-Total			103.0		%		80-120	31-MAY-19
<b>WG3062950-1</b>	<b>MB</b>							
Mercury (Hg)-Total			<0.000010		mg/L		0.00001	31-MAY-19
<b>WG3062950-4</b>	<b>MS</b>	<b>L2281993-1</b>						
Mercury (Hg)-Total			98.3		%		70-130	31-MAY-19
<b>MET-T-CCMS-WT</b>		<b>Water</b>						
<b>Batch</b>	<b>R4651650</b>							
<b>WG3063067-4</b>	<b>DUP</b>	<b>WG3063067-3</b>						
Aluminum (Al)-Total		0.0097	0.0094		mg/L	3.7	20	30-MAY-19
Antimony (Sb)-Total		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	30-MAY-19
Arsenic (As)-Total		0.00014	0.00013		mg/L	5.9	20	30-MAY-19
Barium (Ba)-Total		0.00783	0.00799		mg/L	2.0	20	30-MAY-19
Beryllium (Be)-Total		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	30-MAY-19
Bismuth (Bi)-Total		<0.000050	<0.000050	RPD-NA	mg/L	N/A	20	30-MAY-19
Boron (B)-Total		0.182	0.189		mg/L	3.7	20	30-MAY-19
Cadmium (Cd)-Total		<0.0000050	0.0000056	RPD-NA	mg/L	N/A	20	30-MAY-19
Calcium (Ca)-Total		21.5	22.0		mg/L	2.2	20	30-MAY-19
Cobalt (Co)-Total		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	30-MAY-19
Copper (Cu)-Total		0.0049	0.0051		mg/L	3.6	20	30-MAY-19
Iron (Fe)-Total		0.017	0.016		mg/L	2.1	20	30-MAY-19
Lead (Pb)-Total		0.000376	0.000381		mg/L	1.4	20	30-MAY-19
Magnesium (Mg)-Total		5.73	5.85		mg/L	2.0	20	30-MAY-19
Manganese (Mn)-Total		0.0142	0.0143		mg/L	0.6	20	30-MAY-19



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

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>MET-T-CCMS-WT</b>								
	<b>Water</b>							
<b>Batch</b>	<b>R4651650</b>							
<b>WG3063067-4</b>	<b>DUP</b>	<b>WG3063067-3</b>						
Molybdenum (Mo)-Total		0.000700	0.000700		mg/L	0.1	20	30-MAY-19
Nickel (Ni)-Total		0.00093	0.00092		mg/L	0.8	20	30-MAY-19
Potassium (K)-Total		1.87	1.89		mg/L	1.1	20	30-MAY-19
Selenium (Se)-Total		<0.000050	<0.000050	RPD-NA	mg/L	N/A	20	30-MAY-19
Silicon (Si)-Total		8.14	8.20		mg/L	0.7	20	30-MAY-19
Silver (Ag)-Total		<0.000050	<0.000050	RPD-NA	mg/L	N/A	20	30-MAY-19
Sodium (Na)-Total		174	176		mg/L	0.9	20	30-MAY-19
Strontium (Sr)-Total		0.891	0.913		mg/L	2.5	20	30-MAY-19
Thallium (Tl)-Total		<0.000010	<0.000010	RPD-NA	mg/L	N/A	20	30-MAY-19
Tin (Sn)-Total		0.00032	0.00028		mg/L	12	20	30-MAY-19
Vanadium (V)-Total		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	30-MAY-19
Zinc (Zn)-Total		0.0032	0.0033		mg/L	1.4	20	30-MAY-19
<b>WG3063067-2</b>	<b>LCS</b>							
Aluminum (Al)-Total			100.4		%		80-120	30-MAY-19
Antimony (Sb)-Total			101.6		%		80-120	30-MAY-19
Arsenic (As)-Total			100.1		%		80-120	30-MAY-19
Barium (Ba)-Total			98.8		%		80-120	30-MAY-19
Beryllium (Be)-Total			95.6		%		80-120	30-MAY-19
Bismuth (Bi)-Total			100.0		%		80-120	30-MAY-19
Boron (B)-Total			94.5		%		80-120	30-MAY-19
Cadmium (Cd)-Total			99.5		%		80-120	30-MAY-19
Calcium (Ca)-Total			97.4		%		80-120	30-MAY-19
Cobalt (Co)-Total			98.1		%		80-120	30-MAY-19
Copper (Cu)-Total			98.6		%		80-120	30-MAY-19
Iron (Fe)-Total			99.0		%		80-120	30-MAY-19
Lead (Pb)-Total			99.5		%		80-120	30-MAY-19
Magnesium (Mg)-Total			100.8		%		80-120	30-MAY-19
Manganese (Mn)-Total			99.9		%		80-120	30-MAY-19
Molybdenum (Mo)-Total			100.2		%		80-120	30-MAY-19
Nickel (Ni)-Total			98.8		%		80-120	30-MAY-19
Potassium (K)-Total			98.1		%		80-120	30-MAY-19
Selenium (Se)-Total			99.5		%		80-120	30-MAY-19
Silicon (Si)-Total			100.2		%		60-140	30-MAY-19



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 455 PHILLIP STREET  
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Contact: LAURA ERMETA

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>MET-T-CCMS-WT</b>								
	<b>Water</b>							
<b>Batch</b>	<b>R4651650</b>							
<b>WG3063067-2</b>	<b>LCS</b>							
Silver (Ag)-Total			96.6		%		80-120	30-MAY-19
Sodium (Na)-Total			99.7		%		80-120	30-MAY-19
Strontium (Sr)-Total			95.6		%		80-120	30-MAY-19
Thallium (Tl)-Total			99.9		%		80-120	30-MAY-19
Tin (Sn)-Total			96.5		%		80-120	30-MAY-19
Vanadium (V)-Total			99.6		%		80-120	30-MAY-19
Zinc (Zn)-Total			97.2		%		80-120	30-MAY-19
<b>WG3063067-1</b>	<b>MB</b>							
Aluminum (Al)-Total			<0.0050		mg/L		0.005	30-MAY-19
Antimony (Sb)-Total			<0.00010		mg/L		0.0001	30-MAY-19
Arsenic (As)-Total			<0.00010		mg/L		0.0001	30-MAY-19
Barium (Ba)-Total			<0.00010		mg/L		0.0001	30-MAY-19
Beryllium (Be)-Total			<0.00010		mg/L		0.0001	30-MAY-19
Bismuth (Bi)-Total			<0.000050		mg/L		0.00005	30-MAY-19
Boron (B)-Total			<0.010		mg/L		0.01	30-MAY-19
Cadmium (Cd)-Total			<0.0000050		mg/L		0.000005	30-MAY-19
Calcium (Ca)-Total			<0.050		mg/L		0.05	30-MAY-19
Cobalt (Co)-Total			<0.00010		mg/L		0.0001	30-MAY-19
Copper (Cu)-Total			<0.0010		mg/L		0.001	30-MAY-19
Iron (Fe)-Total			<0.010		mg/L		0.01	30-MAY-19
Lead (Pb)-Total			<0.000050		mg/L		0.00005	30-MAY-19
Magnesium (Mg)-Total			<0.0050		mg/L		0.005	30-MAY-19
Manganese (Mn)-Total			<0.00050		mg/L		0.0005	30-MAY-19
Molybdenum (Mo)-Total			<0.000050		mg/L		0.00005	30-MAY-19
Nickel (Ni)-Total			<0.00050		mg/L		0.0005	30-MAY-19
Potassium (K)-Total			<0.050		mg/L		0.05	30-MAY-19
Selenium (Se)-Total			<0.000050		mg/L		0.00005	30-MAY-19
Silicon (Si)-Total			<0.10		mg/L		0.1	30-MAY-19
Silver (Ag)-Total			<0.000050		mg/L		0.00005	30-MAY-19
Sodium (Na)-Total			<0.050		mg/L		0.05	30-MAY-19
Strontium (Sr)-Total			<0.0010		mg/L		0.001	30-MAY-19
Thallium (Tl)-Total			<0.000010		mg/L		0.00001	30-MAY-19
Tin (Sn)-Total			<0.00010		mg/L		0.0001	30-MAY-19
Vanadium (V)-Total			<0.00050		mg/L		0.0005	30-MAY-19



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 WATERLOO ON N2L 3X2  
 Contact: LAURA ERMETA

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>MET-T-CCMS-WT</b>								
	<b>Water</b>							
<b>Batch</b>	<b>R4651650</b>							
<b>WG3063067-1</b>	<b>MB</b>							
Zinc (Zn)-Total			<0.0030		mg/L		0.003	30-MAY-19
<b>WG3063067-5</b>	<b>MS</b>	<b>WG3063067-3</b>						
Aluminum (Al)-Total			100.6		%		70-130	30-MAY-19
Antimony (Sb)-Total			98.8		%		70-130	30-MAY-19
Arsenic (As)-Total			96.6		%		70-130	30-MAY-19
Barium (Ba)-Total			90.6		%		70-130	30-MAY-19
Beryllium (Be)-Total			95.2		%		70-130	30-MAY-19
Bismuth (Bi)-Total			88.1		%		70-130	30-MAY-19
Boron (B)-Total			N/A	MS-B	%		-	30-MAY-19
Cadmium (Cd)-Total			91.7		%		70-130	30-MAY-19
Calcium (Ca)-Total			N/A	MS-B	%		-	30-MAY-19
Cobalt (Co)-Total			97.0		%		70-130	30-MAY-19
Copper (Cu)-Total			92.1		%		70-130	30-MAY-19
Iron (Fe)-Total			98.5		%		70-130	30-MAY-19
Lead (Pb)-Total			88.6		%		70-130	30-MAY-19
Magnesium (Mg)-Total			N/A	MS-B	%		-	30-MAY-19
Manganese (Mn)-Total			N/A	MS-B	%		-	30-MAY-19
Molybdenum (Mo)-Total			101.8		%		70-130	30-MAY-19
Nickel (Ni)-Total			94.5		%		70-130	30-MAY-19
Potassium (K)-Total			97.2		%		70-130	30-MAY-19
Selenium (Se)-Total			91.6		%		70-130	30-MAY-19
Silicon (Si)-Total			N/A	MS-B	%		-	30-MAY-19
Silver (Ag)-Total			86.4		%		70-130	30-MAY-19
Sodium (Na)-Total			N/A	MS-B	%		-	30-MAY-19
Strontium (Sr)-Total			N/A	MS-B	%		-	30-MAY-19
Thallium (Tl)-Total			90.4		%		70-130	30-MAY-19
Tin (Sn)-Total			95.8		%		70-130	30-MAY-19
Vanadium (V)-Total			103.3		%		70-130	30-MAY-19
Zinc (Zn)-Total			85.1		%		70-130	30-MAY-19
<b>NH3-F-WT</b>								
	<b>Water</b>							
<b>Batch</b>	<b>R4660257</b>							
<b>WG3069302-3</b>	<b>DUP</b>	<b>L2281993-1</b>						
Ammonia, Total (as N)		2.69	2.58		mg/L	4.2	20	06-JUN-19
<b>WG3069302-2</b>	<b>LCS</b>							



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 Contact: LAURA ERMETA

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>NH3-F-WT</b>		<b>Water</b>						
<b>Batch</b>	<b>R4660257</b>							
<b>WG3069302-2</b>	<b>LCS</b>							
Ammonia, Total (as N)			99.0		%		85-115	06-JUN-19
<b>WG3069302-1</b>	<b>MB</b>							
Ammonia, Total (as N)			<0.010		mg/L		0.01	06-JUN-19
<b>WG3069302-4</b>	<b>MS</b>	<b>L2281993-1</b>						
Ammonia, Total (as N)			N/A	MS-B	%		-	06-JUN-19
<b>NO2-IC-WT</b>		<b>Water</b>						
<b>Batch</b>	<b>R4653909</b>							
<b>WG3064277-19</b>	<b>DUP</b>	<b>WG3064277-20</b>						
Nitrite (as N)		<0.010	<0.010	RPD-NA	mg/L	N/A	20	31-MAY-19
<b>WG3064277-17</b>	<b>LCS</b>							
Nitrite (as N)			102.2		%		90-110	31-MAY-19
<b>WG3064277-16</b>	<b>MB</b>							
Nitrite (as N)			<0.010		mg/L		0.01	31-MAY-19
<b>WG3064277-18</b>	<b>MS</b>	<b>WG3064277-20</b>						
Nitrite (as N)			103.5		%		75-125	31-MAY-19
<b>NO3-IC-WT</b>		<b>Water</b>						
<b>Batch</b>	<b>R4653909</b>							
<b>WG3064277-19</b>	<b>DUP</b>	<b>WG3064277-20</b>						
Nitrate (as N)		<0.020	<0.020	RPD-NA	mg/L	N/A	20	31-MAY-19
<b>WG3064277-17</b>	<b>LCS</b>							
Nitrate (as N)			100.9		%		90-110	31-MAY-19
<b>WG3064277-16</b>	<b>MB</b>							
Nitrate (as N)			<0.020		mg/L		0.02	31-MAY-19
<b>WG3064277-18</b>	<b>MS</b>	<b>WG3064277-20</b>						
Nitrate (as N)			99.1		%		75-125	31-MAY-19
<b>P-T-COL-WT</b>		<b>Water</b>						
<b>Batch</b>	<b>R4660040</b>							
<b>WG3068553-7</b>	<b>DUP</b>	<b>L2282088-1</b>						
Phosphorus, Total		0.0578	0.0617		mg/L	6.6	20	06-JUN-19
<b>WG3068553-6</b>	<b>LCS</b>							
Phosphorus, Total			96.3		%		80-120	06-JUN-19
<b>WG3068553-5</b>	<b>MB</b>							
Phosphorus, Total			<0.0030		mg/L		0.003	06-JUN-19
<b>WG3068553-8</b>	<b>MS</b>	<b>L2282088-1</b>						
Phosphorus, Total			94.8		%		70-130	06-JUN-19
<b>PH-WT</b>	<b>Water</b>							



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 455 PHILLIP STREET  
 WATERLOO ON N2L 3X2

Contact: LAURA ERMETA

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>PH-WT</b>		<b>Water</b>						
Batch	R4652234							
WG3063939-20	DUP	WG3063939-19						
pH		7.90	7.87	J	pH units	0.03	0.2	04-JUN-19
WG3063939-18	LCS		7.02		pH units		6.9-7.1	04-JUN-19
<b>PHENOLS-4AAP-WT</b>		<b>Water</b>						
Batch	R4656031							
WG3065554-19	DUP	L2280808-6						
Phenols (4AAP)		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	03-JUN-19
WG3065554-18	LCS		101.0		%		85-115	03-JUN-19
WG3065554-17	MB		<0.0010		mg/L		0.001	03-JUN-19
WG3065554-20	MS	L2280808-6	98.2		%		75-125	03-JUN-19
<b>SO4-IC-N-WT</b>		<b>Water</b>						
Batch	R4653909							
WG3064277-19	DUP	WG3064277-20						
Sulfate (SO4)		283	283		mg/L	0.1	20	31-MAY-19
WG3064277-17	LCS		102.0		%		90-110	31-MAY-19
WG3064277-16	MB		<0.30		mg/L		0.3	31-MAY-19
WG3064277-18	MS	WG3064277-20	N/A	MS-B	%		-	31-MAY-19
<b>SOLIDS-TDS-WT</b>		<b>Water</b>						
Batch	R4660544							
WG3067940-3	DUP	L2280967-13						
Total Dissolved Solids		338	339		mg/L	0.1	20	05-JUN-19
WG3067940-2	LCS		97.1		%		85-115	05-JUN-19
WG3067940-1	MB		<10		mg/L		10	05-JUN-19
<b>SOLIDS-TSS-WT</b>		<b>Water</b>						
Batch	R4658803							
WG3066731-3	DUP	L2282366-2						
Total Suspended Solids		3810	3760		mg/L	1.4	20	05-JUN-19
WG3066731-2	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	
<b>SOLIDS-TSS-WT</b>		<b>Water</b>							
<b>Batch</b>	<b>R4658803</b>								
<b>WG3066731-2 LCS</b>	Total Suspended Solids		101.3		%		85-115	05-JUN-19	
<b>WG3066731-1 MB</b>	Total Suspended Solids		<2.0		mg/L		2	05-JUN-19	
<b>TKN-WT</b>		<b>Water</b>							
<b>Batch</b>	<b>R4659531</b>								
<b>WG3068007-3 DUP</b>	Total Kjeldahl Nitrogen	<b>L2281760-3</b>	0.16	<0.15	RPD-NA	mg/L	N/A	20	05-JUN-19
<b>WG3068007-2 LCS</b>	Total Kjeldahl Nitrogen			105.6		%	75-125	05-JUN-19	
<b>WG3068007-1 MB</b>	Total Kjeldahl Nitrogen			<0.15		mg/L	0.15	05-JUN-19	
<b>WG3068007-4 MS</b>	Total Kjeldahl Nitrogen	<b>L2281760-3</b>		104.2		%	70-130	05-JUN-19	
<b>Batch</b>	<b>R4661592</b>								
<b>WG3070408-3 DUP</b>	Total Kjeldahl Nitrogen	<b>L2281993-1</b>	3.03	3.02		mg/L	0.1	20	07-JUN-19
<b>WG3070408-2 LCS</b>	Total Kjeldahl Nitrogen			100.4		%	75-125	07-JUN-19	
<b>WG3070408-1 MB</b>	Total Kjeldahl Nitrogen			<0.15		mg/L	0.15	07-JUN-19	
<b>WG3070408-4 MS</b>	Total Kjeldahl Nitrogen	<b>L2281993-1</b>		81.7		%	70-130	07-JUN-19	
<b>VOC-ROU-HS-WT</b>		<b>Water</b>							
<b>Batch</b>	<b>R4658551</b>								
<b>WG3066455-4 DUP</b>		<b>WG3066455-3</b>							
1,1,1,2-Tetrachloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	05-JUN-19	
1,1,2,2-Tetrachloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	05-JUN-19	
1,1,1-Trichloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	05-JUN-19	
1,1,2-Trichloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	05-JUN-19	
1,2-Dibromoethane		<0.20	<0.20	RPD-NA	ug/L	N/A	30	05-JUN-19	
1,1-Dichloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	05-JUN-19	
1,1-Dichloroethylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	05-JUN-19	
1,2-Dichlorobenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	05-JUN-19	
1,2-Dichloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	05-JUN-19	
1,2-Dichloropropane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	05-JUN-19	

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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
<b>VOC-ROU-HS-WT</b>								
	Water							
<b>Batch</b>	<b>R4658551</b>							
<b>WG3066455-4</b>	<b>DUP</b>	<b>WG3066455-3</b>						
1,3-Dichlorobenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	05-JUN-19
1,4-Dichlorobenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	05-JUN-19
Acetone		<20	<20	RPD-NA	ug/L	N/A	30	05-JUN-19
Benzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	05-JUN-19
Bromodichloromethane		<1.0	<1.0	RPD-NA	ug/L	N/A	30	05-JUN-19
Bromoform		<1.0	<1.0	RPD-NA	ug/L	N/A	30	05-JUN-19
Bromomethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	05-JUN-19
Carbon tetrachloride		<0.50	<0.50	RPD-NA	ug/L	N/A	30	05-JUN-19
Chlorobenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	05-JUN-19
Chloroethane		<1.0	<1.0	RPD-NA	ug/L	N/A	30	05-JUN-19
Chloroform		<1.0	<1.0	RPD-NA	ug/L	N/A	30	05-JUN-19
cis-1,2-Dichloroethylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	05-JUN-19
cis-1,3-Dichloropropene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	05-JUN-19
Dibromochloromethane		<1.0	<1.0	RPD-NA	ug/L	N/A	30	05-JUN-19
Dichlorodifluoromethane		<1.0	<1.0	RPD-NA	ug/L	N/A	30	05-JUN-19
Dichloromethane		<2.0	<2.0	RPD-NA	ug/L	N/A	30	05-JUN-19
Ethylbenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	05-JUN-19
m+p-Xylenes		<1.0	<1.0	RPD-NA	ug/L	N/A	30	05-JUN-19
Methyl Ethyl Ketone		<20	<20	RPD-NA	ug/L	N/A	30	05-JUN-19
Methyl Isobutyl Ketone		<20	<20	RPD-NA	ug/L	N/A	30	05-JUN-19
n-Hexane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	05-JUN-19
MTBE		<0.50	<0.50	RPD-NA	ug/L	N/A	30	05-JUN-19
o-Xylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	05-JUN-19
Styrene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	05-JUN-19
Tetrachloroethylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	05-JUN-19
Toluene		2.42	2.06		ug/L	16	30	06-JUN-19
trans-1,2-Dichloroethylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	05-JUN-19
trans-1,3-Dichloropropene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	05-JUN-19
Trichloroethylene		9.74	9.69		ug/L	0.5	30	05-JUN-19
Trichlorofluoromethane		<1.0	<1.0	RPD-NA	ug/L	N/A	30	05-JUN-19
Vinyl chloride		<0.50	<0.50	RPD-NA	ug/L	N/A	30	05-JUN-19
<b>WG3066455-1</b>	<b>LCS</b>							
1,1,1,2-Tetrachloroethane			96.6		%		70-130	04-JUN-19





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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
<b>VOC-ROU-HS-WT</b>		<b>Water</b>						
<b>Batch</b>	<b>R4658551</b>							
<b>WG3066455-1</b>	<b>LCS</b>							
1,1,2,2-Tetrachloroethane			94.1		%		70-130	04-JUN-19
1,1,1-Trichloroethane			98.4		%		70-130	04-JUN-19
1,1,2-Trichloroethane			93.7		%		70-130	04-JUN-19
1,2-Dibromoethane			93.4		%		70-130	04-JUN-19
1,1-Dichloroethane			94.3		%		70-130	04-JUN-19
1,1-Dichloroethylene			97.1		%		70-130	04-JUN-19
1,2-Dichlorobenzene			98.2		%		70-130	04-JUN-19
1,2-Dichloroethane			90.7		%		70-130	04-JUN-19
1,2-Dichloropropane			91.8		%		70-130	04-JUN-19
1,3-Dichlorobenzene			97.4		%		70-130	04-JUN-19
1,4-Dichlorobenzene			97.6		%		70-130	04-JUN-19
Acetone			93.2		%		60-140	04-JUN-19
Benzene			93.7		%		70-130	04-JUN-19
Bromodichloromethane			91.6		%		70-130	04-JUN-19
Bromoform			96.0		%		70-130	04-JUN-19
Bromomethane			104.9		%		60-140	04-JUN-19
Carbon tetrachloride			97.7		%		70-130	04-JUN-19
Chlorobenzene			93.5		%		70-130	04-JUN-19
Chloroethane			95.1		%		70-130	04-JUN-19
Chloroform			91.6		%		70-130	04-JUN-19
cis-1,2-Dichloroethylene			91.6		%		70-130	04-JUN-19
cis-1,3-Dichloropropene			91.1		%		70-130	04-JUN-19
Dibromochloromethane			98.4		%		70-130	04-JUN-19
Dichlorodifluoromethane			77.1		%		50-140	04-JUN-19
Dichloromethane			92.3		%		70-130	04-JUN-19
Ethylbenzene			94.5		%		70-130	04-JUN-19
m+p-Xylenes			96.3		%		70-130	04-JUN-19
Methyl Ethyl Ketone			90.6		%		60-140	04-JUN-19
Methyl Isobutyl Ketone			91.1		%		50-150	04-JUN-19
n-Hexane			94.5		%		70-130	04-JUN-19
MTBE			99.3		%		70-130	04-JUN-19
o-Xylene			93.7		%		70-130	04-JUN-19
Styrene			100.9		%		70-130	04-JUN-19



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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
<b>VOC-ROU-HS-WT</b>								
	<b>Water</b>							
<b>Batch</b>	<b>R4658551</b>							
<b>WG3066455-1</b>	<b>LCS</b>							
Tetrachloroethylene			98.3		%		70-130	04-JUN-19
Toluene			96.0		%		70-130	04-JUN-19
trans-1,2-Dichloroethylene			101.9		%		70-130	04-JUN-19
trans-1,3-Dichloropropene			96.1		%		70-130	04-JUN-19
Trichloroethylene			102.5		%		70-130	04-JUN-19
Trichlorofluoromethane			96.6		%		60-140	04-JUN-19
Vinyl chloride			82.7		%		60-140	04-JUN-19
<b>WG3066455-2</b>	<b>MB</b>							
1,1,1,2-Tetrachloroethane			<0.50		ug/L		0.5	05-JUN-19
1,1,2,2-Tetrachloroethane			<0.50		ug/L		0.5	05-JUN-19
1,1,1-Trichloroethane			<0.50		ug/L		0.5	05-JUN-19
1,1,2-Trichloroethane			<0.50		ug/L		0.5	05-JUN-19
1,2-Dibromoethane			<0.20		ug/L		0.2	05-JUN-19
1,1-Dichloroethane			<0.50		ug/L		0.5	05-JUN-19
1,1-Dichloroethylene			<0.50		ug/L		0.5	05-JUN-19
1,2-Dichlorobenzene			<0.50		ug/L		0.5	05-JUN-19
1,2-Dichloroethane			<0.50		ug/L		0.5	05-JUN-19
1,2-Dichloropropane			<0.50		ug/L		0.5	05-JUN-19
1,3-Dichlorobenzene			<0.50		ug/L		0.5	05-JUN-19
1,4-Dichlorobenzene			<0.50		ug/L		0.5	05-JUN-19
Acetone			<20		ug/L		20	05-JUN-19
Benzene			<0.50		ug/L		0.5	05-JUN-19
Bromodichloromethane			<1.0		ug/L		1	05-JUN-19
Bromoform			<1.0		ug/L		1	05-JUN-19
Bromomethane			<0.50		ug/L		0.5	05-JUN-19
Carbon tetrachloride			<0.50		ug/L		0.5	05-JUN-19
Chlorobenzene			<0.50		ug/L		0.5	05-JUN-19
Chloroethane			<1.0		ug/L		1	05-JUN-19
Chloroform			<1.0		ug/L		1	05-JUN-19
cis-1,2-Dichloroethylene			<0.50		ug/L		0.5	05-JUN-19
cis-1,3-Dichloropropene			<0.50		ug/L		0.5	05-JUN-19
Dibromochloromethane			<1.0		ug/L		1	05-JUN-19
Dichlorodifluoromethane			<1.0		ug/L		1	05-JUN-19
Dichloromethane			<2.0		ug/L		2	05-JUN-19



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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
<b>VOC-ROU-HS-WT</b>								
	<b>Water</b>							
<b>Batch</b>	<b>R4658551</b>							
<b>WG3066455-2</b>	<b>MB</b>							
Ethylbenzene			<0.50		ug/L		0.5	05-JUN-19
m+p-Xylenes			<1.0		ug/L		1	05-JUN-19
Methyl Ethyl Ketone			<20		ug/L		20	05-JUN-19
Methyl Isobutyl Ketone			<20		ug/L		20	05-JUN-19
n-Hexane			<0.50		ug/L		0.5	05-JUN-19
MTBE			<0.50		ug/L		0.5	05-JUN-19
o-Xylene			<0.50		ug/L		0.5	05-JUN-19
Styrene			<0.50		ug/L		0.5	05-JUN-19
Tetrachloroethylene			<0.50		ug/L		0.5	05-JUN-19
Toluene			<0.50		ug/L		0.5	05-JUN-19
trans-1,2-Dichloroethylene			<0.50		ug/L		0.5	05-JUN-19
trans-1,3-Dichloropropene			<0.50		ug/L		0.5	05-JUN-19
Trichloroethylene			<0.50		ug/L		0.5	05-JUN-19
Trichlorofluoromethane			<1.0		ug/L		1	05-JUN-19
Vinyl chloride			<0.50		ug/L		0.5	05-JUN-19
Surrogate: 1,4-Difluorobenzene			102.6		%		70-130	05-JUN-19
Surrogate: 4-Bromofluorobenzene			101.4		%		70-130	05-JUN-19
<b>WG3066455-5</b>	<b>MS</b>	<b>WG3066455-3</b>						
1,1,1,2-Tetrachloroethane			97.1		%		50-150	05-JUN-19
1,1,2,2-Tetrachloroethane			92.7		%		50-150	05-JUN-19
1,1,1-Trichloroethane			100.9		%		50-150	05-JUN-19
1,1,2-Trichloroethane			91.9		%		50-150	05-JUN-19
1,2-Dibromoethane			90.8		%		50-150	05-JUN-19
1,1-Dichloroethane			95.7		%		50-150	05-JUN-19
1,1-Dichloroethylene			94.9		%		50-150	05-JUN-19
1,2-Dichlorobenzene			97.9		%		50-150	05-JUN-19
1,2-Dichloroethane			90.4		%		50-150	05-JUN-19
1,2-Dichloropropane			92.2		%		50-150	05-JUN-19
1,3-Dichlorobenzene			95.8		%		50-150	05-JUN-19
1,4-Dichlorobenzene			95.5		%		50-150	05-JUN-19
Acetone			104.5		%		50-150	05-JUN-19
Benzene			93.4		%		50-150	05-JUN-19
Bromodichloromethane			92.3		%		50-150	05-JUN-19
Bromoform			94.2		%		50-150	05-JUN-19



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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
<b>VOC-ROU-HS-WT</b>								
	<b>Water</b>							
<b>Batch</b>	<b>R4658551</b>							
<b>WG3066455-5 MS</b>		<b>WG3066455-3</b>						
Bromomethane			96.5		%		50-150	05-JUN-19
Carbon tetrachloride			100.5		%		50-150	05-JUN-19
Chlorobenzene			92.3		%		50-150	05-JUN-19
Chloroethane			91.2		%		50-150	05-JUN-19
Chloroform			93.5		%		50-150	05-JUN-19
cis-1,2-Dichloroethylene			91.3		%		50-150	05-JUN-19
cis-1,3-Dichloropropene			83.2		%		50-150	05-JUN-19
Dibromochloromethane			97.2		%		50-150	05-JUN-19
Dichlorodifluoromethane			67.8		%		50-150	05-JUN-19
Dichloromethane			90.9		%		50-150	05-JUN-19
Ethylbenzene			92.7		%		50-150	05-JUN-19
m+p-Xylenes			95.0		%		50-150	05-JUN-19
Methyl Ethyl Ketone			87.2		%		50-150	05-JUN-19
Methyl Isobutyl Ketone			85.6		%		50-150	05-JUN-19
n-Hexane			91.6		%		50-150	05-JUN-19
MTBE			99.0		%		50-150	05-JUN-19
o-Xylene			91.8		%		50-150	05-JUN-19
Styrene			96.2		%		50-150	05-JUN-19
Tetrachloroethylene			97.4		%		50-150	05-JUN-19
Toluene			94.2		%		50-150	05-JUN-19
trans-1,2-Dichloroethylene			98.1		%		50-150	05-JUN-19
trans-1,3-Dichloropropene			84.6		%		50-150	05-JUN-19
Trichloroethylene			102.6		%		50-150	05-JUN-19
Trichlorofluoromethane			95.0		%		50-150	05-JUN-19
Vinyl chloride			76.2		%		50-150	05-JUN-19

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

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## Legend:

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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:

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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.

---

# Quality Control Report

Workorder: L2281993

Report Date: 10-JUN-19

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

Page 22 of 22

## Hold Time Exceedances:

ALS Product Description	Sample ID	Sampling Date	Date Processed	Rec. HT	Actual HT	Units	Qualifier
<b>Physical Tests</b>							
pH							
	1	29-MAY-19 13:00	04-JUN-19 16:00	4	6	days	EHT
	2	29-MAY-19 13:00	04-JUN-19 16:00	4	6	days	EHT
	3	29-MAY-19 13:00	04-JUN-19 16:00	4	6	days	EHT
<b>Organic / Inorganic Carbon</b>							
Dissolved Organic Carbon							
	1	29-MAY-19 13:00	03-JUN-19 16:00	3	5	days	EHT
	2	29-MAY-19 13:00	04-JUN-19 17:00	3	6	days	EHT
	3	29-MAY-19 13:00	04-JUN-19 17:00	3	6	days	EHT

## 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 L2281993 were received on 30-MAY-19 10:00.

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.



<b>Report To</b>		<b>Acct#13791</b>		<b>Report Format / Distribution</b>				<b>Select Service Level Below (Rush Turnaround Time (TAT) is not available for all tests)</b>																																																																								
Company: <b>GHD LIMITED</b>		Contact: <b>Laura Ermeta</b>		Address: <b>455 Phillip St N2L 3X2</b>		Phone: <b>519-884-0510</b>		Select Report Format: <input checked="" type="checkbox"/> PDF <input checked="" type="checkbox"/> EXCEL <input checked="" type="checkbox"/> EDD (DIGITAL)				<b>R</b> <input checked="" type="checkbox"/> Regular (Standard TAT if received by 3 pm - business days) <b>P</b> <input type="checkbox"/> Priority (2-4 bus. days if received by 3pm) 50% surcharge - contact ALS to confirm TAT <b>E</b> <input type="checkbox"/> Emergency (1-2 bus. days if received by 3pm) 100% surcharge - contact ALS to confirm TAT <b>E2</b> <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		<b>Invoice Distribution</b>				<b>Analysis Request</b>																																																																								
Company: <b>GHD LIMITED</b>		Contact: <b>Laura Ermeta</b>		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																																																																								
<b>Project Information</b>		<b>Oil and Gas Required Fields (client use)</b>				<table border="1" style="width:100%; border-collapse: collapse; font-size: small;"> <tr> <td>ALS Quote #: 44985</td> <td>Approver ID:</td> <td>Cost Center:</td> <td>AL, Conductivity, pH, TDS, TSS, Phenols</td> <td>Br, NO2, NO3, SO4, Cl, F (ANIONS-IC-6-WT)</td> <td>DOC (DOC-WT), COD, TKN, TP</td> <td>Total CN (CN-TOT-WT)</td> <td>Un-ionized NH3 (NH3, ETL-NH3-UNION-CL)</td> <td>Total Metals (MET-T-COMSS-WT, WT-44985-Met)</td> <td>Total Mercury (HG-T-CVAA-WT)</td> <td>Total Cr 6+ (CR-CR6-IC-WT), Hardness calc</td> <td>VOCs (VOC-ROU-HS-WT, WT-44985-VOC)</td> <td>SVOCs (SVOC-44885-P-WT)</td> <td>CLIENT SUPPLIED TEMPERATURE **</td> <td>CLIENT SUPPLIED pH **</td> <td rowspan="3" style="writing-mode: vertical-rl; transform: rotate(180deg);">Number of Containers</td> </tr> <tr> <td>Job #: 44985</td> <td>GL Account:</td> <td>Routing Code:</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>PO / AFE:</td> <td>Activity Code:</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>LSD:</td> <td>Location:</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>										ALS Quote #: 44985	Approver ID:	Cost Center:	AL, Conductivity, pH, TDS, TSS, Phenols	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-44885-P-WT)	CLIENT SUPPLIED TEMPERATURE **	CLIENT SUPPLIED pH **	Number of Containers	Job #: 44985	GL Account:	Routing Code:														PO / AFE:	Activity Code:															LSD:	Location:															
ALS Quote #: 44985	Approver ID:	Cost Center:	AL, Conductivity, pH, TDS, TSS, Phenols	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-44885-P-WT)	CLIENT SUPPLIED TEMPERATURE **	CLIENT SUPPLIED pH **	Number of Containers																																																																	
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LSD:	Location:																																																																															
ALS Lab Work Order # (lab use only) <b>L2281993 MY</b>		ALS Contact: <b>Rick H</b>		Sampler:																																																																												
<b>ALS Sample # (lab use only)</b>	<b>Sample Identification and/or Coordinates (This description will appear on the report)</b>	<b>Date (dd-mmm-yy)</b>	<b>Time (hh:mm)</b>	<b>Sample Type</b>																																																																												
1	EQ Pond Discharge	29-05-19	13:00	Water	R	R	R	R	R	R	R	R	R	R	R	17	7.49																																																															
0	West Storm Water Pond	29-05-19	13:00	Water	R	R	R	R	R	R	R	R	R	R	R	17	7.45																																																															
3	East Storm Water Pond	29-05-19	13:00	Water	R	R	R	R	R	R	R	R	R	R	R	17	7.30																																																															
<b>Drinking Water (DW) Samples<sup>1</sup> (client use)</b>		<b>Special Instructions / Specify Criteria to add on report (client Use)</b>				<b>SAMPLE CONDITION AS RECEIVED (lab use only)</b>																																																																										
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 type="checkbox"/> No						INITIAL COOLER TEMPERATURES °C: _____ FINAL COOLER TEMPERATURES °C: <b>13</b>																																																																										
<b>SHIPMENT RELEASE (client use)</b>		<b>INITIAL SHIPMENT RECEPTION (lab use only)</b>				<b>FINAL SHIPMENT RECEPTION (lab use only)</b>																																																																										
Released by: <b>Jolene Oldale</b>	Date: <b>May 29, 19</b>	Time: <b>1550</b>	Received by:	Date:	Time:	Received by: <b>AP</b>	Date: <b>3-5-19</b>	Time: <b>1000</b>																																																																								

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

NA-FM-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.



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

Date Received: 30-MAY-19  
Report Date: 06-JUN-19 14:07 (MT)  
Version: FINAL

Client Phone: 519-884-0510

## Certificate of Analysis

Lab Work Order #: L2281917  
Project P.O. #: 73506479  
Job Reference: 44985-20-19  
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
L2281917-1 EQ POND DISCHARGE Sampled By: CLIENT on 29-MAY-19 @ 13:00 Matrix: WATER  <b>Miscellaneous</b> Special Request	See Attached					06-JUN-19	R4660178

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

## Reference Information

**Test Method References:**

ALS Test Code	Matrix	Test Description	Method Reference**
SPECIAL REQUEST-MX	Misc.	Special Request - Maxxam	SEE SUBLET LAB RESULTS

\*\* 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
MX	MAXXAM ANALYTICS INC.

**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: L2281917

Report Date: 06-JUN-19

Page 1 of 2

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

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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
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# Quality Control Report

Workorder: L2281917

Report Date: 06-JUN-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

## 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.



# Microtox Drilling Waste Report

Project : B942165-VU2997  
Analyst: MHD

## Sample Data :

Company Name : **ALS ENVIRONMENTAL**  
City : **CALGARY, AB**  
Sample Description : **L2281917-1 EQ POND DISCHARGE**  
Sample Location : **N/A**

	YY MM DD	Time:	
Sample Date :	19 05 29		<b>N/A</b>
Date Received :	19 05 31		<b>19:26</b>
Date of Assay :	19 06 03		<b>13:04</b>
Report Date :	19 06 03		
Storage Temp :	4 ± 2 °C		
Sample Prep <sup>1</sup> :	none		

## Test Data<sup>2</sup>:

**Toxicity Ranking<sup>3</sup> :** **PASS**

IC50 (5min) :	>81.9%	95% Confidence Interval :	n/a
IC20 (5min) :	>81.9%	95% Confidence Interval :	n/a
<b>IC50 (15min) :</b>	<b>&gt;81.9%</b>	<b>95% Confidence Interval :</b>	<b>n/a</b>
IC20 (15min) :	>81.9%	95% Confidence Interval :	n/a
Appearance, Visual :	colourless		
Turbidity, Visual :	none		
Initial pH :	7.7		
Sample Dilution :	none		
Location of Testing:	Edmonton		

## Notes:

- <sup>1</sup> When requested, charcoal treatment is an acceptable deviation from EPS 1/RM/24 as per Directive 50.  
<sup>2</sup> The results relate only to the item tested.  
<sup>3</sup> Toxicity Ranking ≥75% for IC50 (15min) constitutes a PASS under Directive 50.

Data & QA/QC  
Reviewed By : \_\_\_\_\_

Michelle Rivest, Senior Analyst



Microtox Drilling Waste Report

Project : B942165-VU2997

Sample Description : L2281917-1 EQ PONE

**Results of Phenol Reference Test :**

Current IC50 @ 5 min. : **16.9 mg/L**  
 95 % Confidence Interval : **15.7, 18.2**  
 Date of Reference Bioassay : **19 05 09**  
 Historical Geometric Mean IC50 @ 5min.: **17.8 mg/L**  
 Mean ± 2SD: **14.7, 21.4**  
 Method: **Shewart**

*The reference toxicant is conducted under the same conditions as the definitive testing.*

**Test Information :**

Type of Test : **15 min. Static Bioassay**  
 Test Species : **Vibrio fischeri (Bioluminescent bacteria)**  
 Source of Test Species : **STRATEGIC DIAGNOSTICS Inc.**  
 Reagent Lot # : **18K4255A**  
 Date Obtained : **2019/04/05**  
 Expiry Date : **2020/11/30**  
 Reagent Holding Temp : **< - 20°C**  
 Laboratory Method: **AB SOP-00083**  
 Analytical Method: **Environmental Protection Series (EPS). 1992. Biological Test  
 Method: Toxicity test using luminescent bacteria (Vibrio fischeri).  
 Report EPS 1/RM/24.**  
 Test Temperature: **15°C**  
 Salinity Adjustment : **Osmotic Adjusting Solution (200 uL)**  
 Analyzer Used : **MICROBICS Analyzer Model 500**  
 Calculation Method : **MICROTOX OMNI Version 4.2, 2012**

**Data Table: Sample vs Light Emission at Time T**

Time (min.)	Sample Concentration [% v/v]				
	Control	10.2	20.5	41.0	81.9
T0	101	100	97	96	97
T5	106	104	103	103	103
T15	96	95	95	94	94
T30*					
T60*					

\* If applicable

**General Comments:**

Sample analyzed past hold time. Sample analysis is recommended within 72 hours of sampling.  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_









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

Date Received: 18-JUN-19  
Report Date: 28-JUN-19 08:39 (MT)  
Version: FINAL

Client Phone: 519-884-0510

## Certificate of Analysis

Lab Work Order #: L2293952  
Project P.O. #: 73506479-1  
Job Reference: 44985-20-19  
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
L2293952-1 SW-44985-061819-NS-STN6A							
Sampled By: NS on 18-JUN-19 @ 13:50							
Matrix: WATER							
<b>Physical Tests</b>							
Conductivity	769		3.0	umhos/cm		19-JUN-19	R4689842
Hardness (as CaCO3)	365	HTC	0.50	mg/L		19-JUN-19	
pH	8.25		0.10	pH units		19-JUN-19	R4689842
Total Suspended Solids	13.4		2.0	mg/L	24-JUN-19	25-JUN-19	R4683512
Total Dissolved Solids	466	DLDS	20	mg/L		24-JUN-19	R4688007
<b>Anions and Nutrients</b>							
Alkalinity, Total (as CaCO3)	284		10	mg/L		19-JUN-19	R4689842
Ammonia, Total (as N)	0.124		0.010	mg/L		26-JUN-19	R4687969
Bromide (Br)	0.17		0.10	mg/L		20-JUN-19	R4680769
Chloride (Cl)	32.4		0.50	mg/L		20-JUN-19	R4680769
Fluoride (F)	0.251		0.020	mg/L		20-JUN-19	R4680769
Nitrate (as N)	6.10		0.020	mg/L		20-JUN-19	R4680769
Nitrite (as N)	0.057		0.010	mg/L		20-JUN-19	R4680769
Total Kjeldahl Nitrogen	0.95		0.15	mg/L	25-JUN-19	26-JUN-19	R4688055
Phosphorus, Total	0.132		0.0030	mg/L	25-JUN-19	26-JUN-19	R4687490
Sulfate (SO4)	76.7		0.30	mg/L		20-JUN-19	R4680769
<b>Cyanides</b>							
Cyanide, Total	<0.0020		0.0020	mg/L		19-JUN-19	R4677172
<b>Organic / Inorganic Carbon</b>							
Dissolved Carbon Filtration Location	LAB					19-JUN-19	R4676266
Dissolved Organic Carbon	7.19		0.50	mg/L	19-JUN-19	20-JUN-19	R4681432
<b>Total Metals</b>							
Aluminum (Al)-Total	0.791		0.0050	mg/L	19-JUN-19	19-JUN-19	R4673448
Antimony (Sb)-Total	0.00015		0.00010	mg/L	19-JUN-19	19-JUN-19	R4673448
Arsenic (As)-Total	0.00111		0.00010	mg/L	19-JUN-19	19-JUN-19	R4673448
Barium (Ba)-Total	0.0347		0.00010	mg/L	19-JUN-19	19-JUN-19	R4673448
Beryllium (Be)-Total	<0.00010		0.00010	mg/L	19-JUN-19	19-JUN-19	R4673448
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	19-JUN-19	19-JUN-19	R4673448
Boron (B)-Total	0.047		0.010	mg/L	19-JUN-19	19-JUN-19	R4673448
Cadmium (Cd)-Total	0.0000354		0.000050	mg/L	19-JUN-19	19-JUN-19	R4673448
Calcium (Ca)-Total	83.4		0.050	mg/L	19-JUN-19	19-JUN-19	R4673448
Cobalt (Co)-Total	0.00047		0.00010	mg/L	19-JUN-19	19-JUN-19	R4673448
Copper (Cu)-Total	0.0021		0.0010	mg/L	19-JUN-19	19-JUN-19	R4673448
Iron (Fe)-Total	0.819		0.010	mg/L	19-JUN-19	19-JUN-19	R4673448
Lead (Pb)-Total	0.000429		0.000050	mg/L	19-JUN-19	19-JUN-19	R4673448
Magnesium (Mg)-Total	38.2		0.0050	mg/L	19-JUN-19	19-JUN-19	R4673448
Manganese (Mn)-Total	0.0251		0.00050	mg/L	19-JUN-19	19-JUN-19	R4673448
Mercury (Hg)-Total	<0.000010		0.000010	mg/L		20-JUN-19	R4677429
Molybdenum (Mo)-Total	0.00931		0.000050	mg/L	19-JUN-19	19-JUN-19	R4673448
Nickel (Ni)-Total	0.00239		0.00050	mg/L	19-JUN-19	19-JUN-19	R4673448
Potassium (K)-Total	3.11		0.050	mg/L	19-JUN-19	19-JUN-19	R4673448
Selenium (Se)-Total	0.000880		0.000050	mg/L	19-JUN-19	19-JUN-19	R4673448

\* 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
L2293952-1 SW-44985-061819-NS-STN6A Sampled By: NS on 18-JUN-19 @ 13:50 Matrix: WATER							
<b>Total Metals</b>							
Silicon (Si)-Total	5.72		0.10	mg/L	19-JUN-19	19-JUN-19	R4673448
Silver (Ag)-Total	<0.000050		0.000050	mg/L	19-JUN-19	19-JUN-19	R4673448
Sodium (Na)-Total	20.2		0.050	mg/L	19-JUN-19	19-JUN-19	R4673448
Strontium (Sr)-Total	0.389		0.0010	mg/L	19-JUN-19	19-JUN-19	R4673448
Thallium (Tl)-Total	0.000036		0.000010	mg/L	19-JUN-19	19-JUN-19	R4673448
Tin (Sn)-Total	<0.00010		0.00010	mg/L	19-JUN-19	19-JUN-19	R4673448
Vanadium (V)-Total	0.00253		0.00050	mg/L	19-JUN-19	19-JUN-19	R4673448
Zinc (Zn)-Total	0.0041		0.0030	mg/L	19-JUN-19	19-JUN-19	R4673448
<b>Speciated Metals</b>							
Chromium, Hexavalent	<0.00050		0.00050	mg/L		20-JUN-19	R4677772
<b>Aggregate Organics</b>							
COD	27		10	mg/L		25-JUN-19	R4683534
Phenols (4AAP)	0.0019		0.0010	mg/L		19-JUN-19	R4677196

\* 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	Aluminum (Al)-Total	MS-B	L2293952-1
Matrix Spike	Barium (Ba)-Total	MS-B	L2293952-1
Matrix Spike	Calcium (Ca)-Total	MS-B	L2293952-1
Matrix Spike	Iron (Fe)-Total	MS-B	L2293952-1
Matrix Spike	Magnesium (Mg)-Total	MS-B	L2293952-1
Matrix Spike	Manganese (Mn)-Total	MS-B	L2293952-1
Matrix Spike	Silicon (Si)-Total	MS-B	L2293952-1
Matrix Spike	Sodium (Na)-Total	MS-B	L2293952-1
Matrix Spike	Strontium (Sr)-Total	MS-B	L2293952-1

### Sample Parameter Qualifier key listed:

Qualifier	Description
DLDS	Detection Limit Raised: Dilution required due to high Dissolved Solids / Electrical Conductivity.
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 <sub>3</sub> )	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-SCREEN-WT	Water	Conductivity Screen (Internal Use Only)	APHA 2510
Qualitative analysis of conductivity where required during preparation of other tests - e.g. TDS, metals, etc.			
EC-WT	Water	Conductivity	APHA 2510 B
Water samples can be measured directly by immersing the conductivity cell into the sample.			
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 <sub>3</sub> equivalents. Dissolved Calcium and Magnesium concentrations are preferentially used for the hardness calculation.			

## Reference Information

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)  
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-F-WT      Water      Ammonia in Water by Fluorescence      J. ENVIRON. MONIT., 2005, 7, 37-42, RSC

This analysis is carried out, on sulfuric acid preserved samples, using procedures modified from J. Environ. Monit., 2005, 7, 37 - 42, The Royal Society of Chemistry, "Flow-injection analysis with fluorescence detection for the determination of trace levels of ammonium in seawater", Roslyn J. Waston et al.

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-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.

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

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*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:*

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Laboratory Definition Code	Laboratory Location
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WT	ALS ENVIRONMENTAL - WATERLOO, ONTARIO, CANADA
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**Chain of Custody Numbers:**

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## 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: L2293952

Report Date: 28-JUN-19

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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
<b>ALK-WT</b>								
	Water							
<b>Batch</b>	<b>R4689842</b>							
<b>WG3091036-4</b>	<b>DUP</b>	<b>WG3091036-3</b>						
Alkalinity, Total (as CaCO3)		181	180		mg/L	0.7	20	19-JUN-19
<b>WG3091036-2</b>	<b>LCS</b>							
Alkalinity, Total (as CaCO3)			101.8		%		85-115	19-JUN-19
<b>WG3091036-1</b>	<b>MB</b>							
Alkalinity, Total (as CaCO3)			<10		mg/L		10	19-JUN-19
<b>BR-IC-N-WT</b>								
	Water							
<b>Batch</b>	<b>R4680769</b>							
<b>WG3083438-9</b>	<b>DUP</b>	<b>WG3083438-10</b>						
Bromide (Br)		<0.10	<0.10	RPD-NA	mg/L	N/A	20	20-JUN-19
<b>WG3083438-7</b>	<b>LCS</b>							
Bromide (Br)			99.97		%		85-115	20-JUN-19
<b>WG3083438-6</b>	<b>MB</b>							
Bromide (Br)			<0.10		mg/L		0.1	20-JUN-19
<b>WG3083438-8</b>	<b>MS</b>	<b>WG3083438-10</b>						
Bromide (Br)			99.6		%		75-125	20-JUN-19
<b>CL-IC-N-WT</b>								
	Water							
<b>Batch</b>	<b>R4680769</b>							
<b>WG3083438-9</b>	<b>DUP</b>	<b>WG3083438-10</b>						
Chloride (Cl)		61.1	60.9		mg/L	0.3	20	20-JUN-19
<b>WG3083438-7</b>	<b>LCS</b>							
Chloride (Cl)			101.4		%		90-110	20-JUN-19
<b>WG3083438-6</b>	<b>MB</b>							
Chloride (Cl)			<0.50		mg/L		0.5	20-JUN-19
<b>WG3083438-8</b>	<b>MS</b>	<b>WG3083438-10</b>						
Chloride (Cl)			99.3		%		75-125	20-JUN-19
<b>CN-TOT-WT</b>								
	Water							
<b>Batch</b>	<b>R4677172</b>							
<b>WG3081781-11</b>	<b>DUP</b>	<b>L2291945-3</b>						
Cyanide, Total		0.179	0.180		mg/L	0.6	20	19-JUN-19
<b>WG3081781-10</b>	<b>LCS</b>							
Cyanide, Total			87.1		%		80-120	19-JUN-19
<b>WG3081781-9</b>	<b>MB</b>							
Cyanide, Total			<0.0020		mg/L		0.002	19-JUN-19
<b>WG3081781-12</b>	<b>MS</b>	<b>L2291945-3</b>						
Cyanide, Total			82.3		%		70-130	19-JUN-19
<b>COD-T-WT</b>								
	Water							



### Quality Control Report

Workorder: L2293952

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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
<b>COD-T-WT</b>								
	Water							
Batch	R4683534							
<b>WG3087095-3</b>	<b>DUP</b>	<b>L2293952-1</b>						
COD		27	24		mg/L	9.1	20	25-JUN-19
<b>WG3087095-2</b>	<b>LCS</b>		98.4		%		85-115	25-JUN-19
COD								
<b>WG3087095-1</b>	<b>MB</b>		<10		mg/L		10	25-JUN-19
COD								
<b>WG3087095-4</b>	<b>MS</b>	<b>L2293952-1</b>	110.0		%		75-125	25-JUN-19
COD								
<b>CR-CR6-IC-WT</b>								
	Water							
Batch	R4677772							
<b>WG3082819-14</b>	<b>DUP</b>	<b>WG3082819-13</b>						
Chromium, Hexavalent		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	20-JUN-19
<b>WG3082819-12</b>	<b>LCS</b>		96.4		%		80-120	20-JUN-19
Chromium, Hexavalent								
<b>WG3082819-11</b>	<b>MB</b>		<0.00050		mg/L		0.0005	20-JUN-19
Chromium, Hexavalent								
<b>WG3082819-15</b>	<b>MS</b>	<b>WG3082819-13</b>	93.4		%		70-130	20-JUN-19
Chromium, Hexavalent								
<b>DOC-WT</b>								
	Water							
Batch	R4681432							
<b>WG3082336-3</b>	<b>DUP</b>	<b>L2293952-1</b>						
Dissolved Organic Carbon		7.19	7.38		mg/L	2.6	25	20-JUN-19
<b>WG3082336-2</b>	<b>LCS</b>		101.4		%		70-130	20-JUN-19
Dissolved Organic Carbon								
<b>WG3082336-1</b>	<b>MB</b>		<0.50		mg/L		0.5	20-JUN-19
Dissolved Organic Carbon								
<b>WG3082336-4</b>	<b>MS</b>	<b>L2293952-1</b>	94.9		%		70-130	20-JUN-19
Dissolved Organic Carbon								
<b>EC-WT</b>								
	Water							
Batch	R4689842							
<b>WG3091036-4</b>	<b>DUP</b>	<b>WG3091036-3</b>						
Conductivity		2260	2250		umhos/cm	0.4	10	19-JUN-19
<b>WG3091036-2</b>	<b>LCS</b>		100.6		%		90-110	19-JUN-19
Conductivity								
<b>WG3091036-1</b>	<b>MB</b>		<3.0		umhos/cm		3	19-JUN-19
Conductivity								
<b>F-IC-N-WT</b>								
	Water							





### Quality Control Report

Workorder: L2293952

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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
<b>F-IC-N-WT</b>		<b>Water</b>						
<b>Batch</b>	<b>R4680769</b>							
<b>WG3083438-9</b>	<b>DUP</b>	<b>WG3083438-10</b>						
Fluoride (F)		0.434	0.437		mg/L	0.6	20	20-JUN-19
<b>WG3083438-7</b>	<b>LCS</b>							
Fluoride (F)			102.8		%		90-110	20-JUN-19
<b>WG3083438-6</b>	<b>MB</b>							
Fluoride (F)			<0.020		mg/L		0.02	20-JUN-19
<b>WG3083438-8</b>	<b>MS</b>	<b>WG3083438-10</b>						
Fluoride (F)			98.8		%		75-125	20-JUN-19
<b>HG-T-CVAA-WT</b>		<b>Water</b>						
<b>Batch</b>	<b>R4677429</b>							
<b>WG3082626-4</b>	<b>DUP</b>	<b>WG3082626-3</b>						
Mercury (Hg)-Total		<0.000010	<0.000010	RPD-NA	mg/L	N/A	20	20-JUN-19
<b>WG3082626-2</b>	<b>LCS</b>							
Mercury (Hg)-Total			97.2		%		80-120	20-JUN-19
<b>WG3082626-1</b>	<b>MB</b>							
Mercury (Hg)-Total			<0.000010		mg/L		0.00001	20-JUN-19
<b>WG3082626-6</b>	<b>MS</b>	<b>WG3082626-5</b>						
Mercury (Hg)-Total			91.0		%		70-130	20-JUN-19
<b>MET-T-CCMS-WT</b>		<b>Water</b>						
<b>Batch</b>	<b>R4673448</b>							
<b>WG3081159-4</b>	<b>DUP</b>	<b>WG3081159-3</b>						
Aluminum (Al)-Total		0.482	0.487		mg/L	1.1	20	19-JUN-19
Antimony (Sb)-Total		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	19-JUN-19
Arsenic (As)-Total		0.00087	0.00085		mg/L	2.4	20	19-JUN-19
Barium (Ba)-Total		0.0916	0.0889		mg/L	2.9	20	19-JUN-19
Beryllium (Be)-Total		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	19-JUN-19
Bismuth (Bi)-Total		<0.000050	<0.000050	RPD-NA	mg/L	N/A	20	19-JUN-19
Boron (B)-Total		0.019	0.019		mg/L	1.4	20	19-JUN-19
Cadmium (Cd)-Total		0.0000121	0.0000130		mg/L	7.2	20	19-JUN-19
Calcium (Ca)-Total		91.3	92.0		mg/L	0.7	20	19-JUN-19
Cobalt (Co)-Total		0.00042	0.00042		mg/L	0.0	20	19-JUN-19
Copper (Cu)-Total		0.0016	0.0017		mg/L	5.5	20	19-JUN-19
Iron (Fe)-Total		0.765	0.777		mg/L	1.5	20	19-JUN-19
Lead (Pb)-Total		0.000460	0.000483		mg/L	4.7	20	19-JUN-19
Magnesium (Mg)-Total		25.5	25.4		mg/L	0.6	20	19-JUN-19
Manganese (Mn)-Total		0.0879	0.0874		mg/L	0.5	20	19-JUN-19



### Quality Control Report

Workorder: L2293952

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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
<b>MET-T-CCMS-WT</b>								
	<b>Water</b>							
<b>Batch</b>	<b>R4673448</b>							
<b>WG3081159-4</b>	<b>DUP</b>	<b>WG3081159-3</b>						
Molybdenum (Mo)-Total		0.000491	0.000492		mg/L	0.1	20	19-JUN-19
Nickel (Ni)-Total		0.00100	0.00104		mg/L	4.6	20	19-JUN-19
Potassium (K)-Total		1.80	1.78		mg/L	1.0	20	19-JUN-19
Selenium (Se)-Total		0.000185	0.000196		mg/L	6.1	20	19-JUN-19
Silicon (Si)-Total		5.12	5.22		mg/L	2.0	20	19-JUN-19
Silver (Ag)-Total		<0.000050	<0.000050	RPD-NA	mg/L	N/A	20	19-JUN-19
Sodium (Na)-Total		43.4	43.0		mg/L	0.8	20	19-JUN-19
Strontium (Sr)-Total		0.291	0.293		mg/L	0.7	20	19-JUN-19
Thallium (Tl)-Total		<0.000010	<0.000010	RPD-NA	mg/L	N/A	20	19-JUN-19
Tin (Sn)-Total		0.00032	0.00028		mg/L	12	20	19-JUN-19
Vanadium (V)-Total		0.00158	0.00158		mg/L	0.1	20	19-JUN-19
Zinc (Zn)-Total		0.0068	0.0073		mg/L	6.3	20	19-JUN-19
<b>WG3081159-2</b>	<b>LCS</b>							
Aluminum (Al)-Total			95.2		%		80-120	19-JUN-19
Antimony (Sb)-Total			100.7		%		80-120	19-JUN-19
Arsenic (As)-Total			95.2		%		80-120	19-JUN-19
Barium (Ba)-Total			96.2		%		80-120	19-JUN-19
Beryllium (Be)-Total			96.6		%		80-120	19-JUN-19
Bismuth (Bi)-Total			99.5		%		80-120	19-JUN-19
Boron (B)-Total			87.2		%		80-120	19-JUN-19
Cadmium (Cd)-Total			92.7		%		80-120	19-JUN-19
Calcium (Ca)-Total			94.0		%		80-120	19-JUN-19
Cobalt (Co)-Total			93.9		%		80-120	19-JUN-19
Copper (Cu)-Total			98.8		%		80-120	19-JUN-19
Iron (Fe)-Total			98.6		%		80-120	19-JUN-19
Lead (Pb)-Total			99.7		%		80-120	19-JUN-19
Magnesium (Mg)-Total			94.5		%		80-120	19-JUN-19
Manganese (Mn)-Total			95.5		%		80-120	19-JUN-19
Molybdenum (Mo)-Total			96.1		%		80-120	19-JUN-19
Nickel (Ni)-Total			92.9		%		80-120	19-JUN-19
Potassium (K)-Total			97.0		%		80-120	19-JUN-19
Selenium (Se)-Total			92.8		%		80-120	19-JUN-19
Silicon (Si)-Total			101.2		%		60-140	19-JUN-19



### Quality Control Report

Workorder: L2293952

Report Date: 28-JUN-19

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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
<b>MET-T-CCMS-WT</b>								
	<b>Water</b>							
<b>Batch</b>	<b>R4673448</b>							
<b>WG3081159-2</b>	<b>LCS</b>							
Silver (Ag)-Total			96.5		%		80-120	19-JUN-19
Sodium (Na)-Total			96.2		%		80-120	19-JUN-19
Strontium (Sr)-Total			98.1		%		80-120	19-JUN-19
Thallium (Tl)-Total			99.2		%		80-120	19-JUN-19
Tin (Sn)-Total			96.2		%		80-120	19-JUN-19
Vanadium (V)-Total			95.2		%		80-120	19-JUN-19
Zinc (Zn)-Total			94.4		%		80-120	19-JUN-19
<b>WG3081159-1</b>	<b>MB</b>							
Aluminum (Al)-Total			<0.0050		mg/L		0.005	19-JUN-19
Antimony (Sb)-Total			<0.00010		mg/L		0.0001	19-JUN-19
Arsenic (As)-Total			<0.00010		mg/L		0.0001	19-JUN-19
Barium (Ba)-Total			<0.00010		mg/L		0.0001	19-JUN-19
Beryllium (Be)-Total			<0.00010		mg/L		0.0001	19-JUN-19
Bismuth (Bi)-Total			<0.000050		mg/L		0.00005	19-JUN-19
Boron (B)-Total			<0.010		mg/L		0.01	19-JUN-19
Cadmium (Cd)-Total			<0.0000050		mg/L		0.000005	19-JUN-19
Calcium (Ca)-Total			<0.050		mg/L		0.05	19-JUN-19
Cobalt (Co)-Total			<0.00010		mg/L		0.0001	19-JUN-19
Copper (Cu)-Total			<0.0010		mg/L		0.001	19-JUN-19
Iron (Fe)-Total			<0.010		mg/L		0.01	19-JUN-19
Lead (Pb)-Total			<0.000050		mg/L		0.00005	19-JUN-19
Magnesium (Mg)-Total			<0.0050		mg/L		0.005	19-JUN-19
Manganese (Mn)-Total			<0.00050		mg/L		0.0005	19-JUN-19
Molybdenum (Mo)-Total			<0.000050		mg/L		0.00005	19-JUN-19
Nickel (Ni)-Total			<0.00050		mg/L		0.0005	19-JUN-19
Potassium (K)-Total			<0.050		mg/L		0.05	19-JUN-19
Selenium (Se)-Total			<0.000050		mg/L		0.00005	19-JUN-19
Silicon (Si)-Total			<0.10		mg/L		0.1	19-JUN-19
Silver (Ag)-Total			<0.000050		mg/L		0.00005	19-JUN-19
Sodium (Na)-Total			<0.050		mg/L		0.05	19-JUN-19
Strontium (Sr)-Total			<0.0010		mg/L		0.001	19-JUN-19
Thallium (Tl)-Total			<0.000010		mg/L		0.00001	19-JUN-19
Tin (Sn)-Total			<0.00010		mg/L		0.0001	19-JUN-19
Vanadium (V)-Total			<0.00050		mg/L		0.0005	19-JUN-19



### Quality Control Report

Workorder: L2293952

Report Date: 28-JUN-19

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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
<b>MET-T-CCMS-WT</b>								
	<b>Water</b>							
<b>Batch</b>	<b>R4673448</b>							
<b>WG3081159-1</b>	<b>MB</b>							
Zinc (Zn)-Total			<0.0030		mg/L		0.003	19-JUN-19
<b>WG3081159-5</b>	<b>MS</b>	<b>WG3081159-3</b>						
Aluminum (Al)-Total			N/A	MS-B	%		-	19-JUN-19
Antimony (Sb)-Total			100.0		%		70-130	19-JUN-19
Arsenic (As)-Total			97.5		%		70-130	19-JUN-19
Barium (Ba)-Total			N/A	MS-B	%		-	19-JUN-19
Beryllium (Be)-Total			94.9		%		70-130	19-JUN-19
Bismuth (Bi)-Total			91.5		%		70-130	19-JUN-19
Boron (B)-Total			86.2		%		70-130	19-JUN-19
Cadmium (Cd)-Total			91.4		%		70-130	19-JUN-19
Calcium (Ca)-Total			N/A	MS-B	%		-	19-JUN-19
Cobalt (Co)-Total			93.9		%		70-130	19-JUN-19
Copper (Cu)-Total			87.6		%		70-130	19-JUN-19
Iron (Fe)-Total			N/A	MS-B	%		-	19-JUN-19
Lead (Pb)-Total			95.0		%		70-130	19-JUN-19
Magnesium (Mg)-Total			N/A	MS-B	%		-	19-JUN-19
Manganese (Mn)-Total			N/A	MS-B	%		-	19-JUN-19
Molybdenum (Mo)-Total			100.8		%		70-130	19-JUN-19
Nickel (Ni)-Total			90.8		%		70-130	19-JUN-19
Potassium (K)-Total			94.5		%		70-130	19-JUN-19
Selenium (Se)-Total			94.0		%		70-130	19-JUN-19
Silicon (Si)-Total			N/A	MS-B	%		-	19-JUN-19
Silver (Ag)-Total			94.5		%		70-130	19-JUN-19
Sodium (Na)-Total			N/A	MS-B	%		-	19-JUN-19
Strontium (Sr)-Total			N/A	MS-B	%		-	19-JUN-19
Thallium (Tl)-Total			94.3		%		70-130	19-JUN-19
Tin (Sn)-Total			96.5		%		70-130	19-JUN-19
Vanadium (V)-Total			99.8		%		70-130	19-JUN-19
Zinc (Zn)-Total			83.2		%		70-130	19-JUN-19
<b>NH3-F-WT</b>								
	<b>Water</b>							
<b>Batch</b>	<b>R4687969</b>							
<b>WG3088732-7</b>	<b>DUP</b>	<b>L2293830-1</b>						
Ammonia, Total (as N)		0.011	0.011		mg/L	1.8	20	26-JUN-19
<b>WG3088732-6</b>	<b>LCS</b>							



## Quality Control Report

Workorder: L2293952

Report Date: 28-JUN-19

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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
<b>NH3-F-WT</b>								
	<b>Water</b>							
<b>Batch</b>	<b>R4687969</b>							
<b>WG3088732-6</b>	<b>LCS</b>							
Ammonia, Total (as N)			112.5		%		85-115	26-JUN-19
<b>WG3088732-5</b>	<b>MB</b>							
Ammonia, Total (as N)			<0.010		mg/L		0.01	26-JUN-19
<b>WG3088732-8</b>	<b>MS</b>	<b>L2293830-1</b>						
Ammonia, Total (as N)			97.2		%		75-125	26-JUN-19
<b>NO2-IC-WT</b>								
	<b>Water</b>							
<b>Batch</b>	<b>R4680769</b>							
<b>WG3083438-9</b>	<b>DUP</b>	<b>WG3083438-10</b>						
Nitrite (as N)		<0.010	<0.010	RPD-NA	mg/L	N/A	20	20-JUN-19
<b>WG3083438-7</b>	<b>LCS</b>							
Nitrite (as N)			101.9		%		90-110	20-JUN-19
<b>WG3083438-6</b>	<b>MB</b>							
Nitrite (as N)			<0.010		mg/L		0.01	20-JUN-19
<b>WG3083438-8</b>	<b>MS</b>	<b>WG3083438-10</b>						
Nitrite (as N)			99.7		%		75-125	20-JUN-19
<b>NO3-IC-WT</b>								
	<b>Water</b>							
<b>Batch</b>	<b>R4680769</b>							
<b>WG3083438-9</b>	<b>DUP</b>	<b>WG3083438-10</b>						
Nitrate (as N)		<0.020	<0.020	RPD-NA	mg/L	N/A	20	20-JUN-19
<b>WG3083438-7</b>	<b>LCS</b>							
Nitrate (as N)			100.7		%		90-110	20-JUN-19
<b>WG3083438-6</b>	<b>MB</b>							
Nitrate (as N)			<0.020		mg/L		0.02	20-JUN-19
<b>WG3083438-8</b>	<b>MS</b>	<b>WG3083438-10</b>						
Nitrate (as N)			94.7		%		75-125	20-JUN-19
<b>P-T-COL-WT</b>								
	<b>Water</b>							
<b>Batch</b>	<b>R4687490</b>							
<b>WG3088099-3</b>	<b>DUP</b>	<b>L2293530-2</b>						
Phosphorus, Total		0.0320	0.0354		mg/L	9.9	20	26-JUN-19
<b>WG3088099-2</b>	<b>LCS</b>							
Phosphorus, Total			98.2		%		80-120	26-JUN-19
<b>WG3088099-1</b>	<b>MB</b>							
Phosphorus, Total			<0.0030		mg/L		0.003	26-JUN-19
<b>WG3088099-4</b>	<b>MS</b>	<b>L2293530-2</b>						
Phosphorus, Total			87.5		%		70-130	26-JUN-19
<b>PH-WT</b>								
	<b>Water</b>							



## Quality Control Report

Workorder: L2293952

Report Date: 28-JUN-19

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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
<b>PH-WT</b>		<b>Water</b>						
Batch	R4689842							
WG3091036-4	DUP	WG3091036-3						
pH		7.80	7.80	J	pH units	0.00	0.2	19-JUN-19
WG3091036-2	LCS							
pH			7.03		pH units		6.9-7.1	19-JUN-19
<b>PHENOLS-4AAP-WT</b>		<b>Water</b>						
Batch	R4677196							
WG3081445-3	DUP	L2294040-1						
Phenols (4AAP)		0.0062	0.0046	J	mg/L	0.0016	0.002	19-JUN-19
WG3081445-2	LCS							
Phenols (4AAP)			113.4		%		85-115	19-JUN-19
WG3081445-1	MB							
Phenols (4AAP)			<0.0010		mg/L		0.001	19-JUN-19
WG3081445-4	MS	L2294040-1						
Phenols (4AAP)			101.6		%		75-125	19-JUN-19
<b>SO4-IC-N-WT</b>		<b>Water</b>						
Batch	R4680769							
WG3083438-9	DUP	WG3083438-10						
Sulfate (SO4)		45.5	45.6		mg/L	0.2	20	20-JUN-19
WG3083438-7	LCS							
Sulfate (SO4)			101.9		%		90-110	20-JUN-19
WG3083438-6	MB							
Sulfate (SO4)			<0.30		mg/L		0.3	20-JUN-19
WG3083438-8	MS	WG3083438-10						
Sulfate (SO4)			101.5		%		75-125	20-JUN-19
<b>SOLIDS-TDS-WT</b>		<b>Water</b>						
Batch	R4688007							
WG3086524-3	DUP	L2293830-4						
Total Dissolved Solids		473	479		mg/L	1.3	20	24-JUN-19
WG3086524-2	LCS							
Total Dissolved Solids			98.9		%		85-115	24-JUN-19
WG3086524-1	MB							
Total Dissolved Solids			<10		mg/L		10	24-JUN-19
<b>SOLIDS-TSS-WT</b>		<b>Water</b>						
Batch	R4683512							
WG3086031-3	DUP	L2294389-1						
Total Suspended Solids		820	860		mg/L	4.8	20	25-JUN-19
WG3086031-2	LCS							



### Quality Control Report

Workorder: L2293952

Report Date: 28-JUN-19

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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
<b>SOLIDS-TSS-WT</b>	<b>Water</b>							
<b>Batch</b>	<b>R4683512</b>							
<b>WG3086031-2 LCS</b>								
Total Suspended Solids			96.2		%		85-115	25-JUN-19
<b>WG3086031-1 MB</b>								
Total Suspended Solids			<2.0		mg/L		2	25-JUN-19
<b>TKN-WT</b>	<b>Water</b>							
<b>Batch</b>	<b>R4688055</b>							
<b>WG3087806-3 DUP</b>		<b>L2293921-1</b>						
Total Kjeldahl Nitrogen		<0.15	<0.15	RPD-NA	mg/L	N/A	20	26-JUN-19
<b>WG3087806-2 LCS</b>								
Total Kjeldahl Nitrogen			105.2		%		75-125	26-JUN-19
<b>WG3087806-1 MB</b>								
Total Kjeldahl Nitrogen			<0.15		mg/L		0.15	26-JUN-19
<b>WG3087806-4 MS</b>		<b>L2293921-1</b>						
Total Kjeldahl Nitrogen			123.9		%		70-130	26-JUN-19

# Quality Control Report

Workorder: L2293952

Report Date: 28-JUN-19

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

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## Legend:

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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:

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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.

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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: LAURA ERMETA  
455 PHILLIP STREET  
WATERLOO ON N2L 3X2

Date Received: 16-JUL-19  
Report Date: 23-JUL-19 12:46 (MT)  
Version: FINAL

Client Phone: 519-884-0510

## Certificate of Analysis

Lab Work Order #: L2310219  
Project P.O. #: 73506479-1  
Job Reference: 44985-20-19  
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
L2310219-1 EQ POND DISCHARGE							
Sampled By: CLIENT on 15-JUL-19 @ 12:00							
Matrix: WATER							
<b>Field Tests</b>							
pH, Client Supplied	8.16		0.10	pH		16-JUL-19	R4712686
Temperature, Client	26.5		-50	Deg. C		16-JUL-19	R4712686
<b>Physical Tests</b>							
Conductivity	720		3.0	umhos/cm		16-JUL-19	R4713449
Hardness (as CaCO3)	244	HTC	1.3	mg/L		17-JUL-19	
pH	8.43		0.10	pH units		16-JUL-19	R4713449
Total Suspended Solids	3.7		2.0	mg/L	18-JUL-19	19-JUL-19	R4715208
Total Dissolved Solids	449	DLDS	20	mg/L		21-JUL-19	R4719869
<b>Anions and Nutrients</b>							
Alkalinity, Total (as CaCO3)	134		10	mg/L		16-JUL-19	R4713449
Unionized ammonia	0.020		0.010	mg/L		22-JUL-19	
Ammonia, Total (as N)	0.20	DLHC	0.10	mg/L		19-JUL-19	R4716829
Bromide (Br)	2.78		0.10	mg/L		18-JUL-19	R4716109
Chloride (Cl)	74.4		0.50	mg/L		18-JUL-19	R4716109
Fluoride (F)	0.584		0.020	mg/L		18-JUL-19	R4716109
Nitrate (as N)	<0.020		0.020	mg/L		18-JUL-19	R4716109
Nitrite (as N)	<0.010		0.010	mg/L		18-JUL-19	R4716109
Total Kjeldahl Nitrogen	0.46		0.15	mg/L	17-JUL-19	18-JUL-19	R4714809
Phosphorus, Total	0.0136		0.0030	mg/L	19-JUL-19	22-JUL-19	R4719703
Sulfate (SO4)	130		0.30	mg/L		18-JUL-19	R4716109
<b>Cyanides</b>							
Cyanide, Total	<0.0020		0.0020	mg/L		19-JUL-19	R4719786
<b>Organic / Inorganic Carbon</b>							
Dissolved Carbon Filtration Location	LAB					16-JUL-19	R4712908
Dissolved Organic Carbon	4.90		0.50	mg/L	16-JUL-19	17-JUL-19	R4713548
<b>Total Metals</b>							
Aluminum (Al)-Total	0.043		0.010	mg/L	16-JUL-19	17-JUL-19	R4713190
Antimony (Sb)-Total	0.00051		0.00010	mg/L	16-JUL-19	17-JUL-19	R4713190
Arsenic (As)-Total	0.00225		0.00010	mg/L	16-JUL-19	17-JUL-19	R4713190
Barium (Ba)-Total	0.0452		0.00020	mg/L	16-JUL-19	17-JUL-19	R4713190
Beryllium (Be)-Total	<0.00010		0.00010	mg/L	16-JUL-19	17-JUL-19	R4713190
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	16-JUL-19	17-JUL-19	R4713190
Boron (B)-Total	0.108		0.010	mg/L	16-JUL-19	17-JUL-19	R4713190
Cadmium (Cd)-Total	<0.000040	DLM	0.000040	mg/L	16-JUL-19	17-JUL-19	R4713190
Calcium (Ca)-Total	61.1		0.50	mg/L	16-JUL-19	17-JUL-19	R4713190
Cobalt (Co)-Total	0.00028		0.00010	mg/L	16-JUL-19	17-JUL-19	R4713190
Copper (Cu)-Total	0.0013		0.0010	mg/L	16-JUL-19	17-JUL-19	R4713190
Iron (Fe)-Total	<0.050		0.050	mg/L	16-JUL-19	17-JUL-19	R4713190
Lead (Pb)-Total	<0.00010		0.00010	mg/L	16-JUL-19	17-JUL-19	R4713190
Magnesium (Mg)-Total	22.3		0.050	mg/L	16-JUL-19	17-JUL-19	R4713190
Manganese (Mn)-Total	0.0188		0.00050	mg/L	16-JUL-19	17-JUL-19	R4713190
Mercury (Hg)-Total	<0.000010		0.000010	mg/L		17-JUL-19	R4713637

\* 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
L2310219-1 EQ POND DISCHARGE							
Sampled By: CLIENT on 15-JUL-19 @ 12:00							
Matrix: WATER							
<b>Total Metals</b>							
Molybdenum (Mo)-Total	0.0796		0.000050	mg/L	16-JUL-19	17-JUL-19	R4713190
Nickel (Ni)-Total	0.00535		0.00050	mg/L	16-JUL-19	17-JUL-19	R4713190
Potassium (K)-Total	15.0		0.050	mg/L	16-JUL-19	17-JUL-19	R4713190
Selenium (Se)-Total	0.00133		0.000050	mg/L	16-JUL-19	17-JUL-19	R4713190
Silicon (Si)-Total	1.35		0.10	mg/L	16-JUL-19	17-JUL-19	R4713190
Silver (Ag)-Total	<0.000050		0.000050	mg/L	16-JUL-19	17-JUL-19	R4713190
Sodium (Na)-Total	51.0		0.50	mg/L	16-JUL-19	17-JUL-19	R4713190
Strontium (Sr)-Total	0.554		0.0010	mg/L	16-JUL-19	17-JUL-19	R4713190
Thallium (Tl)-Total	0.000514		0.000010	mg/L	16-JUL-19	17-JUL-19	R4713190
Tin (Sn)-Total	0.00017		0.00010	mg/L	16-JUL-19	17-JUL-19	R4713190
Vanadium (V)-Total	0.00053		0.00050	mg/L	16-JUL-19	17-JUL-19	R4713190
Zinc (Zn)-Total	<0.0030		0.0030	mg/L	16-JUL-19	17-JUL-19	R4713190
<b>Speciated Metals</b>							
Chromium, Hexavalent	<0.00050		0.00050	mg/L		17-JUL-19	R4714199
<b>Aggregate Organics</b>							
COD	18		10	mg/L		23-JUL-19	R4720807
Phenols (4AAP)	0.0055		0.0010	mg/L		18-JUL-19	R4714834
<b>Volatile Organic Compounds</b>							
Acetone	<20		20	ug/L		18-JUL-19	R4714375
Benzene	<0.50		0.50	ug/L		18-JUL-19	R4714375
Bromodichloromethane	<1.0		1.0	ug/L		18-JUL-19	R4714375
Bromoform	<1.0		1.0	ug/L		18-JUL-19	R4714375
Bromomethane	<0.50		0.50	ug/L		18-JUL-19	R4714375
Carbon tetrachloride	<0.50		0.50	ug/L		18-JUL-19	R4714375
Chlorobenzene	<0.50		0.50	ug/L		18-JUL-19	R4714375
Dibromochloromethane	<1.0		1.0	ug/L		18-JUL-19	R4714375
Chloroethane	<1.0		1.0	ug/L		18-JUL-19	R4714375
Chloroform	<1.0		1.0	ug/L		18-JUL-19	R4714375
1,2-Dibromoethane	<0.20		0.20	ug/L		18-JUL-19	R4714375
1,2-Dichlorobenzene	<0.50		0.50	ug/L		18-JUL-19	R4714375
1,3-Dichlorobenzene	<0.50		0.50	ug/L		18-JUL-19	R4714375
1,4-Dichlorobenzene	<0.50		0.50	ug/L		18-JUL-19	R4714375
Dichlorodifluoromethane	<1.0		1.0	ug/L		18-JUL-19	R4714375
1,1-Dichloroethane	<0.50		0.50	ug/L		18-JUL-19	R4714375
1,2-Dichloroethane	<0.50		0.50	ug/L		18-JUL-19	R4714375
1,1-Dichloroethylene	<0.50		0.50	ug/L		18-JUL-19	R4714375
cis-1,2-Dichloroethylene	<0.50		0.50	ug/L		18-JUL-19	R4714375
trans-1,2-Dichloroethylene	<0.50		0.50	ug/L		18-JUL-19	R4714375
Dichloromethane	<2.0		2.0	ug/L		18-JUL-19	R4714375
1,2-Dichloropropane	<0.50		0.50	ug/L		18-JUL-19	R4714375
cis-1,3-Dichloropropene	<0.50		0.50	ug/L		18-JUL-19	R4714375
trans-1,3-Dichloropropene	<0.50		0.50	ug/L		18-JUL-19	R4714375

\* 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
L2310219-1 EQ POND DISCHARGE							
Sampled By: CLIENT on 15-JUL-19 @ 12:00							
Matrix: WATER							
<b>Volatile Organic Compounds</b>							
Ethylbenzene	<0.50		0.50	ug/L		18-JUL-19	R4714375
n-Hexane	<0.50		0.50	ug/L		18-JUL-19	R4714375
Methyl Ethyl Ketone	<20		20	ug/L		18-JUL-19	R4714375
Methyl Isobutyl Ketone	<20		20	ug/L		18-JUL-19	R4714375
MTBE	<0.50		0.50	ug/L		18-JUL-19	R4714375
Styrene	<0.50		0.50	ug/L		18-JUL-19	R4714375
1,1,1,2-Tetrachloroethane	<0.50		0.50	ug/L		18-JUL-19	R4714375
1,1,2,2-Tetrachloroethane	<0.50		0.50	ug/L		18-JUL-19	R4714375
Tetrachloroethylene	<0.50		0.50	ug/L		18-JUL-19	R4714375
Toluene	<0.50		0.50	ug/L		18-JUL-19	R4714375
1,1,1-Trichloroethane	<0.50		0.50	ug/L		18-JUL-19	R4714375
1,1,2-Trichloroethane	<0.50		0.50	ug/L		18-JUL-19	R4714375
Trichloroethylene	<0.50		0.50	ug/L		18-JUL-19	R4714375
Trichlorofluoromethane	<1.0		1.0	ug/L		18-JUL-19	R4714375
Vinyl chloride	<0.50		0.50	ug/L		18-JUL-19	R4714375
o-Xylene	<0.50		0.50	ug/L		18-JUL-19	R4714375
m+p-Xylenes	<1.0		1.0	ug/L		18-JUL-19	R4714375
Xylenes (Total)	<1.1		1.1	ug/L		18-JUL-19	
Surrogate: 4-Bromofluorobenzene	88.9		70-130	%		18-JUL-19	R4714375
Surrogate: 1,4-Difluorobenzene	97.6		70-130	%		18-JUL-19	R4714375
<b>Trihalomethanes</b>							
Total THMs	<2.0		2.0	ug/L		18-JUL-19	
<b>Acid Extractables</b>							
2,3,6-Trichlorophenol	<0.50		0.50	ug/L	18-JUL-19	22-JUL-19	R4719717
Surrogate: 2,4,6-Tribromophenol	138.1		40-150	%	18-JUL-19	22-JUL-19	R4719717
<b>Semi-Volatile Organics</b>							
Acenaphthene	<0.20		0.20	ug/L	18-JUL-19	22-JUL-19	R4719622
Acenaphthylene	<0.20		0.20	ug/L	18-JUL-19	22-JUL-19	R4719622
Anthracene	<0.20		0.20	ug/L	18-JUL-19	22-JUL-19	R4719622
Benzo(a)anthracene	<0.20		0.20	ug/L	18-JUL-19	22-JUL-19	R4719622
Benzo(a)pyrene	<0.050		0.050	ug/L	18-JUL-19	22-JUL-19	R4719622
Benzo(b)fluoranthene	<0.20		0.20	ug/L	18-JUL-19	22-JUL-19	R4719622
Benzo(ghi)perylene	<0.20		0.20	ug/L	18-JUL-19	22-JUL-19	R4719622
Benzo(k)fluoranthene	<0.20		0.20	ug/L	18-JUL-19	22-JUL-19	R4719622
4-Chloroaniline	<0.40		0.40	ug/L	18-JUL-19	22-JUL-19	R4719622
Bis(2-chloroethyl)ether	<0.40		0.40	ug/L	18-JUL-19	22-JUL-19	R4719622
2-Chlorophenol	<0.30		0.30	ug/L	18-JUL-19	22-JUL-19	R4719622
Chrysene	<0.20		0.20	ug/L	18-JUL-19	22-JUL-19	R4719622
Dibenzo(a,h)anthracene	<0.20		0.20	ug/L	18-JUL-19	22-JUL-19	R4719622
1,2-Dichlorobenzene	<0.40		0.40	ug/L	18-JUL-19	22-JUL-19	R4719622
1,3-Dichlorobenzene	<0.40		0.40	ug/L	18-JUL-19	22-JUL-19	R4719622
1,4-Dichlorobenzene	<0.40		0.40	ug/L	18-JUL-19	22-JUL-19	R4719622

\* 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
L2310219-1 EQ POND DISCHARGE Sampled By: CLIENT on 15-JUL-19 @ 12:00 Matrix: WATER							
<b>Semi-Volatile Organics</b>							
3,3'-Dichlorobenzidine	<0.40		0.40	ug/L	18-JUL-19	22-JUL-19	R4719622
2,4-Dichlorophenol	<0.30		0.30	ug/L	18-JUL-19	22-JUL-19	R4719622
Diethylphthalate	<0.20		0.20	ug/L	18-JUL-19	22-JUL-19	R4719622
Dimethylphthalate	<0.20		0.20	ug/L	18-JUL-19	22-JUL-19	R4719622
2,4-Dimethylphenol	<0.50		0.50	ug/L	18-JUL-19	22-JUL-19	R4719622
2,4-Dinitrophenol	<1.0		1.0	ug/L	18-JUL-19	22-JUL-19	R4719622
2,4-Dinitrotoluene	<0.40		0.40	ug/L	18-JUL-19	22-JUL-19	R4719622
2,6-Dinitrotoluene	<0.40		0.40	ug/L	18-JUL-19	22-JUL-19	R4719622
Bis(2-ethylhexyl)phthalate	<2.0		2.0	ug/L	18-JUL-19	22-JUL-19	R4719622
Fluoranthene	<0.20		0.20	ug/L	18-JUL-19	22-JUL-19	R4719622
Fluorene	<0.20		0.20	ug/L	18-JUL-19	22-JUL-19	R4719622
Hexachlorobenzene	<0.040		0.040	ug/L	18-JUL-19	22-JUL-19	R4719622
Hexachlorobutadiene	<0.20		0.20	ug/L	18-JUL-19	22-JUL-19	R4719622
Indeno(1,2,3-cd)pyrene	<0.20		0.20	ug/L	18-JUL-19	22-JUL-19	R4719622
1-Methylnaphthalene	<0.40		0.40	ug/L	18-JUL-19	22-JUL-19	R4719622
2-Methylnaphthalene	<0.40		0.40	ug/L	18-JUL-19	22-JUL-19	R4719622
Naphthalene	<0.20		0.20	ug/L	18-JUL-19	22-JUL-19	R4719622
Pentachlorophenol	<0.50		0.50	ug/L	18-JUL-19	22-JUL-19	R4719622
Perylene	<0.20		0.20	ug/L	18-JUL-19	22-JUL-19	R4719622
Phenanthrene	<0.20		0.20	ug/L	18-JUL-19	22-JUL-19	R4719622
Pyrene	<0.20		0.20	ug/L	18-JUL-19	22-JUL-19	R4719622
2,3,4,5-Tetrachlorophenol	<0.50		0.50	ug/L	18-JUL-19	22-JUL-19	R4719622
2,3,4,6-Tetrachlorophenol	<0.50		0.50	ug/L	18-JUL-19	22-JUL-19	R4719622
1,2,4-Trichlorobenzene	<0.40		0.40	ug/L	18-JUL-19	22-JUL-19	R4719622
2,4,5-Trichlorophenol	<0.50		0.50	ug/L	18-JUL-19	22-JUL-19	R4719622
2,4,6-Trichlorophenol	<0.50		0.50	ug/L	18-JUL-19	22-JUL-19	R4719622
Surrogate: 2-Fluorobiphenyl	98.1		40-130	%	18-JUL-19	22-JUL-19	R4719622
Surrogate: Nitrobenzene d5	101.3		40-130	%	18-JUL-19	22-JUL-19	R4719622
Surrogate: p-Terphenyl d14	111.5		40-130	%	18-JUL-19	22-JUL-19	R4719622
Report Remarks : DLM - Cd LOR increased due to potential interference from Mo							
L2310219-2 WEST STORM WATER POND Sampled By: CLIENT on 15-JUL-19 @ 12:15 Matrix: WATER							
<b>Field Tests</b>							
pH, Client Supplied	7.62		0.10	pH		16-JUL-19	R4712686
Temperature, Client	23.5		-50	Deg. C		16-JUL-19	R4712686
<b>Physical Tests</b>							
Conductivity	756		3.0	umhos/cm		16-JUL-19	R4713449
Hardness (as CaCO3)	279	HTC	1.3	mg/L		17-JUL-19	
pH	8.06		0.10	pH units		16-JUL-19	R4713449
Total Suspended Solids	7.6		2.0	mg/L	18-JUL-19	19-JUL-19	R4715208
Total Dissolved Solids	470	DLDS	20	mg/L		21-JUL-19	R4719869

\* 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
L2310219-2 WEST STORM WATER POND Sampled By: CLIENT on 15-JUL-19 @ 12:15 Matrix: WATER							
<b>Physical Tests</b>							
<b>Anions and Nutrients</b>							
Alkalinity, Total (as CaCO <sub>3</sub> )	177		10	mg/L		16-JUL-19	R4713449
Unionized ammonia	0.0037		0.0025	mg/L		22-JUL-19	
Ammonia, Total (as N)	0.15	DLHC	0.10	mg/L		19-JUL-19	R4716829
Bromide (Br)	2.50		0.10	mg/L		18-JUL-19	R4716109
Chloride (Cl)	69.3		0.50	mg/L		18-JUL-19	R4716109
Fluoride (F)	0.536		0.020	mg/L		18-JUL-19	R4716109
Nitrate (as N)	<0.020		0.020	mg/L		18-JUL-19	R4716109
Nitrite (as N)	<0.010		0.010	mg/L		18-JUL-19	R4716109
Total Kjeldahl Nitrogen	0.97		0.15	mg/L	17-JUL-19	18-JUL-19	R4714809
Phosphorus, Total	0.0224		0.0030	mg/L	19-JUL-19	22-JUL-19	R4719703
Sulfate (SO <sub>4</sub> )	124		0.30	mg/L		18-JUL-19	R4716109
<b>Cyanides</b>							
Cyanide, Total	<0.0020		0.0020	mg/L		19-JUL-19	R4719786
<b>Organic / Inorganic Carbon</b>							
Dissolved Carbon Filtration Location	LAB					16-JUL-19	R4712908
Dissolved Organic Carbon	6.04		0.50	mg/L	16-JUL-19	17-JUL-19	R4713548
<b>Total Metals</b>							
Aluminum (Al)-Total	0.133		0.010	mg/L	16-JUL-19	17-JUL-19	R4713190
Antimony (Sb)-Total	0.00050		0.00010	mg/L	16-JUL-19	17-JUL-19	R4713190
Arsenic (As)-Total	0.00262		0.00010	mg/L	16-JUL-19	17-JUL-19	R4713190
Barium (Ba)-Total	0.0544		0.00020	mg/L	16-JUL-19	17-JUL-19	R4713190
Beryllium (Be)-Total	<0.00010		0.00010	mg/L	16-JUL-19	17-JUL-19	R4713190
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	16-JUL-19	17-JUL-19	R4713190
Boron (B)-Total	0.127		0.010	mg/L	16-JUL-19	17-JUL-19	R4713190
Cadmium (Cd)-Total	<0.00010	DLM	0.00010	mg/L	16-JUL-19	17-JUL-19	R4713190
Calcium (Ca)-Total	75.3		0.50	mg/L	16-JUL-19	17-JUL-19	R4713190
Cobalt (Co)-Total	0.00042		0.00010	mg/L	16-JUL-19	17-JUL-19	R4713190
Copper (Cu)-Total	0.0019		0.0010	mg/L	16-JUL-19	17-JUL-19	R4713190
Iron (Fe)-Total	0.173		0.050	mg/L	16-JUL-19	17-JUL-19	R4713190
Lead (Pb)-Total	0.00040		0.00010	mg/L	16-JUL-19	17-JUL-19	R4713190
Magnesium (Mg)-Total	22.2		0.050	mg/L	16-JUL-19	17-JUL-19	R4713190
Manganese (Mn)-Total	0.0396		0.00050	mg/L	16-JUL-19	17-JUL-19	R4713190
Mercury (Hg)-Total	<0.000010		0.000010	mg/L		17-JUL-19	R4713637
Molybdenum (Mo)-Total	0.0645		0.000050	mg/L	16-JUL-19	17-JUL-19	R4713190
Nickel (Ni)-Total	0.00623		0.00050	mg/L	16-JUL-19	17-JUL-19	R4713190
Potassium (K)-Total	12.3		0.050	mg/L	16-JUL-19	17-JUL-19	R4713190
Selenium (Se)-Total	0.00120		0.000050	mg/L	16-JUL-19	17-JUL-19	R4713190
Silicon (Si)-Total	1.67		0.10	mg/L	16-JUL-19	17-JUL-19	R4713190
Silver (Ag)-Total	<0.000050		0.000050	mg/L	16-JUL-19	17-JUL-19	R4713190
Sodium (Na)-Total	47.1		0.50	mg/L	16-JUL-19	17-JUL-19	R4713190
Strontium (Sr)-Total	0.568		0.0010	mg/L	16-JUL-19	17-JUL-19	R4713190

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## ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2310219-2 WEST STORM WATER POND Sampled By: CLIENT on 15-JUL-19 @ 12:15 Matrix: WATER							
<b>Total Metals</b>							
Thallium (Tl)-Total	0.000357		0.000010	mg/L	16-JUL-19	17-JUL-19	R4713190
Tin (Sn)-Total	0.00039		0.00010	mg/L	16-JUL-19	17-JUL-19	R4713190
Vanadium (V)-Total	0.00063		0.00050	mg/L	16-JUL-19	17-JUL-19	R4713190
Zinc (Zn)-Total	0.0051		0.0030	mg/L	16-JUL-19	17-JUL-19	R4713190
<b>Speciated Metals</b>							
Chromium, Hexavalent	<0.00050		0.00050	mg/L		17-JUL-19	R4714199
<b>Aggregate Organics</b>							
COD	24		10	mg/L		23-JUL-19	R4720807
Phenols (4AAP)	0.0060		0.0010	mg/L		18-JUL-19	R4714834
<b>Volatile Organic Compounds</b>							
Acetone	<20		20	ug/L		18-JUL-19	R4714375
Benzene	<0.50		0.50	ug/L		18-JUL-19	R4714375
Bromodichloromethane	<1.0		1.0	ug/L		18-JUL-19	R4714375
Bromoform	<1.0		1.0	ug/L		18-JUL-19	R4714375
Bromomethane	<0.50		0.50	ug/L		18-JUL-19	R4714375
Carbon tetrachloride	<0.50		0.50	ug/L		18-JUL-19	R4714375
Chlorobenzene	<0.50		0.50	ug/L		18-JUL-19	R4714375
Dibromochloromethane	<1.0		1.0	ug/L		18-JUL-19	R4714375
Chloroethane	<1.0		1.0	ug/L		18-JUL-19	R4714375
Chloroform	<1.0		1.0	ug/L		18-JUL-19	R4714375
1,2-Dibromoethane	<0.20		0.20	ug/L		18-JUL-19	R4714375
1,2-Dichlorobenzene	<0.50		0.50	ug/L		18-JUL-19	R4714375
1,3-Dichlorobenzene	<0.50		0.50	ug/L		18-JUL-19	R4714375
1,4-Dichlorobenzene	<0.50		0.50	ug/L		18-JUL-19	R4714375
Dichlorodifluoromethane	<1.0		1.0	ug/L		18-JUL-19	R4714375
1,1-Dichloroethane	<0.50		0.50	ug/L		18-JUL-19	R4714375
1,2-Dichloroethane	<0.50		0.50	ug/L		18-JUL-19	R4714375
1,1-Dichloroethylene	<0.50		0.50	ug/L		18-JUL-19	R4714375
cis-1,2-Dichloroethylene	<0.50		0.50	ug/L		18-JUL-19	R4714375
trans-1,2-Dichloroethylene	<0.50		0.50	ug/L		18-JUL-19	R4714375
Dichloromethane	<2.0		2.0	ug/L		18-JUL-19	R4714375
1,2-Dichloropropane	<0.50		0.50	ug/L		18-JUL-19	R4714375
cis-1,3-Dichloropropene	<0.50		0.50	ug/L		18-JUL-19	R4714375
trans-1,3-Dichloropropene	<0.50		0.50	ug/L		18-JUL-19	R4714375
Ethylbenzene	<0.50		0.50	ug/L		18-JUL-19	R4714375
n-Hexane	<0.50		0.50	ug/L		18-JUL-19	R4714375
Methyl Ethyl Ketone	<20		20	ug/L		18-JUL-19	R4714375
Methyl Isobutyl Ketone	<20		20	ug/L		18-JUL-19	R4714375
MTBE	<0.50		0.50	ug/L		18-JUL-19	R4714375
Styrene	<0.50		0.50	ug/L		18-JUL-19	R4714375
1,1,1,2-Tetrachloroethane	<0.50		0.50	ug/L		18-JUL-19	R4714375
1,1,2,2-Tetrachloroethane	<0.50		0.50	ug/L		18-JUL-19	R4714375

\* 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
L2310219-2 WEST STORM WATER POND Sampled By: CLIENT on 15-JUL-19 @ 12:15 Matrix: WATER							
<b>Volatile Organic Compounds</b>							
Tetrachloroethylene	<0.50		0.50	ug/L		18-JUL-19	R4714375
Toluene	<0.50		0.50	ug/L		18-JUL-19	R4714375
1,1,1-Trichloroethane	<0.50		0.50	ug/L		18-JUL-19	R4714375
1,1,2-Trichloroethane	<0.50		0.50	ug/L		18-JUL-19	R4714375
Trichloroethylene	<0.50		0.50	ug/L		18-JUL-19	R4714375
Trichlorofluoromethane	<1.0		1.0	ug/L		18-JUL-19	R4714375
Vinyl chloride	<0.50		0.50	ug/L		18-JUL-19	R4714375
o-Xylene	<0.50		0.50	ug/L		18-JUL-19	R4714375
m+p-Xylenes	<1.0		1.0	ug/L		18-JUL-19	R4714375
Xylenes (Total)	<1.1		1.1	ug/L		18-JUL-19	
Surrogate: 4-Bromofluorobenzene	88.1		70-130	%		18-JUL-19	R4714375
Surrogate: 1,4-Difluorobenzene	97.5		70-130	%		18-JUL-19	R4714375
<b>Trihalomethanes</b>							
Total THMs	<2.0		2.0	ug/L		18-JUL-19	
<b>Acid Extractables</b>							
2,3,6-Trichlorophenol	<0.50		0.50	ug/L	18-JUL-19	22-JUL-19	R4719717
Surrogate: 2,4,6-Tribromophenol	146.8		40-150	%	18-JUL-19	22-JUL-19	R4719717
<b>Semi-Volatile Organics</b>							
Acenaphthene	<0.20		0.20	ug/L	18-JUL-19	22-JUL-19	R4719622
Acenaphthylene	<0.20		0.20	ug/L	18-JUL-19	22-JUL-19	R4719622
Anthracene	<0.20		0.20	ug/L	18-JUL-19	22-JUL-19	R4719622
Benzo(a)anthracene	<0.20		0.20	ug/L	18-JUL-19	22-JUL-19	R4719622
Benzo(a)pyrene	<0.050		0.050	ug/L	18-JUL-19	22-JUL-19	R4719622
Benzo(b)fluoranthene	<0.20		0.20	ug/L	18-JUL-19	22-JUL-19	R4719622
Benzo(ghi)perylene	<0.20		0.20	ug/L	18-JUL-19	22-JUL-19	R4719622
Benzo(k)fluoranthene	<0.20		0.20	ug/L	18-JUL-19	22-JUL-19	R4719622
4-Chloroaniline	<0.40		0.40	ug/L	18-JUL-19	22-JUL-19	R4719622
Bis(2-chloroethyl)ether	<0.40		0.40	ug/L	18-JUL-19	22-JUL-19	R4719622
2-Chlorophenol	<0.30		0.30	ug/L	18-JUL-19	22-JUL-19	R4719622
Chrysene	<0.20		0.20	ug/L	18-JUL-19	22-JUL-19	R4719622
Dibenzo(a,h)anthracene	<0.20		0.20	ug/L	18-JUL-19	22-JUL-19	R4719622
1,2-Dichlorobenzene	<0.40		0.40	ug/L	18-JUL-19	22-JUL-19	R4719622
1,3-Dichlorobenzene	<0.40		0.40	ug/L	18-JUL-19	22-JUL-19	R4719622
1,4-Dichlorobenzene	<0.40		0.40	ug/L	18-JUL-19	22-JUL-19	R4719622
3,3'-Dichlorobenzidine	<0.40		0.40	ug/L	18-JUL-19	22-JUL-19	R4719622
2,4-Dichlorophenol	<0.30		0.30	ug/L	18-JUL-19	22-JUL-19	R4719622
Diethylphthalate	<0.20		0.20	ug/L	18-JUL-19	22-JUL-19	R4719622
Dimethylphthalate	<0.20		0.20	ug/L	18-JUL-19	22-JUL-19	R4719622
2,4-Dimethylphenol	<0.50		0.50	ug/L	18-JUL-19	22-JUL-19	R4719622
2,4-Dinitrophenol	<1.0		1.0	ug/L	18-JUL-19	22-JUL-19	R4719622
2,4-Dinitrotoluene	<0.40		0.40	ug/L	18-JUL-19	22-JUL-19	R4719622
2,6-Dinitrotoluene	<0.40		0.40	ug/L	18-JUL-19	22-JUL-19	R4719622

\* 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
L2310219-2 WEST STORM WATER POND Sampled By: CLIENT on 15-JUL-19 @ 12:15 Matrix: WATER							
<b>Semi-Volatile Organics</b>							
Bis(2-ethylhexyl)phthalate	<2.0		2.0	ug/L	18-JUL-19	22-JUL-19	R4719622
Fluoranthene	<0.20		0.20	ug/L	18-JUL-19	22-JUL-19	R4719622
Fluorene	<0.20		0.20	ug/L	18-JUL-19	22-JUL-19	R4719622
Hexachlorobenzene	<0.040		0.040	ug/L	18-JUL-19	22-JUL-19	R4719622
Hexachlorobutadiene	<0.20		0.20	ug/L	18-JUL-19	22-JUL-19	R4719622
Indeno(1,2,3-cd)pyrene	<0.20		0.20	ug/L	18-JUL-19	22-JUL-19	R4719622
1-Methylnaphthalene	<0.40		0.40	ug/L	18-JUL-19	22-JUL-19	R4719622
2-Methylnaphthalene	<0.40		0.40	ug/L	18-JUL-19	22-JUL-19	R4719622
Naphthalene	<0.20		0.20	ug/L	18-JUL-19	22-JUL-19	R4719622
Pentachlorophenol	<0.50		0.50	ug/L	18-JUL-19	22-JUL-19	R4719622
Perylene	<0.20		0.20	ug/L	18-JUL-19	22-JUL-19	R4719622
Phenanthrene	<0.20		0.20	ug/L	18-JUL-19	22-JUL-19	R4719622
Pyrene	<0.20		0.20	ug/L	18-JUL-19	22-JUL-19	R4719622
2,3,4,5-Tetrachlorophenol	<0.50		0.50	ug/L	18-JUL-19	22-JUL-19	R4719622
2,3,4,6-Tetrachlorophenol	<0.50		0.50	ug/L	18-JUL-19	22-JUL-19	R4719622
1,2,4-Trichlorobenzene	<0.40		0.40	ug/L	18-JUL-19	22-JUL-19	R4719622
2,4,5-Trichlorophenol	<0.50		0.50	ug/L	18-JUL-19	22-JUL-19	R4719622
2,4,6-Trichlorophenol	<0.50		0.50	ug/L	18-JUL-19	22-JUL-19	R4719622
Surrogate: 2-Fluorobiphenyl	98.8		40-130	%	18-JUL-19	22-JUL-19	R4719622
Surrogate: Nitrobenzene d5	104.1		40-130	%	18-JUL-19	22-JUL-19	R4719622
Surrogate: p-Terphenyl d14	110.9		40-130	%	18-JUL-19	22-JUL-19	R4719622
Report Remarks : DLM - Cd LOR increased due to potential interference from Mo							
L2310219-3 EAST STORM WATER POND Sampled By: CLIENT on 15-JUL-19 @ 12:30 Matrix: WATER							
<b>Field Tests</b>							
pH, Client Supplied	7.33		0.10	pH		16-JUL-19	R4712686
Temperature, Client	22.0		-50	Deg. C		16-JUL-19	R4712686
<b>Physical Tests</b>							
Conductivity	782		3.0	umhos/cm		16-JUL-19	R4713449
Hardness (as CaCO3)	269	HTC	1.3	mg/L		17-JUL-19	
pH	7.85		0.10	pH units		16-JUL-19	R4713449
Total Suspended Solids	15.5		2.0	mg/L	18-JUL-19	19-JUL-19	R4715208
Total Dissolved Solids	481	DLDS	20	mg/L		21-JUL-19	R4719869
<b>Anions and Nutrients</b>							
Alkalinity, Total (as CaCO3)	176		10	mg/L		16-JUL-19	R4713449
Unionized ammonia	<0.0012		0.0012	mg/L		22-JUL-19	
Ammonia, Total (as N)	<0.10	DLM	0.10	mg/L		19-JUL-19	R4716829
Bromide (Br)	1.85		0.10	mg/L		18-JUL-19	R4716109
Chloride (Cl)	75.6		0.50	mg/L		18-JUL-19	R4716109
Fluoride (F)	0.655		0.020	mg/L		18-JUL-19	R4716109
Nitrate (as N)	<0.020		0.020	mg/L		18-JUL-19	R4716109

\* 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
L2310219-3 EAST STORM WATER POND Sampled By: CLIENT on 15-JUL-19 @ 12:30 Matrix: WATER							
<b>Anions and Nutrients</b>							
Nitrite (as N)	<0.010		0.010	mg/L		18-JUL-19	R4716109
Total Kjeldahl Nitrogen	0.92		0.15	mg/L	17-JUL-19	18-JUL-19	R4714809
Phosphorus, Total	0.0604		0.0030	mg/L	19-JUL-19	22-JUL-19	R4719703
Sulfate (SO4)	129		0.30	mg/L		18-JUL-19	R4716109
<b>Cyanides</b>							
Cyanide, Total	<0.0020		0.0020	mg/L		19-JUL-19	R4719786
<b>Organic / Inorganic Carbon</b>							
Dissolved Carbon Filtration Location	LAB					16-JUL-19	R4712908
Dissolved Organic Carbon	7.27		0.50	mg/L	16-JUL-19	17-JUL-19	R4713548
<b>Total Metals</b>							
Aluminum (Al)-Total	0.410		0.010	mg/L	16-JUL-19	17-JUL-19	R4713190
Antimony (Sb)-Total	0.00041		0.00010	mg/L	16-JUL-19	17-JUL-19	R4713190
Arsenic (As)-Total	0.00394		0.00010	mg/L	16-JUL-19	17-JUL-19	R4713190
Barium (Ba)-Total	0.0585		0.00020	mg/L	16-JUL-19	17-JUL-19	R4713190
Beryllium (Be)-Total	<0.00010		0.00010	mg/L	16-JUL-19	17-JUL-19	R4713190
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	16-JUL-19	17-JUL-19	R4713190
Boron (B)-Total	0.138		0.010	mg/L	16-JUL-19	17-JUL-19	R4713190
Cadmium (Cd)-Total	<0.00020	DLM	0.00020	mg/L	16-JUL-19	17-JUL-19	R4713190
Calcium (Ca)-Total	69.4		0.50	mg/L	16-JUL-19	17-JUL-19	R4713190
Cobalt (Co)-Total	0.00087		0.00010	mg/L	16-JUL-19	17-JUL-19	R4713190
Copper (Cu)-Total	0.0016		0.0010	mg/L	16-JUL-19	17-JUL-19	R4713190
Iron (Fe)-Total	0.521		0.050	mg/L	16-JUL-19	17-JUL-19	R4713190
Lead (Pb)-Total	0.00108		0.00010	mg/L	16-JUL-19	17-JUL-19	R4713190
Magnesium (Mg)-Total	23.2		0.050	mg/L	16-JUL-19	17-JUL-19	R4713190
Manganese (Mn)-Total	0.224		0.00050	mg/L	16-JUL-19	17-JUL-19	R4713190
Mercury (Hg)-Total	0.000013		0.000010	mg/L		17-JUL-19	R4713637
Molybdenum (Mo)-Total	0.0710		0.000050	mg/L	16-JUL-19	17-JUL-19	R4713190
Nickel (Ni)-Total	0.00608		0.00050	mg/L	16-JUL-19	17-JUL-19	R4713190
Potassium (K)-Total	16.4		0.050	mg/L	16-JUL-19	17-JUL-19	R4713190
Selenium (Se)-Total	0.00121		0.000050	mg/L	16-JUL-19	17-JUL-19	R4713190
Silicon (Si)-Total	2.18		0.10	mg/L	16-JUL-19	17-JUL-19	R4713190
Silver (Ag)-Total	<0.000050		0.000050	mg/L	16-JUL-19	17-JUL-19	R4713190
Sodium (Na)-Total	52.5		0.50	mg/L	16-JUL-19	17-JUL-19	R4713190
Strontium (Sr)-Total	0.661		0.0010	mg/L	16-JUL-19	17-JUL-19	R4713190
Thallium (Tl)-Total	0.000797		0.000010	mg/L	16-JUL-19	17-JUL-19	R4713190
Tin (Sn)-Total	<0.00010		0.00010	mg/L	16-JUL-19	17-JUL-19	R4713190
Vanadium (V)-Total	0.00147		0.00050	mg/L	16-JUL-19	17-JUL-19	R4713190
Zinc (Zn)-Total	0.0055		0.0030	mg/L	16-JUL-19	17-JUL-19	R4713190
<b>Speciated Metals</b>							
Chromium, Hexavalent	<0.00050		0.00050	mg/L		17-JUL-19	R4714199
<b>Aggregate Organics</b>							
COD	39		10	mg/L		23-JUL-19	R4720807

\* 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
L2310219-3 EAST STORM WATER POND Sampled By: CLIENT on 15-JUL-19 @ 12:30 Matrix: WATER							
<b>Aggregate Organics</b>							
Phenols (4AAP)	0.0036		0.0010	mg/L		18-JUL-19	R4714834
<b>Volatile Organic Compounds</b>							
Acetone	<20		20	ug/L		18-JUL-19	R4714375
Benzene	<0.50		0.50	ug/L		18-JUL-19	R4714375
Bromodichloromethane	<1.0		1.0	ug/L		18-JUL-19	R4714375
Bromoform	<1.0		1.0	ug/L		18-JUL-19	R4714375
Bromomethane	<0.50		0.50	ug/L		18-JUL-19	R4714375
Carbon tetrachloride	<0.50		0.50	ug/L		18-JUL-19	R4714375
Chlorobenzene	<0.50		0.50	ug/L		18-JUL-19	R4714375
Dibromochloromethane	<1.0		1.0	ug/L		18-JUL-19	R4714375
Chloroethane	<1.0		1.0	ug/L		18-JUL-19	R4714375
Chloroform	<1.0		1.0	ug/L		18-JUL-19	R4714375
1,2-Dibromoethane	<0.20		0.20	ug/L		18-JUL-19	R4714375
1,2-Dichlorobenzene	<0.50		0.50	ug/L		18-JUL-19	R4714375
1,3-Dichlorobenzene	<0.50		0.50	ug/L		18-JUL-19	R4714375
1,4-Dichlorobenzene	<0.50		0.50	ug/L		18-JUL-19	R4714375
Dichlorodifluoromethane	<1.0		1.0	ug/L		18-JUL-19	R4714375
1,1-Dichloroethane	<0.50		0.50	ug/L		18-JUL-19	R4714375
1,2-Dichloroethane	<0.50		0.50	ug/L		18-JUL-19	R4714375
1,1-Dichloroethylene	<0.50		0.50	ug/L		18-JUL-19	R4714375
cis-1,2-Dichloroethylene	<0.50		0.50	ug/L		18-JUL-19	R4714375
trans-1,2-Dichloroethylene	<0.50		0.50	ug/L		18-JUL-19	R4714375
Dichloromethane	<2.0		2.0	ug/L		18-JUL-19	R4714375
1,2-Dichloropropane	<0.50		0.50	ug/L		18-JUL-19	R4714375
cis-1,3-Dichloropropene	<0.50		0.50	ug/L		18-JUL-19	R4714375
trans-1,3-Dichloropropene	<0.50		0.50	ug/L		18-JUL-19	R4714375
Ethylbenzene	<0.50		0.50	ug/L		18-JUL-19	R4714375
n-Hexane	<0.50		0.50	ug/L		18-JUL-19	R4714375
Methyl Ethyl Ketone	<20		20	ug/L		18-JUL-19	R4714375
Methyl Isobutyl Ketone	<20		20	ug/L		18-JUL-19	R4714375
MTBE	<0.50		0.50	ug/L		18-JUL-19	R4714375
Styrene	<0.50		0.50	ug/L		18-JUL-19	R4714375
1,1,1,2-Tetrachloroethane	<0.50		0.50	ug/L		18-JUL-19	R4714375
1,1,2,2-Tetrachloroethane	<0.50		0.50	ug/L		18-JUL-19	R4714375
Tetrachloroethylene	<0.50		0.50	ug/L		18-JUL-19	R4714375
Toluene	<0.50		0.50	ug/L		18-JUL-19	R4714375
1,1,1-Trichloroethane	<0.50		0.50	ug/L		18-JUL-19	R4714375
1,1,2-Trichloroethane	<0.50		0.50	ug/L		18-JUL-19	R4714375
Trichloroethylene	<0.50		0.50	ug/L		18-JUL-19	R4714375
Trichlorofluoromethane	<1.0		1.0	ug/L		18-JUL-19	R4714375
Vinyl chloride	<0.50		0.50	ug/L		18-JUL-19	R4714375

\* 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
L2310219-3 EAST STORM WATER POND Sampled By: CLIENT on 15-JUL-19 @ 12:30 Matrix: WATER							
<b>Volatile Organic Compounds</b>							
o-Xylene	<0.50		0.50	ug/L		18-JUL-19	R4714375
m+p-Xylenes	<1.0		1.0	ug/L		18-JUL-19	R4714375
Xylenes (Total)	<1.1		1.1	ug/L		18-JUL-19	
Surrogate: 4-Bromofluorobenzene	88.4		70-130	%		18-JUL-19	R4714375
Surrogate: 1,4-Difluorobenzene	97.7		70-130	%		18-JUL-19	R4714375
<b>Trihalomethanes</b>							
Total THMs	<2.0		2.0	ug/L		18-JUL-19	
<b>Acid Extractables</b>							
2,3,6-Trichlorophenol	<0.50		0.50	ug/L	18-JUL-19	22-JUL-19	R4719717
Surrogate: 2,4,6-Tribromophenol	141.8		40-150	%	18-JUL-19	22-JUL-19	R4719717
<b>Semi-Volatile Organics</b>							
Acenaphthene	<0.20		0.20	ug/L	18-JUL-19	22-JUL-19	R4719622
Acenaphthylene	<0.20		0.20	ug/L	18-JUL-19	22-JUL-19	R4719622
Anthracene	<0.20		0.20	ug/L	18-JUL-19	22-JUL-19	R4719622
Benzo(a)anthracene	<0.20		0.20	ug/L	18-JUL-19	22-JUL-19	R4719622
Benzo(a)pyrene	<0.050		0.050	ug/L	18-JUL-19	22-JUL-19	R4719622
Benzo(b)fluoranthene	<0.20		0.20	ug/L	18-JUL-19	22-JUL-19	R4719622
Benzo(ghi)perylene	<0.20		0.20	ug/L	18-JUL-19	22-JUL-19	R4719622
Benzo(k)fluoranthene	<0.20		0.20	ug/L	18-JUL-19	22-JUL-19	R4719622
4-Chloroaniline	<0.40		0.40	ug/L	18-JUL-19	22-JUL-19	R4719622
Bis(2-chloroethyl)ether	<0.40		0.40	ug/L	18-JUL-19	22-JUL-19	R4719622
2-Chlorophenol	<0.30		0.30	ug/L	18-JUL-19	22-JUL-19	R4719622
Chrysene	<0.20		0.20	ug/L	18-JUL-19	22-JUL-19	R4719622
Dibenzo(a,h)anthracene	<0.20		0.20	ug/L	18-JUL-19	22-JUL-19	R4719622
1,2-Dichlorobenzene	<0.40		0.40	ug/L	18-JUL-19	22-JUL-19	R4719622
1,3-Dichlorobenzene	<0.40		0.40	ug/L	18-JUL-19	22-JUL-19	R4719622
1,4-Dichlorobenzene	<0.40		0.40	ug/L	18-JUL-19	22-JUL-19	R4719622
3,3'-Dichlorobenzidine	<0.40		0.40	ug/L	18-JUL-19	22-JUL-19	R4719622
2,4-Dichlorophenol	<0.30		0.30	ug/L	18-JUL-19	22-JUL-19	R4719622
Diethylphthalate	<0.20		0.20	ug/L	18-JUL-19	22-JUL-19	R4719622
Dimethylphthalate	<0.20		0.20	ug/L	18-JUL-19	22-JUL-19	R4719622
2,4-Dimethylphenol	<0.50		0.50	ug/L	18-JUL-19	22-JUL-19	R4719622
2,4-Dinitrophenol	<1.0		1.0	ug/L	18-JUL-19	22-JUL-19	R4719622
2,4-Dinitrotoluene	<0.40		0.40	ug/L	18-JUL-19	22-JUL-19	R4719622
2,6-Dinitrotoluene	<0.40		0.40	ug/L	18-JUL-19	22-JUL-19	R4719622
Bis(2-ethylhexyl)phthalate	<2.0		2.0	ug/L	18-JUL-19	22-JUL-19	R4719622
Fluoranthene	<0.20		0.20	ug/L	18-JUL-19	22-JUL-19	R4719622
Fluorene	<0.20		0.20	ug/L	18-JUL-19	22-JUL-19	R4719622
Hexachlorobenzene	<0.040		0.040	ug/L	18-JUL-19	22-JUL-19	R4719622
Hexachlorobutadiene	<0.20		0.20	ug/L	18-JUL-19	22-JUL-19	R4719622
Indeno(1,2,3-cd)pyrene	<0.20		0.20	ug/L	18-JUL-19	22-JUL-19	R4719622
1-Methylnaphthalene	<0.40		0.40	ug/L	18-JUL-19	22-JUL-19	R4719622

\* 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
L2310219-3 EAST STORM WATER POND Sampled By: CLIENT on 15-JUL-19 @ 12:30 Matrix: WATER							
<b>Semi-Volatile Organics</b>							
2-Methylnaphthalene	<0.40		0.40	ug/L	18-JUL-19	22-JUL-19	R4719622
Naphthalene	<0.20		0.20	ug/L	18-JUL-19	22-JUL-19	R4719622
Pentachlorophenol	<0.50		0.50	ug/L	18-JUL-19	22-JUL-19	R4719622
Perylene	<0.20		0.20	ug/L	18-JUL-19	22-JUL-19	R4719622
Phenanthrene	<0.20		0.20	ug/L	18-JUL-19	22-JUL-19	R4719622
Pyrene	<0.20		0.20	ug/L	18-JUL-19	22-JUL-19	R4719622
2,3,4,5-Tetrachlorophenol	<0.50		0.50	ug/L	18-JUL-19	22-JUL-19	R4719622
2,3,4,6-Tetrachlorophenol	<0.50		0.50	ug/L	18-JUL-19	22-JUL-19	R4719622
1,2,4-Trichlorobenzene	<0.40		0.40	ug/L	18-JUL-19	22-JUL-19	R4719622
2,4,5-Trichlorophenol	<0.50		0.50	ug/L	18-JUL-19	22-JUL-19	R4719622
2,4,6-Trichlorophenol	<0.50		0.50	ug/L	18-JUL-19	22-JUL-19	R4719622
Surrogate: 2-Fluorobiphenyl	99.4		40-130	%	18-JUL-19	22-JUL-19	R4719622
Surrogate: Nitrobenzene d5	103.0		40-130	%	18-JUL-19	22-JUL-19	R4719622
Surrogate: p-Terphenyl d14	120.9		40-130	%	18-JUL-19	22-JUL-19	R4719622
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	Aluminum (Al)-Total	MS-B	L2310219-1, -2, -3
Matrix Spike	Barium (Ba)-Total	MS-B	L2310219-1, -2, -3
Matrix Spike	Boron (B)-Total	MS-B	L2310219-1, -2, -3
Matrix Spike	Calcium (Ca)-Total	MS-B	L2310219-1, -2, -3
Matrix Spike	Iron (Fe)-Total	MS-B	L2310219-1, -2, -3
Matrix Spike	Magnesium (Mg)-Total	MS-B	L2310219-1, -2, -3
Matrix Spike	Manganese (Mn)-Total	MS-B	L2310219-1, -2, -3
Matrix Spike	Potassium (K)-Total	MS-B	L2310219-1, -2, -3
Matrix Spike	Silicon (Si)-Total	MS-B	L2310219-1, -2, -3
Matrix Spike	Sodium (Na)-Total	MS-B	L2310219-1, -2, -3
Matrix Spike	Strontium (Sr)-Total	MS-B	L2310219-1, -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 <sub>3</sub> ) 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-SCREEN-WT            Water            Conductivity Screen (Internal Use            APHA 2510  
Only)

Qualitative analysis of conductivity where required during preparation of other tests - e.g. TDS, metals, etc.

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<sub>3</sub> 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)  
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-F-WT                 Water            Ammonia in Water by Fluorescence        J. ENVIRON. MONIT., 2005, 7, 37-42, RSC

This analysis is carried out, on sulfuric acid preserved samples, using procedures modified from J. Environ. Monit., 2005, 7, 37 - 42, The Royal Society of Chemistry, "Flow-injection analysis with fluorescence detection for the determination of trace levels of ammonium in seawater", Roslyn J. Weston et al.

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.



## Reference Information

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.			

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

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*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:*

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

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### Chain of Custody Numbers:

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#### 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: L2310219

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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
<b>625-ACID-EXTRA-WT</b>	<b>Water</b>							
<b>Batch</b>	<b>R4719717</b>							
<b>WG3108915-2 LCS</b>								
2,3,6-Trichlorophenol			96.6		%		50-130	22-JUL-19
<b>WG3108915-1 MB</b>								
2,3,6-Trichlorophenol			<0.50		ug/L		0.5	22-JUL-19
Surrogate: 2,4,6-Tribromophenol			121.4		%		40-150	22-JUL-19
<b>625-WT</b>	<b>Water</b>							
<b>Batch</b>	<b>R4719622</b>							
<b>WG3108915-2 LCS</b>								
1-Methylnaphthalene			79.3		%		50-140	22-JUL-19
1,2-Dichlorobenzene			61.4		%		40-130	22-JUL-19
1,2,4-Trichlorobenzene			65.1		%		50-130	22-JUL-19
1,3-Dichlorobenzene			57.6		%		50-140	22-JUL-19
1,4-Dichlorobenzene			57.1		%		40-130	22-JUL-19
2-Chlorophenol			96.0		%		65-130	22-JUL-19
2-Methylnaphthalene			77.4		%		50-140	22-JUL-19
2,3,4,5-Tetrachlorophenol			113.4		%		50-130	22-JUL-19
2,3,4,6-Tetrachlorophenol			111.2		%		65-130	22-JUL-19
2,4-Dichlorophenol			106.8		%		65-130	22-JUL-19
2,4-Dimethylphenol			98.8		%		30-130	22-JUL-19
2,4-Dinitrophenol			106.6		%		40-140	22-JUL-19
2,4-Dinitrotoluene			106.5		%		50-140	22-JUL-19
2,4,5-Trichlorophenol			110.1		%		65-130	22-JUL-19
2,4,6-Trichlorophenol			108.1		%		65-130	22-JUL-19
2,6-Dinitrotoluene			99.8		%		50-140	22-JUL-19
3,3'-Dichlorobenzidine			93.9		%		50-140	22-JUL-19
4-Chloroaniline			73.3		%		30-140	22-JUL-19
Acenaphthene			94.8		%		50-140	22-JUL-19
Acenaphthylene			97.7		%		50-140	22-JUL-19
Anthracene			102.2		%		50-140	22-JUL-19
Benzo(a)anthracene			104.9		%		50-140	22-JUL-19
Benzo(a)pyrene			99.0		%		60-130	22-JUL-19
Benzo(b)fluoranthene			99.8		%		50-140	22-JUL-19
Benzo(ghi)perylene			105.9		%		50-140	22-JUL-19
Benzo(k)fluoranthene			100.5		%		50-140	22-JUL-19
Bis(2-chloroethyl)ether			92.9		%		50-140	22-JUL-19



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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
<b>625-WT</b>	<b>Water</b>							
<b>Batch</b>	<b>R4719622</b>							
<b>WG3108915-2 LCS</b>								
Bis(2-ethylhexyl)phthalate			114.0		%		50-140	22-JUL-19
Chrysene			101.9		%		50-140	22-JUL-19
Dibenzo(a,h)anthracene			104.2		%		50-140	22-JUL-19
Diethylphthalate			108.0		%		50-140	22-JUL-19
Dimethylphthalate			106.6		%		50-140	22-JUL-19
Fluoranthene			104.0		%		50-140	22-JUL-19
Fluorene			101.2		%		50-140	22-JUL-19
Hexachlorobenzene			97.4		%		40-130	22-JUL-19
Hexachlorobutadiene			56.3		%		40-130	22-JUL-19
Indeno(1,2,3-cd)pyrene			113.1		%		50-140	22-JUL-19
Naphthalene			82.0		%		50-140	22-JUL-19
Pentachlorophenol			112.0		%		65-130	22-JUL-19
Perylene			97.1		%		50-140	22-JUL-19
Phenanthrene			101.1		%		50-140	22-JUL-19
Pyrene			102.7		%		50-140	22-JUL-19
<b>WG3108915-1 MB</b>								
1-Methylnaphthalene			<0.40		ug/L		0.4	22-JUL-19
1,2-Dichlorobenzene			<0.40		ug/L		0.4	22-JUL-19
1,2,4-Trichlorobenzene			<0.40		ug/L		0.4	22-JUL-19
1,3-Dichlorobenzene			<0.40		ug/L		0.4	22-JUL-19
1,4-Dichlorobenzene			<0.40		ug/L		0.4	22-JUL-19
2-Chlorophenol			<0.30		ug/L		0.3	22-JUL-19
2-Methylnaphthalene			<0.40		ug/L		0.4	22-JUL-19
2,3,4,5-Tetrachlorophenol			<0.50		ug/L		0.5	22-JUL-19
2,3,4,6-Tetrachlorophenol			<0.50		ug/L		0.5	22-JUL-19
2,4-Dichlorophenol			<0.30		ug/L		0.3	22-JUL-19
2,4-Dimethylphenol			<0.50		ug/L		0.5	22-JUL-19
2,4-Dinitrophenol			<1.0		ug/L		1	22-JUL-19
2,4-Dinitrotoluene			<0.40		ug/L		0.4	22-JUL-19
2,4,5-Trichlorophenol			<0.50		ug/L		0.5	22-JUL-19
2,4,6-Trichlorophenol			<0.50		ug/L		0.5	22-JUL-19
2,6-Dinitrotoluene			<0.40		ug/L		0.4	22-JUL-19
3,3'-Dichlorobenzidine			<0.40		ug/L		0.4	22-JUL-19
4-Chloroaniline			<0.40		ug/L		0.4	22-JUL-19





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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	
<b>ALK-WT Water</b>									
Batch	R4713449								
WG3106399-1	MB								
Alkalinity, Total (as CaCO3)			<10		mg/L		10	16-JUL-19	
<b>BR-IC-N-WT Water</b>									
Batch	R4716109								
WG3109163-9	DUP	WG3109163-8							
Bromide (Br)			<0.10	<0.10	RPD-NA	mg/L	N/A	20	18-JUL-19
WG3109163-7	LCS								
Bromide (Br)			92.9			%	85-115	18-JUL-19	
WG3109163-6	MB								
Bromide (Br)			<0.10		mg/L		0.1	18-JUL-19	
WG3109163-10	MS	WG3109163-8							
Bromide (Br)			83.0		%		75-125	18-JUL-19	
<b>CL-IC-N-WT Water</b>									
Batch	R4716109								
WG3109163-9	DUP	WG3109163-8							
Chloride (Cl)			4.17	4.17		mg/L	0.0	20	18-JUL-19
WG3109163-7	LCS								
Chloride (Cl)			100.6			%	90-110	18-JUL-19	
WG3109163-6	MB								
Chloride (Cl)			<0.50		mg/L		0.5	18-JUL-19	
WG3109163-10	MS	WG3109163-8							
Chloride (Cl)			100.4		%		75-125	18-JUL-19	
<b>CN-TOT-WT Water</b>									
Batch	R4719786								
WG3110300-3	DUP	L2309922-5							
Cyanide, Total			<0.020	<0.020	RPD-NA	mg/L	N/A	20	19-JUL-19
WG3110300-2	LCS								
Cyanide, Total			88.3			%	80-120	19-JUL-19	
WG3110300-1	MB								
Cyanide, Total			<0.0020		mg/L		0.002	19-JUL-19	
WG3110300-4	MS	L2309922-5							
Cyanide, Total			75.7		%		70-130	19-JUL-19	
<b>COD-T-WT Water</b>									



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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
<b>COD-T-WT</b>								
	Water							
Batch	R4720807							
<b>WG3112417-3</b>	<b>DUP</b>	<b>L2310079-10</b>						
COD		<10	<10	RPD-NA	mg/L	N/A	20	23-JUL-19
<b>WG3112417-2</b>	<b>LCS</b>		97.8		%		85-115	23-JUL-19
COD								
<b>WG3112417-1</b>	<b>MB</b>		<10		mg/L		10	23-JUL-19
COD								
<b>WG3112417-4</b>	<b>MS</b>	<b>L2310079-10</b>	92.2		%		75-125	23-JUL-19
COD								
<b>CR-CR6-IC-WT</b>								
	Water							
Batch	R4714199							
<b>WG3107588-4</b>	<b>DUP</b>	<b>WG3107588-3</b>						
Chromium, Hexavalent		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	17-JUL-19
<b>WG3107588-2</b>	<b>LCS</b>		101.9		%		80-120	17-JUL-19
Chromium, Hexavalent								
<b>WG3107588-1</b>	<b>MB</b>		<0.00050		mg/L		0.0005	17-JUL-19
Chromium, Hexavalent								
<b>WG3107588-5</b>	<b>MS</b>	<b>WG3107588-3</b>	100.7		%		70-130	17-JUL-19
Chromium, Hexavalent								
<b>DOC-WT</b>								
	Water							
Batch	R4713548							
<b>WG3106794-3</b>	<b>DUP</b>	<b>L2310219-1</b>						
Dissolved Organic Carbon		4.90	5.03		mg/L	2.7	25	17-JUL-19
<b>WG3106794-2</b>	<b>LCS</b>		114.8		%		70-130	17-JUL-19
Dissolved Organic Carbon								
<b>WG3106794-1</b>	<b>MB</b>		<0.50		mg/L		0.5	17-JUL-19
Dissolved Organic Carbon								
<b>WG3106794-4</b>	<b>MS</b>	<b>L2310219-1</b>	114.3		%		70-130	17-JUL-19
Dissolved Organic Carbon								
<b>EC-WT</b>								
	Water							
Batch	R4713449							
<b>WG3106399-4</b>	<b>DUP</b>	<b>WG3106399-3</b>						
Conductivity		720	720		umhos/cm	0.0	10	16-JUL-19
<b>WG3106399-2</b>	<b>LCS</b>		96.5		%		90-110	16-JUL-19
Conductivity								
<b>WG3106399-1</b>	<b>MB</b>		<3.0		umhos/cm		3	16-JUL-19
Conductivity								
<b>F-IC-N-WT</b>								
	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
<b>F-IC-N-WT</b>		<b>Water</b>						
<b>Batch</b>	<b>R4716109</b>							
<b>WG3109163-9</b>	<b>DUP</b>	<b>WG3109163-8</b>						
Fluoride (F)		0.051	0.055		mg/L	7.1	20	18-JUL-19
<b>WG3109163-7</b>	<b>LCS</b>							
Fluoride (F)			106.8		%		90-110	18-JUL-19
<b>WG3109163-6</b>	<b>MB</b>							
Fluoride (F)			<0.020		mg/L		0.02	18-JUL-19
<b>WG3109163-10</b>	<b>MS</b>	<b>WG3109163-8</b>						
Fluoride (F)			107.6		%		75-125	18-JUL-19
<b>HG-T-CVAA-WT</b>		<b>Water</b>						
<b>Batch</b>	<b>R4713637</b>							
<b>WG3107355-3</b>	<b>DUP</b>	<b>L2310219-1</b>						
Mercury (Hg)-Total		<0.000010	<0.000010	RPD-NA	mg/L	N/A	20	17-JUL-19
<b>WG3107355-2</b>	<b>LCS</b>							
Mercury (Hg)-Total			99.4		%		80-120	17-JUL-19
<b>WG3107355-1</b>	<b>MB</b>							
Mercury (Hg)-Total			<0.000010		mg/L		0.00001	17-JUL-19
<b>WG3107355-4</b>	<b>MS</b>	<b>L2310219-2</b>						
Mercury (Hg)-Total			96.0		%		70-130	17-JUL-19
<b>MET-T-CCMS-WT</b>		<b>Water</b>						
<b>Batch</b>	<b>R4713190</b>							
<b>WG3106549-4</b>	<b>DUP</b>	<b>WG3106549-3</b>						
Aluminum (Al)-Total		0.0806	0.0819		mg/L	1.5	20	16-JUL-19
Antimony (Sb)-Total		0.00016	0.00016		mg/L	2.9	20	16-JUL-19
Arsenic (As)-Total		0.00081	0.00081		mg/L	0.6	20	16-JUL-19
Barium (Ba)-Total		0.193	0.186		mg/L	3.6	20	16-JUL-19
Beryllium (Be)-Total		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	16-JUL-19
Bismuth (Bi)-Total		<0.000050	<0.000050	RPD-NA	mg/L	N/A	20	16-JUL-19
Boron (B)-Total		0.317	0.318		mg/L	0.3	20	16-JUL-19
Cadmium (Cd)-Total		0.0000088	0.0000094		mg/L	6.6	20	16-JUL-19
Calcium (Ca)-Total		58.6	58.1		mg/L	0.9	20	16-JUL-19
Cobalt (Co)-Total		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	16-JUL-19
Copper (Cu)-Total		0.0016	0.0017		mg/L	2.8	20	16-JUL-19
Iron (Fe)-Total		0.111	0.113		mg/L	1.5	20	16-JUL-19
Lead (Pb)-Total		0.000187	0.000186		mg/L	1.0	20	16-JUL-19
Magnesium (Mg)-Total		47.7	48.8		mg/L	2.4	20	16-JUL-19
Manganese (Mn)-Total		0.0104	0.0103		mg/L	1.0	20	16-JUL-19



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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
<b>MET-T-CCMS-WT</b>								
	<b>Water</b>							
<b>Batch</b>	<b>R4713190</b>							
<b>WG3106549-4</b>	<b>DUP</b>	<b>WG3106549-3</b>						
Molybdenum (Mo)-Total		0.0114	0.0116		mg/L	1.8	20	16-JUL-19
Nickel (Ni)-Total		0.00054	0.00053		mg/L	2.0	20	16-JUL-19
Potassium (K)-Total		9.88	10.2		mg/L	3.5	20	16-JUL-19
Selenium (Se)-Total		0.000384	0.000372		mg/L	3.0	20	16-JUL-19
Silicon (Si)-Total		4.89	4.98		mg/L	1.9	20	16-JUL-19
Silver (Ag)-Total		0.00122	0.00120		mg/L	1.3	20	16-JUL-19
Sodium (Na)-Total		27.3	27.9		mg/L	2.3	20	16-JUL-19
Strontium (Sr)-Total		3.74	3.70		mg/L	1.0	20	16-JUL-19
Thallium (Tl)-Total		0.000023	0.000023		mg/L	0.4	20	16-JUL-19
Tin (Sn)-Total		0.00123	0.00125		mg/L	1.2	20	16-JUL-19
Vanadium (V)-Total		0.00144	0.00149		mg/L	3.5	20	16-JUL-19
Zinc (Zn)-Total		0.0059	0.0060		mg/L	0.5	20	16-JUL-19
<b>WG3106549-2</b>	<b>LCS</b>							
Aluminum (Al)-Total			104.9		%		80-120	16-JUL-19
Antimony (Sb)-Total			105.7		%		80-120	16-JUL-19
Arsenic (As)-Total			100.4		%		80-120	16-JUL-19
Barium (Ba)-Total			104.2		%		80-120	16-JUL-19
Beryllium (Be)-Total			102.8		%		80-120	16-JUL-19
Bismuth (Bi)-Total			103.4		%		80-120	16-JUL-19
Boron (B)-Total			102.9		%		80-120	16-JUL-19
Cadmium (Cd)-Total			101.8		%		80-120	16-JUL-19
Calcium (Ca)-Total			102.6		%		80-120	16-JUL-19
Cobalt (Co)-Total			101.3		%		80-120	16-JUL-19
Copper (Cu)-Total			100.9		%		80-120	16-JUL-19
Iron (Fe)-Total			102.2		%		80-120	16-JUL-19
Lead (Pb)-Total			103.4		%		80-120	16-JUL-19
Magnesium (Mg)-Total			102.6		%		80-120	16-JUL-19
Manganese (Mn)-Total			103.7		%		80-120	16-JUL-19
Molybdenum (Mo)-Total			103.1		%		80-120	16-JUL-19
Nickel (Ni)-Total			101.6		%		80-120	16-JUL-19
Potassium (K)-Total			95.6		%		80-120	16-JUL-19
Selenium (Se)-Total			102.6		%		80-120	16-JUL-19
Silicon (Si)-Total			107.6		%		60-140	16-JUL-19





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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
<b>MET-T-CCMS-WT</b>								
	<b>Water</b>							
<b>Batch</b>	<b>R4713190</b>							
<b>WG3106549-2</b>	<b>LCS</b>							
Silver (Ag)-Total			101.0		%		80-120	16-JUL-19
Sodium (Na)-Total			104.9		%		80-120	16-JUL-19
Strontium (Sr)-Total			100.6		%		80-120	16-JUL-19
Thallium (Tl)-Total			103.1		%		80-120	16-JUL-19
Tin (Sn)-Total			101.7		%		80-120	16-JUL-19
Vanadium (V)-Total			103.7		%		80-120	16-JUL-19
Zinc (Zn)-Total			99.1		%		80-120	16-JUL-19
<b>WG3106549-1</b>	<b>MB</b>							
Aluminum (Al)-Total			<0.0050		mg/L		0.005	16-JUL-19
Antimony (Sb)-Total			<0.00010		mg/L		0.0001	16-JUL-19
Arsenic (As)-Total			<0.00010		mg/L		0.0001	16-JUL-19
Barium (Ba)-Total			<0.00010		mg/L		0.0001	16-JUL-19
Beryllium (Be)-Total			<0.00010		mg/L		0.0001	16-JUL-19
Bismuth (Bi)-Total			<0.000050		mg/L		0.00005	16-JUL-19
Boron (B)-Total			<0.010		mg/L		0.01	16-JUL-19
Cadmium (Cd)-Total			<0.0000050		mg/L		0.000005	16-JUL-19
Calcium (Ca)-Total			<0.050		mg/L		0.05	16-JUL-19
Cobalt (Co)-Total			<0.00010		mg/L		0.0001	16-JUL-19
Copper (Cu)-Total			<0.0010		mg/L		0.001	16-JUL-19
Iron (Fe)-Total			<0.010		mg/L		0.01	16-JUL-19
Lead (Pb)-Total			<0.000050		mg/L		0.00005	16-JUL-19
Magnesium (Mg)-Total			<0.0050		mg/L		0.005	16-JUL-19
Manganese (Mn)-Total			<0.00050		mg/L		0.0005	16-JUL-19
Molybdenum (Mo)-Total			<0.000050		mg/L		0.00005	16-JUL-19
Nickel (Ni)-Total			<0.00050		mg/L		0.0005	16-JUL-19
Potassium (K)-Total			<0.050		mg/L		0.05	16-JUL-19
Selenium (Se)-Total			<0.000050		mg/L		0.00005	16-JUL-19
Silicon (Si)-Total			<0.10		mg/L		0.1	16-JUL-19
Silver (Ag)-Total			<0.000050		mg/L		0.00005	16-JUL-19
Sodium (Na)-Total			<0.050		mg/L		0.05	16-JUL-19
Strontium (Sr)-Total			<0.0010		mg/L		0.001	16-JUL-19
Thallium (Tl)-Total			<0.000010		mg/L		0.00001	16-JUL-19
Tin (Sn)-Total			<0.00010		mg/L		0.0001	16-JUL-19
Vanadium (V)-Total			<0.00050		mg/L		0.0005	16-JUL-19



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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
<b>MET-T-CCMS-WT</b>								
	<b>Water</b>							
<b>Batch</b>	<b>R4713190</b>							
<b>WG3106549-1 MB</b>								
Zinc (Zn)-Total			<0.0030		mg/L		0.003	16-JUL-19
<b>WG3106549-5 MS</b>		<b>WG3106549-6</b>						
Aluminum (Al)-Total			N/A	MS-B	%		-	16-JUL-19
Antimony (Sb)-Total			104.9		%		70-130	16-JUL-19
Arsenic (As)-Total			100.9		%		70-130	16-JUL-19
Barium (Ba)-Total			N/A	MS-B	%		-	16-JUL-19
Beryllium (Be)-Total			103.6		%		70-130	16-JUL-19
Bismuth (Bi)-Total			95.6		%		70-130	16-JUL-19
Boron (B)-Total			N/A	MS-B	%		-	16-JUL-19
Cadmium (Cd)-Total			101.4		%		70-130	16-JUL-19
Calcium (Ca)-Total			N/A	MS-B	%		-	16-JUL-19
Cobalt (Co)-Total			95.5		%		70-130	16-JUL-19
Copper (Cu)-Total			89.4		%		70-130	16-JUL-19
Iron (Fe)-Total			N/A	MS-B	%		-	16-JUL-19
Lead (Pb)-Total			93.3		%		70-130	16-JUL-19
Magnesium (Mg)-Total			N/A	MS-B	%		-	16-JUL-19
Manganese (Mn)-Total			N/A	MS-B	%		-	16-JUL-19
Molybdenum (Mo)-Total			109.7		%		70-130	16-JUL-19
Nickel (Ni)-Total			93.2		%		70-130	16-JUL-19
Potassium (K)-Total			N/A	MS-B	%		-	16-JUL-19
Selenium (Se)-Total			97.0		%		70-130	16-JUL-19
Silicon (Si)-Total			N/A	MS-B	%		-	16-JUL-19
Silver (Ag)-Total			97.5		%		70-130	16-JUL-19
Sodium (Na)-Total			N/A	MS-B	%		-	16-JUL-19
Strontium (Sr)-Total			N/A	MS-B	%		-	16-JUL-19
Thallium (Tl)-Total			90.5		%		70-130	16-JUL-19
Tin (Sn)-Total			103.2		%		70-130	16-JUL-19
Vanadium (V)-Total			105.7		%		70-130	16-JUL-19
Zinc (Zn)-Total			90.5		%		70-130	16-JUL-19
<b>NH3-F-WT</b>								
	<b>Water</b>							
<b>Batch</b>	<b>R4716829</b>							
<b>WG3109922-3 DUP</b>		<b>L2305611-6</b>						
Ammonia, Total (as N)			<0.010	RPD-NA	mg/L	N/A	20	19-JUL-19
<b>WG3109922-7 DUP</b>		<b>L2310227-1</b>						



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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
<b>NH3-F-WT</b>								
	<b>Water</b>							
<b>Batch</b>	<b>R4716829</b>							
<b>WG3109922-7</b>	<b>DUP</b>	<b>L2310227-1</b>						
Ammonia, Total (as N)		0.087	0.088		mg/L	0.8	20	19-JUL-19
<b>WG3109922-2</b>	<b>LCS</b>							
Ammonia, Total (as N)			101.3		%		85-115	19-JUL-19
<b>WG3109922-6</b>	<b>LCS</b>							
Ammonia, Total (as N)			101.2		%		85-115	19-JUL-19
<b>WG3109922-1</b>	<b>MB</b>							
Ammonia, Total (as N)			<0.010		mg/L		0.01	19-JUL-19
<b>WG3109922-5</b>	<b>MB</b>							
Ammonia, Total (as N)			<0.010		mg/L		0.01	19-JUL-19
<b>WG3109922-4</b>	<b>MS</b>	<b>L2305611-6</b>						
Ammonia, Total (as N)			99.9		%		75-125	19-JUL-19
<b>WG3109922-8</b>	<b>MS</b>	<b>L2310227-1</b>						
Ammonia, Total (as N)			96.5		%		75-125	19-JUL-19
<b>NO2-IC-WT</b>								
	<b>Water</b>							
<b>Batch</b>	<b>R4716109</b>							
<b>WG3109163-9</b>	<b>DUP</b>	<b>WG3109163-8</b>						
Nitrite (as N)		<0.010	<0.010	RPD-NA	mg/L	N/A	20	18-JUL-19
<b>WG3109163-7</b>	<b>LCS</b>							
Nitrite (as N)			102.0		%		90-110	18-JUL-19
<b>WG3109163-6</b>	<b>MB</b>							
Nitrite (as N)			<0.010		mg/L		0.01	18-JUL-19
<b>WG3109163-10</b>	<b>MS</b>	<b>WG3109163-8</b>						
Nitrite (as N)			102.0		%		75-125	18-JUL-19
<b>NO3-IC-WT</b>								
	<b>Water</b>							
<b>Batch</b>	<b>R4716109</b>							
<b>WG3109163-9</b>	<b>DUP</b>	<b>WG3109163-8</b>						
Nitrate (as N)		0.565	0.567		mg/L	0.3	20	18-JUL-19
<b>WG3109163-7</b>	<b>LCS</b>							
Nitrate (as N)			100.9		%		90-110	18-JUL-19
<b>WG3109163-6</b>	<b>MB</b>							
Nitrate (as N)			<0.020		mg/L		0.02	18-JUL-19
<b>WG3109163-10</b>	<b>MS</b>	<b>WG3109163-8</b>						
Nitrate (as N)			100.6		%		75-125	18-JUL-19
<b>P-T-COL-WT</b>								
	<b>Water</b>							



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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
<b>P-T-COL-WT</b>		<b>Water</b>						
<b>Batch</b>	<b>R4719703</b>							
<b>WG3110371-3</b>	<b>DUP</b>	<b>L2310079-5</b>						
Phosphorus, Total		<0.0030	<0.0030	RPD-NA	mg/L	N/A	20	22-JUL-19
<b>WG3110371-2</b>	<b>LCS</b>							
Phosphorus, Total			97.2		%		80-120	22-JUL-19
<b>WG3110371-1</b>	<b>MB</b>							
Phosphorus, Total			<0.0030		mg/L		0.003	22-JUL-19
<b>WG3110371-4</b>	<b>MS</b>	<b>L2310079-5</b>						
Phosphorus, Total			91.3		%		70-130	22-JUL-19
<b>PH-WT</b>		<b>Water</b>						
<b>Batch</b>	<b>R4713449</b>							
<b>WG3106399-4</b>	<b>DUP</b>	<b>WG3106399-3</b>						
pH		8.43	8.43	J	pH units	0.00	0.2	16-JUL-19
<b>WG3106399-2</b>	<b>LCS</b>							
pH			7.03		pH units		6.9-7.1	16-JUL-19
<b>PHENOLS-4AAP-WT</b>		<b>Water</b>						
<b>Batch</b>	<b>R4714834</b>							
<b>WG3108592-16</b>	<b>DUP</b>	<b>L2310406-1</b>						
Phenols (4AAP)		0.0011	0.0010		mg/L	5.4	20	18-JUL-19
<b>WG3108592-14</b>	<b>LCS</b>							
Phenols (4AAP)			105.6		%		85-115	18-JUL-19
<b>WG3108592-13</b>	<b>MB</b>							
Phenols (4AAP)			<0.0010		mg/L		0.001	18-JUL-19
<b>WG3108592-15</b>	<b>MS</b>	<b>L2310406-1</b>						
Phenols (4AAP)			113.6		%		75-125	18-JUL-19
<b>SO4-IC-N-WT</b>		<b>Water</b>						
<b>Batch</b>	<b>R4716109</b>							
<b>WG3109163-9</b>	<b>DUP</b>	<b>WG3109163-8</b>						
Sulfate (SO4)		18.0	18.1		mg/L	0.3	20	18-JUL-19
<b>WG3109163-7</b>	<b>LCS</b>							
Sulfate (SO4)			101.5		%		90-110	18-JUL-19
<b>WG3109163-6</b>	<b>MB</b>							
Sulfate (SO4)			<0.30		mg/L		0.3	18-JUL-19
<b>WG3109163-10</b>	<b>MS</b>	<b>WG3109163-8</b>						
Sulfate (SO4)			100.1		%		75-125	18-JUL-19
<b>SOLIDS-TDS-WT</b>		<b>Water</b>						



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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
<b>SOLIDS-TDS-WT</b>		<b>Water</b>						
<b>Batch</b>	<b>R4719869</b>							
<b>WG3111137-3 DUP</b>		<b>L2310123-1</b>						
Total Dissolved Solids		520	522		mg/L	0.3	20	21-JUL-19
<b>WG3111137-2 LCS</b>			98.7		%		85-115	21-JUL-19
Total Dissolved Solids								
<b>WG3111137-1 MB</b>			<10		mg/L		10	21-JUL-19
Total Dissolved Solids								
<b>SOLIDS-TSS-WT</b>		<b>Water</b>						
<b>Batch</b>	<b>R4715208</b>							
<b>WG3108433-3 DUP</b>		<b>L2311449-2</b>						
Total Suspended Solids		5090	5060		mg/L	0.6	20	19-JUL-19
<b>WG3108433-2 LCS</b>			99.3		%		85-115	19-JUL-19
Total Suspended Solids								
<b>WG3108433-1 MB</b>			<2.0		mg/L		2	19-JUL-19
Total Suspended Solids								
<b>TKN-WT</b>		<b>Water</b>						
<b>Batch</b>	<b>R4714809</b>							
<b>WG3108043-3 DUP</b>		<b>L2310219-1</b>						
Total Kjeldahl Nitrogen		0.46	0.50		mg/L	9.1	20	18-JUL-19
<b>WG3108043-2 LCS</b>			106.5		%		75-125	18-JUL-19
Total Kjeldahl Nitrogen								
<b>WG3108043-1 MB</b>			<0.15		mg/L		0.15	18-JUL-19
Total Kjeldahl Nitrogen								
<b>WG3108043-4 MS</b>		<b>L2310219-1</b>	112.8		%		70-130	18-JUL-19
Total Kjeldahl Nitrogen								
<b>VOC-ROU-HS-WT</b>		<b>Water</b>						
<b>Batch</b>	<b>R4714375</b>							
<b>WG3098660-14 DUP</b>		<b>WG3098660-13</b>						
1,1,1,2-Tetrachloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	18-JUL-19
1,1,2,2-Tetrachloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	18-JUL-19
1,1,1-Trichloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	18-JUL-19
1,1,2-Trichloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	18-JUL-19
1,2-Dibromoethane		<0.20	<0.20	RPD-NA	ug/L	N/A	30	18-JUL-19
1,1-Dichloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	18-JUL-19
1,1-Dichloroethylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	18-JUL-19
1,2-Dichlorobenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	18-JUL-19
1,2-Dichloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	18-JUL-19



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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
<b>VOC-ROU-HS-WT</b>		<b>Water</b>						
<b>Batch</b>	<b>R4714375</b>							
<b>WG3098660-14 DUP</b>		<b>WG3098660-13</b>						
1,2-Dichloropropane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	18-JUL-19
1,3-Dichlorobenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	18-JUL-19
1,4-Dichlorobenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	18-JUL-19
Acetone		<20	<20	RPD-NA	ug/L	N/A	30	18-JUL-19
Benzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	18-JUL-19
Bromodichloromethane		<1.0	<1.0	RPD-NA	ug/L	N/A	30	18-JUL-19
Bromoform		<1.0	<1.0	RPD-NA	ug/L	N/A	30	18-JUL-19
Bromomethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	18-JUL-19
Carbon tetrachloride		<0.50	<0.50	RPD-NA	ug/L	N/A	30	18-JUL-19
Chlorobenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	18-JUL-19
Chloroethane		<1.0	<1.0	RPD-NA	ug/L	N/A	30	18-JUL-19
Chloroform		<1.0	<1.0	RPD-NA	ug/L	N/A	30	18-JUL-19
cis-1,2-Dichloroethylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	18-JUL-19
cis-1,3-Dichloropropene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	18-JUL-19
Dibromochloromethane		<1.0	<1.0	RPD-NA	ug/L	N/A	30	18-JUL-19
Dichlorodifluoromethane		<1.0	<1.0	RPD-NA	ug/L	N/A	30	18-JUL-19
Dichloromethane		<2.0	<2.0	RPD-NA	ug/L	N/A	30	18-JUL-19
Ethylbenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	18-JUL-19
m+p-Xylenes		<1.0	<1.0	RPD-NA	ug/L	N/A	30	18-JUL-19
Methyl Ethyl Ketone		<20	<20	RPD-NA	ug/L	N/A	30	18-JUL-19
Methyl Isobutyl Ketone		<20	<20	RPD-NA	ug/L	N/A	30	18-JUL-19
n-Hexane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	18-JUL-19
MTBE		<0.50	<0.50	RPD-NA	ug/L	N/A	30	18-JUL-19
o-Xylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	18-JUL-19
Styrene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	18-JUL-19
Tetrachloroethylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	18-JUL-19
Toluene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	18-JUL-19
trans-1,2-Dichloroethylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	18-JUL-19
trans-1,3-Dichloropropene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	18-JUL-19
Trichloroethylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	18-JUL-19
Trichlorofluoromethane		<1.0	<1.0	RPD-NA	ug/L	N/A	30	18-JUL-19
Vinyl chloride		<0.50	<0.50	RPD-NA	ug/L	N/A	30	18-JUL-19
<b>WG3098660-11 LCS</b>								



## Quality Control Report

Workorder: L2310219

Report Date: 23-JUL-19

Page 14 of 18

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

Contact: LAURA ERMETA

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>VOC-ROU-HS-WT</b>								
	<b>Water</b>							
<b>Batch</b>	<b>R4714375</b>							
<b>WG3098660-11 LCS</b>								
1,1,1,2-Tetrachloroethane			102.0		%		70-130	18-JUL-19
1,1,2,2-Tetrachloroethane			99.2		%		70-130	18-JUL-19
1,1,1-Trichloroethane			101.7		%		70-130	18-JUL-19
1,1,2-Trichloroethane			97.4		%		70-130	18-JUL-19
1,2-Dibromoethane			96.3		%		70-130	18-JUL-19
1,1-Dichloroethane			97.5		%		70-130	18-JUL-19
1,1-Dichloroethylene			101.6		%		70-130	18-JUL-19
1,2-Dichlorobenzene			95.3		%		70-130	18-JUL-19
1,2-Dichloroethane			107.1		%		70-130	18-JUL-19
1,2-Dichloropropane			108.9		%		70-130	18-JUL-19
1,3-Dichlorobenzene			97.2		%		70-130	18-JUL-19
1,4-Dichlorobenzene			94.1		%		70-130	18-JUL-19
Acetone			116.9		%		60-140	18-JUL-19
Benzene			109.4		%		70-130	18-JUL-19
Bromodichloromethane			104.3		%		70-130	18-JUL-19
Bromoform			100.1		%		70-130	18-JUL-19
Bromomethane			105.5		%		60-140	18-JUL-19
Carbon tetrachloride			108.5		%		70-130	18-JUL-19
Chlorobenzene			97.9		%		70-130	18-JUL-19
Chloroethane			126.2		%		70-130	18-JUL-19
Chloroform			110.0		%		70-130	18-JUL-19
cis-1,2-Dichloroethylene			98.8		%		70-130	18-JUL-19
cis-1,3-Dichloropropene			107.8		%		70-130	18-JUL-19
Dibromochloromethane			100.4		%		70-130	18-JUL-19
Dichlorodifluoromethane			121.1		%		50-140	18-JUL-19
Dichloromethane			109.3		%		70-130	18-JUL-19
Ethylbenzene			97.3		%		70-130	18-JUL-19
m+p-Xylenes			102.3		%		70-130	18-JUL-19
Methyl Ethyl Ketone			110.5		%		60-140	18-JUL-19
Methyl Isobutyl Ketone			94.5		%		50-150	18-JUL-19
n-Hexane			106.4		%		70-130	18-JUL-19
MTBE			92.1		%		70-130	18-JUL-19
o-Xylene			94.3		%		70-130	18-JUL-19



### Quality Control Report

Workorder: L2310219

Report Date: 23-JUL-19

Page 15 of 18

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

Contact: LAURA ERMETA

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>VOC-ROU-HS-WT</b>								
	<b>Water</b>							
<b>Batch</b>	<b>R4714375</b>							
<b>WG3098660-11</b>	<b>LCS</b>							
Styrene			92.8		%		70-130	18-JUL-19
Tetrachloroethylene			98.5		%		70-130	18-JUL-19
Toluene			95.6		%		70-130	18-JUL-19
trans-1,2-Dichloroethylene			109.9		%		70-130	18-JUL-19
trans-1,3-Dichloropropene			101.1		%		70-130	18-JUL-19
Trichloroethylene			100.2		%		70-130	18-JUL-19
Trichlorofluoromethane			112.0		%		60-140	18-JUL-19
Vinyl chloride			127.2		%		60-140	18-JUL-19
<b>WG3098660-12</b>	<b>MB</b>							
1,1,1,2-Tetrachloroethane			<0.50		ug/L		0.5	18-JUL-19
1,1,2,2-Tetrachloroethane			<0.50		ug/L		0.5	18-JUL-19
1,1,1-Trichloroethane			<0.50		ug/L		0.5	18-JUL-19
1,1,2-Trichloroethane			<0.50		ug/L		0.5	18-JUL-19
1,2-Dibromoethane			<0.20		ug/L		0.2	18-JUL-19
1,1-Dichloroethane			<0.50		ug/L		0.5	18-JUL-19
1,1-Dichloroethylene			<0.50		ug/L		0.5	18-JUL-19
1,2-Dichlorobenzene			<0.50		ug/L		0.5	18-JUL-19
1,2-Dichloroethane			<0.50		ug/L		0.5	18-JUL-19
1,2-Dichloropropane			<0.50		ug/L		0.5	18-JUL-19
1,3-Dichlorobenzene			<0.50		ug/L		0.5	18-JUL-19
1,4-Dichlorobenzene			<0.50		ug/L		0.5	18-JUL-19
Acetone			<20		ug/L		20	18-JUL-19
Benzene			<0.50		ug/L		0.5	18-JUL-19
Bromodichloromethane			<1.0		ug/L		1	18-JUL-19
Bromoform			<1.0		ug/L		1	18-JUL-19
Bromomethane			<0.50		ug/L		0.5	18-JUL-19
Carbon tetrachloride			<0.50		ug/L		0.5	18-JUL-19
Chlorobenzene			<0.50		ug/L		0.5	18-JUL-19
Chloroethane			<1.0		ug/L		1	18-JUL-19
Chloroform			<1.0		ug/L		1	18-JUL-19
cis-1,2-Dichloroethylene			<0.50		ug/L		0.5	18-JUL-19
cis-1,3-Dichloropropene			<0.50		ug/L		0.5	18-JUL-19
Dibromochloromethane			<1.0		ug/L		1	18-JUL-19
Dichlorodifluoromethane			<1.0		ug/L		1	18-JUL-19





## Quality Control Report

Workorder: L2310219

Report Date: 23-JUL-19

Page 16 of 18

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

Contact: LAURA ERMETA

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>VOC-ROU-HS-WT</b>								
	<b>Water</b>							
<b>Batch</b>	<b>R4714375</b>							
<b>WG3098660-12 MB</b>								
Dichloromethane			<2.0		ug/L		2	18-JUL-19
Ethylbenzene			<0.50		ug/L		0.5	18-JUL-19
m+p-Xylenes			<1.0		ug/L		1	18-JUL-19
Methyl Ethyl Ketone			<20		ug/L		20	18-JUL-19
Methyl Isobutyl Ketone			<20		ug/L		20	18-JUL-19
n-Hexane			<0.50		ug/L		0.5	18-JUL-19
MTBE			<0.50		ug/L		0.5	18-JUL-19
o-Xylene			<0.50		ug/L		0.5	18-JUL-19
Styrene			<0.50		ug/L		0.5	18-JUL-19
Tetrachloroethylene			<0.50		ug/L		0.5	18-JUL-19
Toluene			<0.50		ug/L		0.5	18-JUL-19
trans-1,2-Dichloroethylene			<0.50		ug/L		0.5	18-JUL-19
trans-1,3-Dichloropropene			<0.50		ug/L		0.5	18-JUL-19
Trichloroethylene			<0.50		ug/L		0.5	18-JUL-19
Trichlorofluoromethane			<1.0		ug/L		1	18-JUL-19
Vinyl chloride			<0.50		ug/L		0.5	18-JUL-19
Surrogate: 1,4-Difluorobenzene			97.2		%		70-130	18-JUL-19
Surrogate: 4-Bromofluorobenzene			89.6		%		70-130	18-JUL-19
<b>WG3098660-15 MS</b>		<b>WG3098660-13</b>						
1,1,1,2-Tetrachloroethane			103.3		%		50-150	19-JUL-19
1,1,2,2-Tetrachloroethane			99.0		%		50-150	19-JUL-19
1,1,1-Trichloroethane			101.9		%		50-150	19-JUL-19
1,1,2-Trichloroethane			95.6		%		50-150	19-JUL-19
1,2-Dibromoethane			93.2		%		50-150	19-JUL-19
1,1-Dichloroethane			94.0		%		50-150	19-JUL-19
1,1-Dichloroethylene			100.2		%		50-150	19-JUL-19
1,2-Dichlorobenzene			95.4		%		50-150	19-JUL-19
1,2-Dichloroethane			103.9		%		50-150	19-JUL-19
1,2-Dichloropropane			107.7		%		50-150	19-JUL-19
1,3-Dichlorobenzene			95.5		%		50-150	19-JUL-19
1,4-Dichlorobenzene			89.1		%		50-150	19-JUL-19
Acetone			106.8		%		50-150	19-JUL-19
Benzene			109.9		%		50-150	19-JUL-19
Bromodichloromethane			103.8		%		50-150	19-JUL-19



## Quality Control Report

Workorder: L2310219

Report Date: 23-JUL-19

Page 17 of 18

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

Contact: LAURA ERMETA

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>VOC-ROU-HS-WT</b>								
	<b>Water</b>							
<b>Batch</b>	<b>R4714375</b>							
<b>WG3098660-15 MS</b>		<b>WG3098660-13</b>						
Bromoform			96.7		%		50-150	19-JUL-19
Bromomethane			97.2		%		50-150	19-JUL-19
Carbon tetrachloride			109.2		%		50-150	19-JUL-19
Chlorobenzene			97.2		%		50-150	19-JUL-19
Chloroethane			123.6		%		50-150	19-JUL-19
Chloroform			109.2		%		50-150	19-JUL-19
cis-1,2-Dichloroethylene			96.0		%		50-150	19-JUL-19
cis-1,3-Dichloropropene			95.7		%		50-150	19-JUL-19
Dibromochloromethane			98.6		%		50-150	19-JUL-19
Dichlorodifluoromethane			106.4		%		50-150	19-JUL-19
Dichloromethane			104.5		%		50-150	19-JUL-19
Ethylbenzene			100.5		%		50-150	19-JUL-19
m+p-Xylenes			103.9		%		50-150	19-JUL-19
Methyl Ethyl Ketone			87.7		%		50-150	19-JUL-19
Methyl Isobutyl Ketone			84.7		%		50-150	19-JUL-19
n-Hexane			105.0		%		50-150	19-JUL-19
MTBE			92.4		%		50-150	19-JUL-19
o-Xylene			97.6		%		50-150	19-JUL-19
Styrene			94.4		%		50-150	19-JUL-19
Tetrachloroethylene			97.3		%		50-150	19-JUL-19
Toluene			96.6		%		50-150	19-JUL-19
trans-1,2-Dichloroethylene			106.0		%		50-150	19-JUL-19
trans-1,3-Dichloropropene			86.1		%		50-150	19-JUL-19
Trichloroethylene			98.2		%		50-150	19-JUL-19
Trichlorofluoromethane			111.0		%		50-150	19-JUL-19
Vinyl chloride			121.9		%		50-150	19-JUL-19

# Quality Control Report

Workorder: L2310219

Report Date: 23-JUL-19

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

Page 18 of 18

## Legend:

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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.





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

Date Received: 17-JUL-19  
Report Date: 24-JUL-19 09:22 (MT)  
Version: FINAL REV. 2

Client Phone: 519-884-0510

## Certificate of Analysis

Lab Work Order #: L2311186  
Project P.O. #: 73506479-1  
Job Reference: 44985-20  
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
L2311186-1 EQ POND DISCHARGE Sampled By: CLIENT on 15-JUL-19 @ 12:00 Matrix: WATER <b>Miscellaneous</b> Special Request	See Attached					22-JUL-19	R4719794

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

## Reference Information

**Test Method References:**

ALS Test Code	Matrix	Test Description	Method Reference**
SPECIAL REQUEST-AG	Misc.	Special Request AGAT Labs	SEE SUBLET LAB RESULTS

\*\* 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
AG	AGAT LABS

**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: L2311186

Report Date: 24-JUL-19

Page 1 of 2

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

Contact: LAURA ERMETA

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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
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# Quality Control Report

Workorder: L2311186

Report Date: 24-JUL-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

## Hold Time Exceedances:

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---

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.



CLIENT NAME: ALS ENVIRONMENTAL  
1313 44 Avenue NE  
CALGARY, AB T2E6L5  
(403) 214-5431

ATTENTION TO: Suzette Chin

PROJECT: L2311186

AGAT WORK ORDER: 19E494888

MICROTOX ANALYSIS REVIEWED BY: Shanna Mills, Inorganics Manager

DATE REPORTED: Jul 19, 2019

PAGES (INCLUDING COVER): 6

VERSION\*: 1

Should you require any information regarding this analysis please contact your client services representative at (780) 395-2525

\*NOTES

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



## Certificate of Analysis

AGAT WORK ORDER: 19E494888

PROJECT: L2311186

6310 ROPER ROAD  
EDMONTON, ALBERTA  
CANADA T6B 3P9  
TEL (780)395-2525  
FAX (780)462-2490  
<http://www.agatlabs.com>

CLIENT NAME: ALS ENVIRONMENTAL

ATTENTION TO: Suzette Chin

SAMPLING SITE:

SAMPLED BY:

### Microtox Analysis

DATE RECEIVED: 2019-07-19

DATE REPORTED: 2019-07-19

L2311186-1 EQ

POND

SAMPLE DESCRIPTION: DISCHARGE

SAMPLE TYPE: Water

DATE SAMPLED: 2019-07-15

Parameter	Unit	G / S	RDL	363808
Microtox Original (Passed/Failed)			NA	Passed
Microtox - EC50 (15min)	%		NA	>81.9
Microtox Charcoal (Passed/Failed)			NA	NA
Microtox - EC50 (15min) Charcoal	%		NA	NA
Initial pH			0.02	8.04
Final pH			0.02	8.04
Colour				Clear
Color Corrected (Yes/No)				No
Turbidity	NTU		0.5	3.6
Clarification (Centrifugation)	Minutes		NA	30
Treatment (1:1 Extraction)			NA	NA

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard  
363808 Environmental Canada detailed report available on request.

\*Note: Sample was ran past hold time.

Analysis performed at AGAT Edmonton (unless marked by \*)

Certified By:



## Quality Assurance

CLIENT NAME: ALS ENVIRONMENTAL  
PROJECT: L2311186  
SAMPLING SITE:

AGAT WORK ORDER: 19E494888  
ATTENTION TO: Suzette Chin  
SAMPLED BY:

### Microtox Analysis

RPT Date: Jul 19, 2019			DUPLICATE			Method Blank	REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD		Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper

Microtox Analysis

Microtox Original (Passed/Failed)	2328	363808	Passed	Passed	0.0%									
Microtox - EC50 (15min)	2328	363808	>81.9	>81.9	0.0%		99%	70%	130%					
Initial pH	2328	363808	8.04	8.04	0.0%	< 0.02	100%	80%	120%					
Final pH	2328	363808	8.04	8.04	0.0%	< 0.02								
Turbidity	2328	363808	3.6	3.9	8.0%	< 0.5	100%	80%	120%					

Certified By: \_\_\_\_\_



## Method Summary

CLIENT NAME: ALS ENVIRONMENTAL

AGAT WORK ORDER: 19E494888

PROJECT: L2311186

ATTENTION TO: Suzette Chin

SAMPLING SITE:

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Microtox Analysis			
Microtox Original (Passed/Failed)	TOX-171-7100	EPS (EPS1/RM/24) & D50 2012	Microtox Analyser
Microtox - EC50 (15min)	TOX-171-7100	EPS (EPS1/RM/24) & D50 2012	Microtox Analyser
Microtox Charcoal (Passed/Failed)	TOX-171-7100	EPS (EPS1/RM/24) & D50 2012	Microtox Analyser
Microtox - EC50 (15min) Charcoal	TOX-171-7100	EPS (EPS1/RM/24) & D50 2012	Microtox Analyser
Initial pH	TOX-171-7100	SM 4500 H+	pH METER
Final pH	TOX-171-7100	SM 4500 H+	pH METER
Colour	TOX-171-7100	SM 2120 B	Visual
Color Corrected (Yes/No)	TOX-171-7100	EPS (EPS1/RM/24) & D50 2012	Spectrometer
Turbidity	INORG-171-6101	SM 2130 B	NEPHELOMETER
Clarification (Centrifugation)	TOX-171-7100	EPS (EPS1/RM/24) & D50 2012	Centrifuge
Treatment (1:1 Extraction)	TOX-171-7100	EPS (EPS1/RM/24) & D50 2012	Visual



L2311186

EDMONTON

19E494888

Subcontract Request Form

Subcontract To:

AGAT LABS

\* Request for: Microtox analysis

NOTES: Please reference on final report and invoice: PO# L2311186  
ALS requires QC data to be provided with your final results.

Please see enclosed 1 sample(s) in 1 Container(s)


SAMPLE NUMBER	ANALYTICAL REQUIRED	DATE SAMPLED	Priority Flag
L2311186-1 EQ POND DISCHARGE	Special Request AGAT Labs (SPECIAL REQUEST-AG 14)	7/15/2019	363808

Subcontract Info Contact: Rani Mangru (780) 413-5242  
 Analysis and reporting info contact: Suzette Chin  
 9450 17 AVENUE NW  
 EDMONTON, AB T6N 1M9  
 Phone: (780) 413-5242 Email: Suzette.Chin@alsglobal.com

Please email confirmation of receipt to: **Suzette.Chin@alsglobal.com**

Shipped By: \_\_\_\_\_ Date Shipped: \_\_\_\_\_  
 Received By: \_\_\_\_\_ Date Received: \_\_\_\_\_  
 Verified By: \_\_\_\_\_ Date Verified: \_\_\_\_\_  
 Temperature: \_\_\_\_\_  
 Sample Integrity Issues: \_\_\_\_\_

19 JUL 19 11:29

Received by:   
 Jason Hasmark  
 19 July 19 11:29 AM



# AGAT Laboratories

## SAMPLE INTEGRITY RECEIPT FORM

### RECEIVING BASICS - Shipping

Company/Consultant: ALS  
 Courier: Drop off Prepaid Collect  
 Waybill# 7  
 Branch  EDM GP FN FM RD VAN LYD FSJ EST Other: \_\_\_\_\_  
 If multiple sites were submitted at once: Yes  No   
 Custody Seal Intact: Yes No  NA  
 TAT: <24hr 24-48hr 48-72hr Reg Other July 19, 2019  
 Cooler Quantity: 1

### TIME SENSITIVE ISSUES - Shipping

ALREADY EXCEEDED HOLD TIME?  Yes  No  
 Inorganic Tests (Please Circle): Mibi, BOD, Nitrate/Nitrite, Turbidity,  Microtox, Ortho PO4, Tedlar Bag, Residual Chlorine, Chlorophyll\*, Chloroamines\*  
 Earliest Expiry: July 18, 2019  
 Hydrocarbons: Earliest Expiry 7

### SAMPLE INTEGRITY - Shipping

Hazardous Samples: YES  NO Precaution Taken: \_\_\_\_\_  
 Legal Samples: Yes  No  
 International Samples: Yes  No  
 Tape Sealed: Yes  No  
 Coolant Used: Icepack Bagged Ice Free Ice Free Water  None

Temperature (Bottles/Jars only) N/A if only Soil Bags Received

### FROZEN (Please Circle if samples received Frozen)

1 (Bottle/Jar)  9.5 + - + - = 9.5 °C 2 (Bottle/Jar) \_\_\_ + \_\_\_ + \_\_\_ = \_\_\_ °C  
 3 (Bottle/Jar) \_\_\_ + \_\_\_ + \_\_\_ = \_\_\_ °C 4 (Bottle/Jar) \_\_\_ + \_\_\_ + \_\_\_ = \_\_\_ °C  
 5 (Bottle/Jar) \_\_\_ + \_\_\_ + \_\_\_ = \_\_\_ °C 6 (Bottle/Jar) \_\_\_ + \_\_\_ + \_\_\_ = \_\_\_ °C  
 7 (Bottle/Jar) \_\_\_ + \_\_\_ + \_\_\_ = \_\_\_ °C 8 (Bottle/Jar) \_\_\_ + \_\_\_ + \_\_\_ = \_\_\_ °C  
 9 (Bottle/Jar) \_\_\_ + \_\_\_ + \_\_\_ = \_\_\_ °C 10 (Bottle/Jar) \_\_\_ + \_\_\_ + \_\_\_ = \_\_\_ °C

(If more than 10 coolers are received use another sheet of paper and attach)

### LOGISTICS USE ONLY

Workorder No: 19E494888  
 Samples Damaged: Yes  No If YES why?  
 No Bubble Wrap Frozen Courier  
 Other: \_\_\_\_\_  
 Account Project Manager: \_\_\_\_\_ have they been notified of the above issues: Yes No  
 Whom spoken to: \_\_\_\_\_ Date/Time: \_\_\_\_\_  
 CPM Initial \_\_\_\_\_  
 General Comments: \_\_\_\_\_

\* Subcontracted Analysis (See CPM)



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Original of Laboratory (VUL) / Analytical Request Form

Canada Toll Free: 1 800 668 9878

COC Number: 14 -

Page 1 of 1



L2311186-CQFC

<b>Report To</b>		Acct#13791		<b>Report Format / Distribution</b>		Select Service Level below (Rush Turnaround Time (TAT) is not available for all tests)	
Company: <b>GHD LIMITED</b>		Select Report Format: <input checked="" type="checkbox"/> PDF <input type="checkbox"/> EXCEL <input type="checkbox"/> EDD (DIGITAL)		Quality Control (QC) Report with Report <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		<input checked="" type="checkbox"/> Regular (Standard TAT if received by 3 pm - business days) <input type="checkbox"/> Priority (2-4 bus. days if received by 3pm) 50% surcharge - contact ALS to confirm TAT <input type="checkbox"/> Emergency (1-2 bus. days if received by 3pm) 100% surcharge - contact ALS to confirm TAT <input type="checkbox"/> Same day or weekend emergency - contact ALS to confirm TAT and surcharge	
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		Specify Date Required for E2/E or P:	
Address: 455 Phillip St N2L 3X2		Email 1 or Fax: laura.ermeta@ghd.com		Email 2: See PO		<input type="checkbox"/> Filtered (F) <input type="checkbox"/> Preserved (P) <input type="checkbox"/> Filtered and Preserved (F/P) below	
Phone: 519-884-0510		Invoice To: Same as Report To <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Invoice Distribution: <input type="checkbox"/> EMAIL <input type="checkbox"/> MAIL <input checked="" type="checkbox"/> FAX		<b>Analysis Request</b>	
Company: GHD LIMITED		Copy of Invoice with Report: <input type="checkbox"/> Yes <input type="checkbox"/> No		Select Invoice Distribution: <input type="checkbox"/> EMAIL <input type="checkbox"/> MAIL <input checked="" type="checkbox"/> FAX		Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below	
Contact: Laura Ermeta		Email 1 or Fax: laura.ermeta@ghd.com		Email 2			
Project Information		ALS Quote #: <b>TEMPLATE: T44985MTX</b>		Oil and Gas Required Fields (client use)			
Job #: 44985-20		Approver ID:		Cost Center:			
PO / AFE: 73506479		GL Account:		Routing Code:			
LSD:		Activity Code:		Location:			
ALS Lab Work Order # (lab use only)		ALS Contact: Rick H		Date: 15-07-19		Time: 12:00	
Sample Identification and/or Coordinates (This description will appear on the report)		Date (dd-mm-yy)		Time (hh:mm)		Sample Type	
EQ Pond Discharge						Water	
Drinking Water (DW) Samples (client use)		Special Instructions / Specify Criteria to add on report (client use)		Frozen <input type="checkbox"/>		SIF Observations Yes <input type="checkbox"/> No <input type="checkbox"/>	
Are samples taken from a Regulated DW System? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Please send to ALS Edmonton ASAP for analysis (short HT)		Ice packs Yes <input type="checkbox"/> No <input type="checkbox"/>		Custody seal intact Yes <input type="checkbox"/> No <input type="checkbox"/>	
Are samples for human drinking water use? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		SHIPMENT RELEASE (client use)		Cooling Initiated <input type="checkbox"/>		INITIAL COOLER TEMPERATURES °C	
Released by: <i>R. Tobin</i>		Date: <i>July 15/19</i>		Time: <i>14:30</i>		INITIAL COOLER TEMPERATURES °C	
Received by: <i>MR</i>		Date: <i>17/07/20</i>		Time: <i>8:40 am</i>		FINAL COOLER TEMPERATURES °C	
WHITE - LABORATORY COPY		YELLOW - CLIENT COPY		FINAL SHIPMENT RECEPTION (lab use only)		Date: _____ Time: _____	

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

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

MSF-0329e-09 Product January 2014





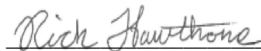
GHD Limited (Waterloo)  
ATTN: LAURA ERMETA  
455 PHILLIP STREET  
WATERLOO ON N2L 3X2

Date Received: 22-AUG-19  
Report Date: 30-AUG-19 09:26 (MT)  
Version: FINAL

Client Phone: 519-884-0510

## Certificate of Analysis

Lab Work Order #: L2333790  
Project P.O. #: 73506479-1  
Job Reference: 44985-20-19  
C of C Numbers:  
Legal Site Desc:



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
L2333790-1 EQ POND DISCHARGE							
Sampled By: CLIENT on 21-AUG-19 @ 11:15							
Matrix: WATER							
<b>Field Tests</b>							
pH, Client Supplied	7.58		0.10	pH		23-AUG-19	R4765394
Temperature, Client	32.0		-50	Deg. C		23-AUG-19	R4765394
<b>Physical Tests</b>							
Conductivity	706		3.0	umhos/cm		23-AUG-19	R4767976
Hardness (as CaCO3)	217	HTC	1.3	mg/L		23-AUG-19	
pH	8.10		0.10	pH units		23-AUG-19	R4767976
Total Suspended Solids	4.6		2.0	mg/L	27-AUG-19	28-AUG-19	R4770408
Total Dissolved Solids	427	DLDS	20	mg/L		28-AUG-19	R4777589
<b>Anions and Nutrients</b>							
Alkalinity, Total (as CaCO3)	125		10	mg/L		23-AUG-19	R4767976
Unionized ammonia	0.00282		0.00041	mg/L		24-AUG-19	
Ammonia, Total (as N)	0.069		0.010	mg/L		22-AUG-19	R4765438
Bromide (Br)	2.47		0.10	mg/L		23-AUG-19	R4768839
Chloride (Cl)	70.4		0.50	mg/L		23-AUG-19	R4768839
Fluoride (F)	0.583		0.020	mg/L		23-AUG-19	R4768839
Nitrate (as N)	0.028		0.020	mg/L		23-AUG-19	R4768839
Nitrite (as N)	<0.010		0.010	mg/L		23-AUG-19	R4768839
Total Kjeldahl Nitrogen	0.50		0.15	mg/L	26-AUG-19	27-AUG-19	R4769564
Phosphorus, Total	0.0391		0.0030	mg/L	23-AUG-19	26-AUG-19	R4768775
Sulfate (SO4)	119		0.30	mg/L		23-AUG-19	R4768839
<b>Cyanides</b>							
Cyanide, Total	<0.0020		0.0020	mg/L		23-AUG-19	R4768608
<b>Organic / Inorganic Carbon</b>							
Dissolved Carbon Filtration Location	LAB					23-AUG-19	R4767716
Dissolved Organic Carbon	3.62		0.50	mg/L	23-AUG-19	27-AUG-19	R4771412
<b>Total Metals</b>							
Aluminum (Al)-Total	0.186		0.010	mg/L	23-AUG-19	23-AUG-19	R4765749
Antimony (Sb)-Total	0.00042		0.00010	mg/L	23-AUG-19	23-AUG-19	R4765749
Arsenic (As)-Total	0.00220		0.00010	mg/L	23-AUG-19	23-AUG-19	R4765749
Barium (Ba)-Total	0.0454		0.00020	mg/L	23-AUG-19	23-AUG-19	R4765749
Beryllium (Be)-Total	<0.00010		0.00010	mg/L	23-AUG-19	23-AUG-19	R4765749
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	23-AUG-19	23-AUG-19	R4765749
Boron (B)-Total	0.197		0.010	mg/L	23-AUG-19	23-AUG-19	R4765749
Cadmium (Cd)-Total	<0.000070	DLM	0.000070	mg/L	23-AUG-19	23-AUG-19	R4765749
Calcium (Ca)-Total	52.6		0.50	mg/L	23-AUG-19	23-AUG-19	R4765749
Cobalt (Co)-Total	0.00030		0.00010	mg/L	23-AUG-19	23-AUG-19	R4765749
Copper (Cu)-Total	0.0010		0.0010	mg/L	23-AUG-19	23-AUG-19	R4765749
Iron (Fe)-Total	0.172		0.050	mg/L	23-AUG-19	23-AUG-19	R4765749
Lead (Pb)-Total	0.00020		0.00010	mg/L	23-AUG-19	23-AUG-19	R4765749
Magnesium (Mg)-Total	20.7		0.050	mg/L	23-AUG-19	23-AUG-19	R4765749
Manganese (Mn)-Total	0.0433		0.00050	mg/L	23-AUG-19	23-AUG-19	R4765749
Mercury (Hg)-Total	<0.0000050		0.0000050	mg/L		23-AUG-19	R4766053

\* 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
L2333790-1 EQ POND DISCHARGE							
Sampled By: CLIENT on 21-AUG-19 @ 11:15							
Matrix: WATER							
<b>Total Metals</b>							
Molybdenum (Mo)-Total	0.0714		0.000050	mg/L	23-AUG-19	23-AUG-19	R4765749
Nickel (Ni)-Total	0.00458		0.00050	mg/L	23-AUG-19	23-AUG-19	R4765749
Potassium (K)-Total	12.9		0.050	mg/L	23-AUG-19	23-AUG-19	R4765749
Selenium (Se)-Total	0.00105		0.000050	mg/L	23-AUG-19	23-AUG-19	R4765749
Silicon (Si)-Total	1.48		0.10	mg/L	23-AUG-19	23-AUG-19	R4765749
Silver (Ag)-Total	<0.000050		0.000050	mg/L	23-AUG-19	23-AUG-19	R4765749
Sodium (Na)-Total	48.1		0.50	mg/L	23-AUG-19	23-AUG-19	R4765749
Strontium (Sr)-Total	0.514		0.0010	mg/L	23-AUG-19	23-AUG-19	R4765749
Thallium (Tl)-Total	0.000295		0.000010	mg/L	23-AUG-19	23-AUG-19	R4765749
Tin (Sn)-Total	<0.00010		0.00010	mg/L	23-AUG-19	23-AUG-19	R4765749
Vanadium (V)-Total	0.00089		0.00050	mg/L	23-AUG-19	23-AUG-19	R4765749
Zinc (Zn)-Total	<0.0030		0.0030	mg/L	23-AUG-19	23-AUG-19	R4765749
<b>Speciated Metals</b>							
Chromium, Hexavalent	<0.00050		0.00050	mg/L		23-AUG-19	R4768380
<b>Aggregate Organics</b>							
COD	<10		10	mg/L		28-AUG-19	R4771960
Phenols (4AAP)	0.0024		0.0010	mg/L		23-AUG-19	R4768691
<b>Volatile Organic Compounds</b>							
Acetone	<20		20	ug/L		29-AUG-19	R4774139
Benzene	<0.50		0.50	ug/L		29-AUG-19	R4774139
Bromodichloromethane	<1.0		1.0	ug/L		29-AUG-19	R4774139
Bromoform	<1.0		1.0	ug/L		29-AUG-19	R4774139
Bromomethane	<0.50		0.50	ug/L		29-AUG-19	R4774139
Carbon tetrachloride	<0.50		0.50	ug/L		29-AUG-19	R4774139
Chlorobenzene	<0.50		0.50	ug/L		29-AUG-19	R4774139
Dibromochloromethane	<1.0		1.0	ug/L		29-AUG-19	R4774139
Chloroethane	<1.0		1.0	ug/L		29-AUG-19	R4774139
Chloroform	<1.0		1.0	ug/L		29-AUG-19	R4774139
1,2-Dibromoethane	<0.20		0.20	ug/L		29-AUG-19	R4774139
1,2-Dichlorobenzene	<0.50		0.50	ug/L		29-AUG-19	R4774139
1,3-Dichlorobenzene	<0.50		0.50	ug/L		29-AUG-19	R4774139
1,4-Dichlorobenzene	<0.50		0.50	ug/L		29-AUG-19	R4774139
Dichlorodifluoromethane	<1.0		1.0	ug/L		29-AUG-19	R4774139
1,1-Dichloroethane	<0.50		0.50	ug/L		29-AUG-19	R4774139
1,2-Dichloroethane	<0.50		0.50	ug/L		29-AUG-19	R4774139
1,1-Dichloroethylene	<0.50		0.50	ug/L		29-AUG-19	R4774139
cis-1,2-Dichloroethylene	<0.50		0.50	ug/L		29-AUG-19	R4774139
trans-1,2-Dichloroethylene	<0.50		0.50	ug/L		29-AUG-19	R4774139
Dichloromethane	<2.0		2.0	ug/L		29-AUG-19	R4774139
1,2-Dichloropropane	<0.50		0.50	ug/L		29-AUG-19	R4774139
cis-1,3-Dichloropropene	<0.50		0.50	ug/L		29-AUG-19	R4774139
trans-1,3-Dichloropropene	<0.50		0.50	ug/L		29-AUG-19	R4774139

\* 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
L2333790-1 EQ POND DISCHARGE							
Sampled By: CLIENT on 21-AUG-19 @ 11:15							
Matrix: WATER							
<b>Volatile Organic Compounds</b>							
Ethylbenzene	<0.50		0.50	ug/L		29-AUG-19	R4774139
n-Hexane	<0.50		0.50	ug/L		29-AUG-19	R4774139
Methyl Ethyl Ketone	<20		20	ug/L		29-AUG-19	R4774139
Methyl Isobutyl Ketone	<20		20	ug/L		29-AUG-19	R4774139
MTBE	<0.50		0.50	ug/L		29-AUG-19	R4774139
Styrene	<0.50		0.50	ug/L		29-AUG-19	R4774139
1,1,1,2-Tetrachloroethane	<0.50		0.50	ug/L		29-AUG-19	R4774139
1,1,2,2-Tetrachloroethane	<0.50		0.50	ug/L		29-AUG-19	R4774139
Tetrachloroethylene	<0.50		0.50	ug/L		29-AUG-19	R4774139
Toluene	<0.50		0.50	ug/L		29-AUG-19	R4774139
1,1,1-Trichloroethane	<0.50		0.50	ug/L		29-AUG-19	R4774139
1,1,2-Trichloroethane	<0.50		0.50	ug/L		29-AUG-19	R4774139
Trichloroethylene	<0.50		0.50	ug/L		29-AUG-19	R4774139
Trichlorofluoromethane	<1.0		1.0	ug/L		29-AUG-19	R4774139
Vinyl chloride	<0.50		0.50	ug/L		29-AUG-19	R4774139
o-Xylene	<0.50		0.50	ug/L		29-AUG-19	R4774139
m+p-Xylenes	<1.0		1.0	ug/L		29-AUG-19	R4774139
Xylenes (Total)	<1.1		1.1	ug/L		29-AUG-19	
Surrogate: 4-Bromofluorobenzene	93.0		70-130	%		29-AUG-19	R4774139
Surrogate: 1,4-Difluorobenzene	95.4		70-130	%		29-AUG-19	R4774139
<b>Trihalomethanes</b>							
Total THMs	<2.0		2.0	ug/L		29-AUG-19	
<b>Acid Extractables</b>							
2,3,6-Trichlorophenol	<0.50		0.50	ug/L	26-AUG-19	28-AUG-19	R4773528
Surrogate: 2,4,6-Tribromophenol	110.3		40-150	%	26-AUG-19	28-AUG-19	R4773528
<b>Semi-Volatile Organics</b>							
Acenaphthene	<0.20		0.20	ug/L	26-AUG-19	28-AUG-19	R4771952
Acenaphthylene	<0.20		0.20	ug/L	26-AUG-19	28-AUG-19	R4771952
Anthracene	<0.20		0.20	ug/L	26-AUG-19	28-AUG-19	R4771952
Benzo(a)anthracene	<0.20		0.20	ug/L	26-AUG-19	28-AUG-19	R4771952
Benzo(a)pyrene	<0.050		0.050	ug/L	26-AUG-19	28-AUG-19	R4771952
Benzo(b)fluoranthene	<0.20		0.20	ug/L	26-AUG-19	28-AUG-19	R4771952
Benzo(ghi)perylene	<0.20		0.20	ug/L	26-AUG-19	28-AUG-19	R4771952
Benzo(k)fluoranthene	<0.20		0.20	ug/L	26-AUG-19	28-AUG-19	R4771952
4-Chloroaniline	<0.40		0.40	ug/L	26-AUG-19	28-AUG-19	R4771952
Bis(2-chloroethyl)ether	<0.40		0.40	ug/L	26-AUG-19	28-AUG-19	R4771952
2-Chlorophenol	<0.30		0.30	ug/L	26-AUG-19	28-AUG-19	R4771952
Chrysene	<0.20		0.20	ug/L	26-AUG-19	28-AUG-19	R4771952
Dibenzo(a,h)anthracene	<0.20		0.20	ug/L	26-AUG-19	28-AUG-19	R4771952
1,2-Dichlorobenzene	<0.40		0.40	ug/L	26-AUG-19	28-AUG-19	R4771952
1,3-Dichlorobenzene	<0.40		0.40	ug/L	26-AUG-19	28-AUG-19	R4771952
1,4-Dichlorobenzene	<0.40		0.40	ug/L	26-AUG-19	28-AUG-19	R4771952

\* 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
L2333790-1 EQ POND DISCHARGE Sampled By: CLIENT on 21-AUG-19 @ 11:15 Matrix: WATER							
<b>Semi-Volatile Organics</b>							
3,3'-Dichlorobenzidine	<0.40		0.40	ug/L	26-AUG-19	28-AUG-19	R4771952
2,4-Dichlorophenol	<0.30		0.30	ug/L	26-AUG-19	28-AUG-19	R4771952
Diethylphthalate	<0.20		0.20	ug/L	26-AUG-19	28-AUG-19	R4771952
Dimethylphthalate	<0.20		0.20	ug/L	26-AUG-19	28-AUG-19	R4771952
2,4-Dimethylphenol	<0.50		0.50	ug/L	26-AUG-19	28-AUG-19	R4771952
2,4-Dinitrophenol	<1.0		1.0	ug/L	26-AUG-19	28-AUG-19	R4771952
2,4-Dinitrotoluene	<0.40		0.40	ug/L	26-AUG-19	28-AUG-19	R4771952
2,6-Dinitrotoluene	<0.40		0.40	ug/L	26-AUG-19	28-AUG-19	R4771952
Bis(2-ethylhexyl)phthalate	<2.0		2.0	ug/L	26-AUG-19	28-AUG-19	R4771952
Fluoranthene	<0.20		0.20	ug/L	26-AUG-19	28-AUG-19	R4771952
Fluorene	<0.20		0.20	ug/L	26-AUG-19	28-AUG-19	R4771952
Hexachlorobenzene	<0.040		0.040	ug/L	26-AUG-19	28-AUG-19	R4771952
Hexachlorobutadiene	<0.20		0.20	ug/L	26-AUG-19	28-AUG-19	R4771952
Indeno(1,2,3-cd)pyrene	<0.20		0.20	ug/L	26-AUG-19	28-AUG-19	R4771952
1-Methylnaphthalene	<0.40		0.40	ug/L	26-AUG-19	28-AUG-19	R4771952
2-Methylnaphthalene	<0.40		0.40	ug/L	26-AUG-19	28-AUG-19	R4771952
Naphthalene	<0.20		0.20	ug/L	26-AUG-19	28-AUG-19	R4771952
Pentachlorophenol	<0.50		0.50	ug/L	26-AUG-19	28-AUG-19	R4771952
Perylene	<0.20		0.20	ug/L	26-AUG-19	28-AUG-19	R4771952
Phenanthrene	<0.20		0.20	ug/L	26-AUG-19	28-AUG-19	R4771952
Pyrene	<0.20		0.20	ug/L	26-AUG-19	28-AUG-19	R4771952
2,3,4,5-Tetrachlorophenol	<0.50		0.50	ug/L	26-AUG-19	28-AUG-19	R4771952
2,3,4,6-Tetrachlorophenol	<0.50		0.50	ug/L	26-AUG-19	28-AUG-19	R4771952
1,2,4-Trichlorobenzene	<0.40		0.40	ug/L	26-AUG-19	28-AUG-19	R4771952
2,4,5-Trichlorophenol	<0.50		0.50	ug/L	26-AUG-19	28-AUG-19	R4771952
2,4,6-Trichlorophenol	<0.50		0.50	ug/L	26-AUG-19	28-AUG-19	R4771952
Surrogate: 2-Fluorobiphenyl	88.3		40-130	%	26-AUG-19	28-AUG-19	R4771952
Surrogate: Nitrobenzene d5	117.5		40-130	%	26-AUG-19	28-AUG-19	R4771952
Surrogate: p-Terphenyl d14	96.5		40-130	%	26-AUG-19	28-AUG-19	R4771952
Report Remarks : Increased Cd LOR due to potential interference.							
L2333790-2 WEST STORM WATER POND Sampled By: CLIENT on 21-AUG-19 @ 11:30 Matrix: WATER							
<b>Field Tests</b>							
pH, Client Supplied	7.60		0.10	pH		23-AUG-19	R4765394
Temperature, Client	26.0		-50	Deg. C		23-AUG-19	R4765394
<b>Physical Tests</b>							
Conductivity	681		3.0	umhos/cm		23-AUG-19	R4767976
Hardness (as CaCO3)	206	HTC	1.3	mg/L		23-AUG-19	
pH	8.10		0.10	pH units		23-AUG-19	R4767976
Total Suspended Solids	5.1		2.0	mg/L	27-AUG-19	28-AUG-19	R4770408
Total Dissolved Solids	418	DLDS	20	mg/L		28-AUG-19	R4777589

\* 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
L2333790-2 WEST STORM WATER POND Sampled By: CLIENT on 21-AUG-19 @ 11:30 Matrix: WATER							
<b>Physical Tests</b>							
<b>Anions and Nutrients</b>							
Alkalinity, Total (as CaCO <sub>3</sub> )	114		10	mg/L		23-AUG-19	R4767976
Unionized ammonia	0.00148		0.00029	mg/L		24-AUG-19	
Ammonia, Total (as N)	0.051		0.010	mg/L		22-AUG-19	R4765438
Bromide (Br)	2.43		0.10	mg/L		23-AUG-19	R4768839
Chloride (Cl)	69.2		0.50	mg/L		23-AUG-19	R4768839
Fluoride (F)	0.596		0.020	mg/L		23-AUG-19	R4768839
Nitrate (as N)	0.049		0.020	mg/L		23-AUG-19	R4768839
Nitrite (as N)	<0.010		0.010	mg/L		23-AUG-19	R4768839
Total Kjeldahl Nitrogen	0.49		0.15	mg/L	27-AUG-19	28-AUG-19	R4771968
Phosphorus, Total	0.0261		0.0030	mg/L	27-AUG-19	28-AUG-19	R4771928
Sulfate (SO <sub>4</sub> )	117		0.30	mg/L		23-AUG-19	R4768839
<b>Cyanides</b>							
Cyanide, Total	<0.0020		0.0020	mg/L		23-AUG-19	R4768608
<b>Organic / Inorganic Carbon</b>							
Dissolved Carbon Filtration Location	LAB					23-AUG-19	R4767716
Dissolved Organic Carbon	4.64		0.50	mg/L	23-AUG-19	27-AUG-19	R4771412
<b>Total Metals</b>							
Aluminum (Al)-Total	0.360		0.010	mg/L	23-AUG-19	23-AUG-19	R4765749
Antimony (Sb)-Total	0.00046		0.00010	mg/L	23-AUG-19	23-AUG-19	R4765749
Arsenic (As)-Total	0.00244		0.00010	mg/L	23-AUG-19	23-AUG-19	R4765749
Barium (Ba)-Total	0.0456		0.00020	mg/L	23-AUG-19	23-AUG-19	R4765749
Beryllium (Be)-Total	<0.00010		0.00010	mg/L	23-AUG-19	23-AUG-19	R4765749
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	23-AUG-19	23-AUG-19	R4765749
Boron (B)-Total	0.136		0.010	mg/L	23-AUG-19	23-AUG-19	R4765749
Cadmium (Cd)-Total	<0.00020	DLM	0.00020	mg/L	23-AUG-19	23-AUG-19	R4765749
Calcium (Ca)-Total	49.3		0.50	mg/L	23-AUG-19	23-AUG-19	R4765749
Cobalt (Co)-Total	0.00043		0.00010	mg/L	23-AUG-19	23-AUG-19	R4765749
Copper (Cu)-Total	0.0024		0.0010	mg/L	23-AUG-19	23-AUG-19	R4765749
Iron (Fe)-Total	0.370		0.050	mg/L	23-AUG-19	23-AUG-19	R4765749
Lead (Pb)-Total	0.00044		0.00010	mg/L	23-AUG-19	23-AUG-19	R4765749
Magnesium (Mg)-Total	20.1		0.050	mg/L	23-AUG-19	23-AUG-19	R4765749
Manganese (Mn)-Total	0.0249		0.00050	mg/L	23-AUG-19	23-AUG-19	R4765749
Mercury (Hg)-Total	<0.0000050		0.0000050	mg/L		23-AUG-19	R4766053
Molybdenum (Mo)-Total	0.0602		0.000050	mg/L	23-AUG-19	23-AUG-19	R4765749
Nickel (Ni)-Total	0.00475		0.00050	mg/L	23-AUG-19	23-AUG-19	R4765749
Potassium (K)-Total	12.4		0.050	mg/L	23-AUG-19	23-AUG-19	R4765749
Selenium (Se)-Total	0.00132		0.000050	mg/L	23-AUG-19	23-AUG-19	R4765749
Silicon (Si)-Total	1.63		0.10	mg/L	23-AUG-19	23-AUG-19	R4765749
Silver (Ag)-Total	<0.000050		0.000050	mg/L	23-AUG-19	23-AUG-19	R4765749
Sodium (Na)-Total	47.2		0.50	mg/L	23-AUG-19	23-AUG-19	R4765749
Strontium (Sr)-Total	0.496		0.0010	mg/L	23-AUG-19	23-AUG-19	R4765749

\* 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
L2333790-2 WEST STORM WATER POND							
Sampled By: CLIENT on 21-AUG-19 @ 11:30							
Matrix: WATER							
<b>Total Metals</b>							
Thallium (Tl)-Total	0.000149		0.000010	mg/L	23-AUG-19	23-AUG-19	R4765749
Tin (Sn)-Total	<0.00010		0.00010	mg/L	23-AUG-19	23-AUG-19	R4765749
Vanadium (V)-Total	0.00123		0.00050	mg/L	23-AUG-19	23-AUG-19	R4765749
Zinc (Zn)-Total	0.0030		0.0030	mg/L	23-AUG-19	23-AUG-19	R4765749
<b>Speciated Metals</b>							
Chromium, Hexavalent	<0.00050		0.00050	mg/L		23-AUG-19	R4768380
<b>Aggregate Organics</b>							
COD	14		10	mg/L		28-AUG-19	R4771960
Phenols (4AAP)	0.0028		0.0010	mg/L		23-AUG-19	R4768691
<b>Volatile Organic Compounds</b>							
Acetone	<20		20	ug/L		29-AUG-19	R4774139
Benzene	<0.50		0.50	ug/L		29-AUG-19	R4774139
Bromodichloromethane	<1.0		1.0	ug/L		29-AUG-19	R4774139
Bromoform	<1.0		1.0	ug/L		29-AUG-19	R4774139
Bromomethane	<0.50		0.50	ug/L		29-AUG-19	R4774139
Carbon tetrachloride	<0.50		0.50	ug/L		29-AUG-19	R4774139
Chlorobenzene	<0.50		0.50	ug/L		29-AUG-19	R4774139
Dibromochloromethane	<1.0		1.0	ug/L		29-AUG-19	R4774139
Chloroethane	<1.0		1.0	ug/L		29-AUG-19	R4774139
Chloroform	<1.0		1.0	ug/L		29-AUG-19	R4774139
1,2-Dibromoethane	<0.20		0.20	ug/L		29-AUG-19	R4774139
1,2-Dichlorobenzene	<0.50		0.50	ug/L		29-AUG-19	R4774139
1,3-Dichlorobenzene	<0.50		0.50	ug/L		29-AUG-19	R4774139
1,4-Dichlorobenzene	<0.50		0.50	ug/L		29-AUG-19	R4774139
Dichlorodifluoromethane	<1.0		1.0	ug/L		29-AUG-19	R4774139
1,1-Dichloroethane	<0.50		0.50	ug/L		29-AUG-19	R4774139
1,2-Dichloroethane	<0.50		0.50	ug/L		29-AUG-19	R4774139
1,1-Dichloroethylene	<0.50		0.50	ug/L		29-AUG-19	R4774139
cis-1,2-Dichloroethylene	<0.50		0.50	ug/L		29-AUG-19	R4774139
trans-1,2-Dichloroethylene	<0.50		0.50	ug/L		29-AUG-19	R4774139
Dichloromethane	<2.0		2.0	ug/L		29-AUG-19	R4774139
1,2-Dichloropropane	<0.50		0.50	ug/L		29-AUG-19	R4774139
cis-1,3-Dichloropropene	<0.50		0.50	ug/L		29-AUG-19	R4774139
trans-1,3-Dichloropropene	<0.50		0.50	ug/L		29-AUG-19	R4774139
Ethylbenzene	<0.50		0.50	ug/L		29-AUG-19	R4774139
n-Hexane	<0.50		0.50	ug/L		29-AUG-19	R4774139
Methyl Ethyl Ketone	<20		20	ug/L		29-AUG-19	R4774139
Methyl Isobutyl Ketone	<20		20	ug/L		29-AUG-19	R4774139
MTBE	<0.50		0.50	ug/L		29-AUG-19	R4774139
Styrene	<0.50		0.50	ug/L		29-AUG-19	R4774139
1,1,1,2-Tetrachloroethane	<0.50		0.50	ug/L		29-AUG-19	R4774139
1,1,2,2-Tetrachloroethane	<0.50		0.50	ug/L		29-AUG-19	R4774139

\* 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
L2333790-2 WEST STORM WATER POND							
Sampled By: CLIENT on 21-AUG-19 @ 11:30							
Matrix: WATER							
<b>Volatile Organic Compounds</b>							
Tetrachloroethylene	<0.50		0.50	ug/L		29-AUG-19	R4774139
Toluene	<0.50		0.50	ug/L		29-AUG-19	R4774139
1,1,1-Trichloroethane	<0.50		0.50	ug/L		29-AUG-19	R4774139
1,1,2-Trichloroethane	<0.50		0.50	ug/L		29-AUG-19	R4774139
Trichloroethylene	<0.50		0.50	ug/L		29-AUG-19	R4774139
Trichlorofluoromethane	<1.0		1.0	ug/L		29-AUG-19	R4774139
Vinyl chloride	<0.50		0.50	ug/L		29-AUG-19	R4774139
o-Xylene	<0.50		0.50	ug/L		29-AUG-19	R4774139
m+p-Xylenes	<1.0		1.0	ug/L		29-AUG-19	R4774139
Xylenes (Total)	<1.1		1.1	ug/L		29-AUG-19	
Surrogate: 4-Bromofluorobenzene	93.3		70-130	%		29-AUG-19	R4774139
Surrogate: 1,4-Difluorobenzene	95.9		70-130	%		29-AUG-19	R4774139
<b>Trihalomethanes</b>							
Total THMs	<2.0		2.0	ug/L		29-AUG-19	
<b>Acid Extractables</b>							
2,3,6-Trichlorophenol	<0.50		0.50	ug/L	26-AUG-19	28-AUG-19	R4773528
Surrogate: 2,4,6-Tribromophenol	112.9		40-150	%	26-AUG-19	28-AUG-19	R4773528
<b>Semi-Volatile Organics</b>							
Acenaphthene	<0.20		0.20	ug/L	26-AUG-19	28-AUG-19	R4771952
Acenaphthylene	<0.20		0.20	ug/L	26-AUG-19	28-AUG-19	R4771952
Anthracene	<0.20		0.20	ug/L	26-AUG-19	28-AUG-19	R4771952
Benzo(a)anthracene	<0.20		0.20	ug/L	26-AUG-19	28-AUG-19	R4771952
Benzo(a)pyrene	<0.050		0.050	ug/L	26-AUG-19	28-AUG-19	R4771952
Benzo(b)fluoranthene	<0.20		0.20	ug/L	26-AUG-19	28-AUG-19	R4771952
Benzo(ghi)perylene	<0.20		0.20	ug/L	26-AUG-19	28-AUG-19	R4771952
Benzo(k)fluoranthene	<0.20		0.20	ug/L	26-AUG-19	28-AUG-19	R4771952
4-Chloroaniline	<0.40		0.40	ug/L	26-AUG-19	28-AUG-19	R4771952
Bis(2-chloroethyl)ether	<0.40		0.40	ug/L	26-AUG-19	28-AUG-19	R4771952
2-Chlorophenol	<0.30		0.30	ug/L	26-AUG-19	28-AUG-19	R4771952
Chrysene	<0.20		0.20	ug/L	26-AUG-19	28-AUG-19	R4771952
Dibenzo(a,h)anthracene	<0.20		0.20	ug/L	26-AUG-19	28-AUG-19	R4771952
1,2-Dichlorobenzene	<0.40		0.40	ug/L	26-AUG-19	28-AUG-19	R4771952
1,3-Dichlorobenzene	<0.40		0.40	ug/L	26-AUG-19	28-AUG-19	R4771952
1,4-Dichlorobenzene	<0.40		0.40	ug/L	26-AUG-19	28-AUG-19	R4771952
3,3'-Dichlorobenzidine	<0.40		0.40	ug/L	26-AUG-19	28-AUG-19	R4771952
2,4-Dichlorophenol	<0.30		0.30	ug/L	26-AUG-19	28-AUG-19	R4771952
Diethylphthalate	<0.20		0.20	ug/L	26-AUG-19	28-AUG-19	R4771952
Dimethylphthalate	<0.20		0.20	ug/L	26-AUG-19	28-AUG-19	R4771952
2,4-Dimethylphenol	<0.50		0.50	ug/L	26-AUG-19	28-AUG-19	R4771952
2,4-Dinitrophenol	<1.0		1.0	ug/L	26-AUG-19	28-AUG-19	R4771952
2,4-Dinitrotoluene	<0.40		0.40	ug/L	26-AUG-19	28-AUG-19	R4771952
2,6-Dinitrotoluene	<0.40		0.40	ug/L	26-AUG-19	28-AUG-19	R4771952

\* 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
L2333790-2 WEST STORM WATER POND Sampled By: CLIENT on 21-AUG-19 @ 11:30 Matrix: WATER							
<b>Semi-Volatile Organics</b>							
Bis(2-ethylhexyl)phthalate	<2.0		2.0	ug/L	26-AUG-19	28-AUG-19	R4771952
Fluoranthene	<0.20		0.20	ug/L	26-AUG-19	28-AUG-19	R4771952
Fluorene	<0.20		0.20	ug/L	26-AUG-19	28-AUG-19	R4771952
Hexachlorobenzene	<0.040		0.040	ug/L	26-AUG-19	28-AUG-19	R4771952
Hexachlorobutadiene	<0.20		0.20	ug/L	26-AUG-19	28-AUG-19	R4771952
Indeno(1,2,3-cd)pyrene	<0.20		0.20	ug/L	26-AUG-19	28-AUG-19	R4771952
1-Methylnaphthalene	<0.40		0.40	ug/L	26-AUG-19	28-AUG-19	R4771952
2-Methylnaphthalene	<0.40		0.40	ug/L	26-AUG-19	28-AUG-19	R4771952
Naphthalene	<0.20		0.20	ug/L	26-AUG-19	28-AUG-19	R4771952
Pentachlorophenol	<0.50		0.50	ug/L	26-AUG-19	28-AUG-19	R4771952
Perylene	<0.20		0.20	ug/L	26-AUG-19	28-AUG-19	R4771952
Phenanthrene	<0.20		0.20	ug/L	26-AUG-19	28-AUG-19	R4771952
Pyrene	<0.20		0.20	ug/L	26-AUG-19	28-AUG-19	R4771952
2,3,4,5-Tetrachlorophenol	<0.50		0.50	ug/L	26-AUG-19	28-AUG-19	R4771952
2,3,4,6-Tetrachlorophenol	<0.50		0.50	ug/L	26-AUG-19	28-AUG-19	R4771952
1,2,4-Trichlorobenzene	<0.40		0.40	ug/L	26-AUG-19	28-AUG-19	R4771952
2,4,5-Trichlorophenol	<0.50		0.50	ug/L	26-AUG-19	28-AUG-19	R4771952
2,4,6-Trichlorophenol	<0.50		0.50	ug/L	26-AUG-19	28-AUG-19	R4771952
Surrogate: 2-Fluorobiphenyl	89.4		40-130	%	26-AUG-19	28-AUG-19	R4771952
Surrogate: Nitrobenzene d5	118.3		40-130	%	26-AUG-19	28-AUG-19	R4771952
Surrogate: p-Terphenyl d14	98.9		40-130	%	26-AUG-19	28-AUG-19	R4771952
Report Remarks : Increased Cd LOR due to potential interference.							
L2333790-3 EAST STORM WATER POND Sampled By: CLIENT on 21-AUG-19 @ 11:45 Matrix: WATER							
<b>Field Tests</b>							
pH, Client Supplied	7.31		0.10	pH		23-AUG-19	R4765394
Temperature, Client	24.0		-50	Deg. C		23-AUG-19	R4765394
<b>Physical Tests</b>							
Conductivity	974		3.0	umhos/cm		23-AUG-19	R4767976
Hardness (as CaCO3)	233	HTC	1.3	mg/L		23-AUG-19	
pH	7.80		0.10	pH units		23-AUG-19	R4767976
Total Suspended Solids	91.5		2.0	mg/L	27-AUG-19	28-AUG-19	R4770408
Total Dissolved Solids	615	DLDS	20	mg/L		28-AUG-19	R4777589
<b>Anions and Nutrients</b>							
Alkalinity, Total (as CaCO3)	114		10	mg/L		23-AUG-19	R4767976
Unionized ammonia	0.00619		0.00013	mg/L		27-AUG-19	
Ammonia, Total (as N)	0.477		0.010	mg/L		26-AUG-19	R4769343
Bromide (Br)	7.65		0.10	mg/L		23-AUG-19	R4768839
Chloride (Cl)	130		0.50	mg/L		23-AUG-19	R4768839
Fluoride (F)	0.750		0.020	mg/L		23-AUG-19	R4768839
Nitrate (as N)	0.044		0.020	mg/L		23-AUG-19	R4768839

\* 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
L2333790-3 EAST STORM WATER POND Sampled By: CLIENT on 21-AUG-19 @ 11:45 Matrix: WATER							
<b>Anions and Nutrients</b>							
Nitrite (as N)	0.030		0.010	mg/L		23-AUG-19	R4768839
Total Kjeldahl Nitrogen	1.81		0.15	mg/L	26-AUG-19	27-AUG-19	R4769564
Phosphorus, Total	0.113		0.0030	mg/L	23-AUG-19	26-AUG-19	R4768775
Sulfate (SO4)	155		0.30	mg/L		23-AUG-19	R4768839
<b>Cyanides</b>							
Cyanide, Total	0.0050		0.0020	mg/L		23-AUG-19	R4768608
<b>Organic / Inorganic Carbon</b>							
Dissolved Carbon Filtration Location	LAB					23-AUG-19	R4767716
Dissolved Organic Carbon	8.35		0.50	mg/L	23-AUG-19	27-AUG-19	R4771412
<b>Total Metals</b>							
Aluminum (Al)-Total	2.20		0.010	mg/L	23-AUG-19	23-AUG-19	R4765749
Antimony (Sb)-Total	0.00091		0.00010	mg/L	23-AUG-19	23-AUG-19	R4765749
Arsenic (As)-Total	0.00426		0.00010	mg/L	23-AUG-19	23-AUG-19	R4765749
Barium (Ba)-Total	0.0725		0.00020	mg/L	23-AUG-19	23-AUG-19	R4765749
Beryllium (Be)-Total	0.00012		0.00010	mg/L	23-AUG-19	23-AUG-19	R4765749
Bismuth (Bi)-Total	0.000079		0.000050	mg/L	23-AUG-19	23-AUG-19	R4765749
Boron (B)-Total	0.182		0.010	mg/L	23-AUG-19	23-AUG-19	R4765749
Cadmium (Cd)-Total	<0.0030	DLM	0.0030	mg/L	23-AUG-19	23-AUG-19	R4765749
Calcium (Ca)-Total	63.7		0.50	mg/L	23-AUG-19	23-AUG-19	R4765749
Cobalt (Co)-Total	0.00331		0.00010	mg/L	23-AUG-19	23-AUG-19	R4765749
Copper (Cu)-Total	0.0063		0.0010	mg/L	23-AUG-19	23-AUG-19	R4765749
Iron (Fe)-Total	2.92		0.050	mg/L	23-AUG-19	23-AUG-19	R4765749
Lead (Pb)-Total	0.00616		0.00010	mg/L	23-AUG-19	23-AUG-19	R4765749
Magnesium (Mg)-Total	18.1		0.050	mg/L	23-AUG-19	23-AUG-19	R4765749
Manganese (Mn)-Total	0.184		0.00050	mg/L	23-AUG-19	23-AUG-19	R4765749
Mercury (Hg)-Total	0.0000264		0.000050	mg/L		23-AUG-19	R4766053
Molybdenum (Mo)-Total	0.0998		0.000050	mg/L	23-AUG-19	23-AUG-19	R4765749
Nickel (Ni)-Total	0.0201		0.00050	mg/L	23-AUG-19	23-AUG-19	R4765749
Potassium (K)-Total	36.7		0.050	mg/L	23-AUG-19	23-AUG-19	R4765749
Selenium (Se)-Total	0.00668		0.000050	mg/L	23-AUG-19	23-AUG-19	R4765749
Silicon (Si)-Total	5.60		0.10	mg/L	23-AUG-19	23-AUG-19	R4765749
Silver (Ag)-Total	<0.000050		0.000050	mg/L	23-AUG-19	23-AUG-19	R4765749
Sodium (Na)-Total	86.0		0.50	mg/L	23-AUG-19	23-AUG-19	R4765749
Strontium (Sr)-Total	0.531		0.0010	mg/L	23-AUG-19	23-AUG-19	R4765749
Thallium (Tl)-Total	0.000801		0.000010	mg/L	23-AUG-19	23-AUG-19	R4765749
Tin (Sn)-Total	0.00039		0.00010	mg/L	23-AUG-19	23-AUG-19	R4765749
Vanadium (V)-Total	0.00510		0.00050	mg/L	23-AUG-19	23-AUG-19	R4765749
Zinc (Zn)-Total	0.0257		0.0030	mg/L	23-AUG-19	23-AUG-19	R4765749
<b>Speciated Metals</b>							
Chromium, Hexavalent	0.00162		0.00050	mg/L		23-AUG-19	R4768380
<b>Aggregate Organics</b>							
COD	48		10	mg/L		28-AUG-19	R4771960

\* 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
L2333790-3 EAST STORM WATER POND Sampled By: CLIENT on 21-AUG-19 @ 11:45 Matrix: WATER							
<b>Aggregate Organics</b>							
Phenols (4AAP)	0.0155		0.0010	mg/L		26-AUG-19	R4769626
<b>Volatile Organic Compounds</b>							
Acetone	209		20	ug/L		29-AUG-19	R4774139
Benzene	<0.50		0.50	ug/L		29-AUG-19	R4774139
Bromodichloromethane	<1.0		1.0	ug/L		29-AUG-19	R4774139
Bromoform	<1.0		1.0	ug/L		29-AUG-19	R4774139
Bromomethane	<0.50		0.50	ug/L		29-AUG-19	R4774139
Carbon tetrachloride	<0.50		0.50	ug/L		29-AUG-19	R4774139
Chlorobenzene	<0.50		0.50	ug/L		29-AUG-19	R4774139
Dibromochloromethane	<1.0		1.0	ug/L		29-AUG-19	R4774139
Chloroethane	<1.0		1.0	ug/L		29-AUG-19	R4774139
Chloroform	<1.0		1.0	ug/L		29-AUG-19	R4774139
1,2-Dibromoethane	<0.20		0.20	ug/L		29-AUG-19	R4774139
1,2-Dichlorobenzene	<0.50		0.50	ug/L		29-AUG-19	R4774139
1,3-Dichlorobenzene	<0.50		0.50	ug/L		29-AUG-19	R4774139
1,4-Dichlorobenzene	<0.50		0.50	ug/L		29-AUG-19	R4774139
Dichlorodifluoromethane	<1.0		1.0	ug/L		29-AUG-19	R4774139
1,1-Dichloroethane	<0.50		0.50	ug/L		29-AUG-19	R4774139
1,2-Dichloroethane	<0.50		0.50	ug/L		29-AUG-19	R4774139
1,1-Dichloroethylene	<0.50		0.50	ug/L		29-AUG-19	R4774139
cis-1,2-Dichloroethylene	<0.50		0.50	ug/L		29-AUG-19	R4774139
trans-1,2-Dichloroethylene	<0.50		0.50	ug/L		29-AUG-19	R4774139
Dichloromethane	<2.0		2.0	ug/L		29-AUG-19	R4774139
1,2-Dichloropropane	<0.50		0.50	ug/L		29-AUG-19	R4774139
cis-1,3-Dichloropropene	<0.50		0.50	ug/L		29-AUG-19	R4774139
trans-1,3-Dichloropropene	<0.50		0.50	ug/L		29-AUG-19	R4774139
Ethylbenzene	<0.50		0.50	ug/L		29-AUG-19	R4774139
n-Hexane	<0.50		0.50	ug/L		29-AUG-19	R4774139
Methyl Ethyl Ketone	53		20	ug/L		29-AUG-19	R4774139
Methyl Isobutyl Ketone	<20		20	ug/L		29-AUG-19	R4774139
MTBE	<0.50		0.50	ug/L		29-AUG-19	R4774139
Styrene	<0.50		0.50	ug/L		29-AUG-19	R4774139
1,1,1,2-Tetrachloroethane	<0.50		0.50	ug/L		29-AUG-19	R4774139
1,1,2,2-Tetrachloroethane	<0.50		0.50	ug/L		29-AUG-19	R4774139
Tetrachloroethylene	<0.50		0.50	ug/L		29-AUG-19	R4774139
Toluene	0.56		0.50	ug/L		29-AUG-19	R4774139
1,1,1-Trichloroethane	<0.50		0.50	ug/L		29-AUG-19	R4774139
1,1,2-Trichloroethane	<0.50		0.50	ug/L		29-AUG-19	R4774139
Trichloroethylene	<0.50		0.50	ug/L		29-AUG-19	R4774139
Trichlorofluoromethane	<1.0		1.0	ug/L		29-AUG-19	R4774139
Vinyl chloride	<0.50		0.50	ug/L		29-AUG-19	R4774139

\* 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
L2333790-3 EAST STORM WATER POND Sampled By: CLIENT on 21-AUG-19 @ 11:45 Matrix: WATER							
<b>Volatile Organic Compounds</b>							
o-Xylene	<0.50		0.50	ug/L		29-AUG-19	R4774139
m+p-Xylenes	<1.0		1.0	ug/L		29-AUG-19	R4774139
Xylenes (Total)	<1.1		1.1	ug/L		29-AUG-19	
Surrogate: 4-Bromofluorobenzene	91.9		70-130	%		29-AUG-19	R4774139
Surrogate: 1,4-Difluorobenzene	95.5		70-130	%		29-AUG-19	R4774139
<b>Trihalomethanes</b>							
Total THMs	<2.0		2.0	ug/L		29-AUG-19	
<b>Acid Extractables</b>							
2,3,6-Trichlorophenol	<0.50		0.50	ug/L	26-AUG-19	28-AUG-19	R4773528
Surrogate: 2,4,6-Tribromophenol	113.1		40-150	%	26-AUG-19	28-AUG-19	R4773528
<b>Semi-Volatile Organics</b>							
Acenaphthene	<0.20		0.20	ug/L	26-AUG-19	28-AUG-19	R4771952
Acenaphthylene	<0.20		0.20	ug/L	26-AUG-19	28-AUG-19	R4771952
Anthracene	<0.20		0.20	ug/L	26-AUG-19	28-AUG-19	R4771952
Benzo(a)anthracene	<0.20		0.20	ug/L	26-AUG-19	28-AUG-19	R4771952
Benzo(a)pyrene	<0.050		0.050	ug/L	26-AUG-19	28-AUG-19	R4771952
Benzo(b)fluoranthene	<0.20		0.20	ug/L	26-AUG-19	28-AUG-19	R4771952
Benzo(ghi)perylene	<0.20		0.20	ug/L	26-AUG-19	28-AUG-19	R4771952
Benzo(k)fluoranthene	<0.20		0.20	ug/L	26-AUG-19	28-AUG-19	R4771952
4-Chloroaniline	<0.40		0.40	ug/L	26-AUG-19	28-AUG-19	R4771952
Bis(2-chloroethyl)ether	<0.40		0.40	ug/L	26-AUG-19	28-AUG-19	R4771952
2-Chlorophenol	<0.30		0.30	ug/L	26-AUG-19	28-AUG-19	R4771952
Chrysene	<0.20		0.20	ug/L	26-AUG-19	28-AUG-19	R4771952
Dibenzo(a,h)anthracene	<0.20		0.20	ug/L	26-AUG-19	28-AUG-19	R4771952
1,2-Dichlorobenzene	<0.40		0.40	ug/L	26-AUG-19	28-AUG-19	R4771952
1,3-Dichlorobenzene	<0.40		0.40	ug/L	26-AUG-19	28-AUG-19	R4771952
1,4-Dichlorobenzene	<0.40		0.40	ug/L	26-AUG-19	28-AUG-19	R4771952
3,3'-Dichlorobenzidine	<0.40		0.40	ug/L	26-AUG-19	28-AUG-19	R4771952
2,4-Dichlorophenol	<0.30		0.30	ug/L	26-AUG-19	28-AUG-19	R4771952
Diethylphthalate	<0.20		0.20	ug/L	26-AUG-19	28-AUG-19	R4771952
Dimethylphthalate	0.28		0.20	ug/L	26-AUG-19	28-AUG-19	R4771952
2,4-Dimethylphenol	<0.50		0.50	ug/L	26-AUG-19	28-AUG-19	R4771952
2,4-Dinitrophenol	<1.2	DLQ	1.2	ug/L	26-AUG-19	28-AUG-19	R4771952
2,4-Dinitrotoluene	<0.40		0.40	ug/L	26-AUG-19	28-AUG-19	R4771952
2,6-Dinitrotoluene	<0.40		0.40	ug/L	26-AUG-19	28-AUG-19	R4771952
Bis(2-ethylhexyl)phthalate	<2.0		2.0	ug/L	26-AUG-19	28-AUG-19	R4771952
Fluoranthene	<0.20		0.20	ug/L	26-AUG-19	28-AUG-19	R4771952
Fluorene	<0.20		0.20	ug/L	26-AUG-19	28-AUG-19	R4771952
Hexachlorobenzene	<0.040		0.040	ug/L	26-AUG-19	28-AUG-19	R4771952
Hexachlorobutadiene	<0.20		0.20	ug/L	26-AUG-19	28-AUG-19	R4771952
Indeno(1,2,3-cd)pyrene	<0.20		0.20	ug/L	26-AUG-19	28-AUG-19	R4771952
1-Methylnaphthalene	<0.40		0.40	ug/L	26-AUG-19	28-AUG-19	R4771952

\* 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
L2333790-3 EAST STORM WATER POND Sampled By: CLIENT on 21-AUG-19 @ 11:45 Matrix: WATER							
<b>Semi-Volatile Organics</b>							
2-Methylnaphthalene	<0.40		0.40	ug/L	26-AUG-19	28-AUG-19	R4771952
Naphthalene	<0.20		0.20	ug/L	26-AUG-19	28-AUG-19	R4771952
Pentachlorophenol	<0.50		0.50	ug/L	26-AUG-19	28-AUG-19	R4771952
Perylene	<0.20		0.20	ug/L	26-AUG-19	28-AUG-19	R4771952
Phenanthrene	<0.20		0.20	ug/L	26-AUG-19	28-AUG-19	R4771952
Pyrene	<0.20		0.20	ug/L	26-AUG-19	28-AUG-19	R4771952
2,3,4,5-Tetrachlorophenol	<0.50		0.50	ug/L	26-AUG-19	28-AUG-19	R4771952
2,3,4,6-Tetrachlorophenol	<0.50		0.50	ug/L	26-AUG-19	28-AUG-19	R4771952
1,2,4-Trichlorobenzene	<0.40		0.40	ug/L	26-AUG-19	28-AUG-19	R4771952
2,4,5-Trichlorophenol	<0.50		0.50	ug/L	26-AUG-19	28-AUG-19	R4771952
2,4,6-Trichlorophenol	<0.50		0.50	ug/L	26-AUG-19	28-AUG-19	R4771952
Surrogate: 2-Fluorobiphenyl	88.0		40-130	%	26-AUG-19	28-AUG-19	R4771952
Surrogate: Nitrobenzene d5	120.2		40-130	%	26-AUG-19	28-AUG-19	R4771952
Surrogate: p-Terphenyl d14	96.6		40-130	%	26-AUG-19	28-AUG-19	R4771952
Report Remarks : Increased Cd LOR due to potential 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)
Laboratory Control Sample	2,4-Dinitrophenol	LCS-H	L2333790-1, -2, -3
Laboratory Control Sample	Pentachlorophenol	LCS-H	L2333790-1, -2, -3
Matrix Spike	Bromide (Br)	MS-B	L2333790-1, -2, -3
Matrix Spike	Calcium (Ca)-Total	MS-B	L2333790-1, -2, -3
Matrix Spike	Magnesium (Mg)-Total	MS-B	L2333790-1, -2, -3
Matrix Spike	Potassium (K)-Total	MS-B	L2333790-1, -2, -3
Matrix Spike	Silicon (Si)-Total	MS-B	L2333790-1, -2, -3
Matrix Spike	Phenols (4AAP)	MS-B	L2333790-1, -2
Matrix Spike	Sulfate (SO4)	MS-B	L2333790-1, -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).
DLQ	Detection Limit raised due to co-eluting interference. GCMS qualifier ion ratio did not meet acceptance criteria.
HTC	Hardness was calculated from Total Ca and/or Mg concentrations and may be biased high (dissolved Ca/Mg results unavailable).
LCS-H	Lab Control Sample recovery was above ALS DQO. Non-detected sample results are considered reliable. Other results, if reported, have been qualified.
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 <sub>3</sub> ) 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 infrared detector.	APHA 5310B

## Reference Information

EC-SCREEN-WT	Water	Conductivity Screen (Internal Use Only)	APHA 2510
Qualitative analysis of conductivity where required during preparation of other tests - e.g. TDS, metals, etc.			
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 <sub>3</sub> 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 ICPMS	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-F-WT	Water	Ammonia in Water by Fluorescence	J. ENVIRON. MONIT., 2005, 7, 37-42, RSC
This analysis is carried out, on sulfuric acid preserved samples, using procedures modified from J. Environ. Monit., 2005, 7, 37 - 42, The Royal Society of Chemistry, "Flow-injection analysis with fluorescence detection for the determination of trace levels of ammonium in seawater", Roslyn J. Waston et al.			
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 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.			
		Total Kjeldahl Nitrogen	APHA 4500-Norg D

## Reference Information

TKN-WT	Water		
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.			

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

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*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:*

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

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### Chain of Custody Numbers:

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#### 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: L2333790

Report Date: 30-AUG-19

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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
<b>625-ACID-EXTRA-WT</b>		<b>Water</b>						
<b>Batch</b>	<b>R4773528</b>							
<b>WG3143540-2</b>	<b>LCS</b>							
2,3,6-Trichlorophenol			94.4		%		50-130	28-AUG-19
<b>WG3143540-1</b>	<b>MB</b>							
2,3,6-Trichlorophenol			<0.50		ug/L		0.5	28-AUG-19
Surrogate: 2,4,6-Tribromophenol			90.8		%		40-150	28-AUG-19
<b>625-WT</b>		<b>Water</b>						
<b>Batch</b>	<b>R4771952</b>							
<b>WG3143540-2</b>	<b>LCS</b>							
1-Methylnaphthalene			94.1		%		50-140	28-AUG-19
1,2-Dichlorobenzene			88.8		%		40-130	28-AUG-19
1,2,4-Trichlorobenzene			85.0		%		50-130	28-AUG-19
1,3-Dichlorobenzene			85.1		%		50-140	28-AUG-19
1,4-Dichlorobenzene			86.4		%		40-130	28-AUG-19
2-Chlorophenol			94.8		%		65-130	28-AUG-19
2-Methylnaphthalene			89.5		%		50-140	28-AUG-19
2,3,4,5-Tetrachlorophenol			111.2		%		50-130	28-AUG-19
2,3,4,6-Tetrachlorophenol			110.4		%		65-130	28-AUG-19
2,4-Dichlorophenol			104.7		%		65-130	28-AUG-19
2,4-Dimethylphenol			107.2		%		30-130	28-AUG-19
2,4-Dinitrophenol			168.4	LCS-H	%		40-140	28-AUG-19
2,4-Dinitrotoluene			122.4		%		50-140	28-AUG-19
2,4,5-Trichlorophenol			114.7		%		65-130	28-AUG-19
2,4,6-Trichlorophenol			109.4		%		65-130	28-AUG-19
2,6-Dinitrotoluene			112.7		%		50-140	28-AUG-19
3,3'-Dichlorobenzidine			100.3		%		50-140	28-AUG-19
4-Chloroaniline			85.4		%		30-140	28-AUG-19
Acenaphthene			97.0		%		50-140	28-AUG-19
Acenaphthylene			103.3		%		50-140	28-AUG-19
Anthracene			109.4		%		50-140	28-AUG-19
Benzo(a)anthracene			108.0		%		50-140	28-AUG-19
Benzo(a)pyrene			99.4		%		60-130	28-AUG-19
Benzo(b)fluoranthene			100.9		%		50-140	28-AUG-19
Benzo(ghi)perylene			116.2		%		50-140	28-AUG-19
Benzo(k)fluoranthene			101.6		%		50-140	28-AUG-19
Bis(2-chloroethyl)ether			100.4		%		50-140	28-AUG-19



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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
<b>625-WT</b>	<b>Water</b>							
<b>Batch</b>	<b>R4771952</b>							
<b>WG3143540-2</b>	<b>LCS</b>							
Bis(2-ethylhexyl)phthalate			119.5		%		50-140	28-AUG-19
Chrysene			104.9		%		50-140	28-AUG-19
Dibenzo(a,h)anthracene			112.7		%		50-140	28-AUG-19
Diethylphthalate			104.5		%		50-140	28-AUG-19
Dimethylphthalate			107.8		%		50-140	28-AUG-19
Fluoranthene			96.7		%		50-140	28-AUG-19
Fluorene			97.2		%		50-140	28-AUG-19
Hexachlorobenzene			92.7		%		40-130	28-AUG-19
Hexachlorobutadiene			83.2		%		40-130	28-AUG-19
Indeno(1,2,3-cd)pyrene			118.5		%		50-140	28-AUG-19
Naphthalene			93.7		%		50-140	28-AUG-19
Pentachlorophenol			145.9	LCS-H	%		60-130	28-AUG-19
Perylene			97.2		%		50-140	28-AUG-19
Phenanthrene			102.7		%		50-140	28-AUG-19
Pyrene			91.0		%		50-140	28-AUG-19
<b>WG3143540-1</b>	<b>MB</b>							
1-Methylnaphthalene			<0.40		ug/L		0.4	28-AUG-19
1,2-Dichlorobenzene			<0.40		ug/L		0.4	28-AUG-19
1,2,4-Trichlorobenzene			<0.40		ug/L		0.4	28-AUG-19
1,3-Dichlorobenzene			<0.40		ug/L		0.4	28-AUG-19
1,4-Dichlorobenzene			<0.40		ug/L		0.4	28-AUG-19
2-Chlorophenol			<0.30		ug/L		0.3	28-AUG-19
2-Methylnaphthalene			<0.40		ug/L		0.4	28-AUG-19
2,3,4,5-Tetrachlorophenol			<0.50		ug/L		0.5	28-AUG-19
2,3,4,6-Tetrachlorophenol			<0.50		ug/L		0.5	28-AUG-19
2,4-Dichlorophenol			<0.30		ug/L		0.3	28-AUG-19
2,4-Dimethylphenol			<0.50		ug/L		0.5	28-AUG-19
2,4-Dinitrophenol			<1.0		ug/L		1	28-AUG-19
2,4-Dinitrotoluene			<0.40		ug/L		0.4	28-AUG-19
2,4,5-Trichlorophenol			<0.50		ug/L		0.5	28-AUG-19
2,4,6-Trichlorophenol			<0.50		ug/L		0.5	28-AUG-19
2,6-Dinitrotoluene			<0.40		ug/L		0.4	28-AUG-19
3,3'-Dichlorobenzidine			<0.40		ug/L		0.4	28-AUG-19
4-Chloroaniline			<0.40		ug/L		0.4	28-AUG-19



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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
<b>625-WT</b>		<b>Water</b>						
<b>Batch</b>	<b>R4771952</b>							
<b>WG3143540-1</b>	<b>MB</b>							
Acenaphthene			<0.20		ug/L		0.2	28-AUG-19
Acenaphthylene			<0.20		ug/L		0.2	28-AUG-19
Anthracene			<0.20		ug/L		0.2	28-AUG-19
Benzo(a)anthracene			<0.20		ug/L		0.2	28-AUG-19
Benzo(a)pyrene			<0.050		ug/L		0.05	28-AUG-19
Benzo(b)fluoranthene			<0.20		ug/L		0.2	28-AUG-19
Benzo(ghi)perylene			<0.20		ug/L		0.2	28-AUG-19
Benzo(k)fluoranthene			<0.20		ug/L		0.2	28-AUG-19
Bis(2-chloroethyl)ether			<0.40		ug/L		0.4	28-AUG-19
Bis(2-ethylhexyl)phthalate			<1.0		ug/L		1	28-AUG-19
Chrysene			<0.20		ug/L		0.2	28-AUG-19
Dibenzo(a,h)anthracene			<0.20		ug/L		0.2	28-AUG-19
Diethylphthalate			<0.20		ug/L		0.2	28-AUG-19
Dimethylphthalate			<0.20		ug/L		0.2	28-AUG-19
Fluoranthene			<0.20		ug/L		0.2	28-AUG-19
Fluorene			<0.20		ug/L		0.2	28-AUG-19
Hexachlorobenzene			<0.040		ug/L		0.04	28-AUG-19
Hexachlorobutadiene			<0.20		ug/L		0.2	28-AUG-19
Indeno(1,2,3-cd)pyrene			<0.20		ug/L		0.2	28-AUG-19
Naphthalene			<0.20		ug/L		0.2	28-AUG-19
Pentachlorophenol			<0.50		ug/L		0.5	28-AUG-19
Perylene			<0.20		ug/L		0.2	28-AUG-19
Phenanthrene			<0.20		ug/L		0.2	28-AUG-19
Pyrene			<0.20		ug/L		0.2	28-AUG-19
Surrogate: 2-Fluorobiphenyl			93.3		%		40-130	28-AUG-19
Surrogate: Nitrobenzene d5			98.7		%		40-130	28-AUG-19
Surrogate: p-Terphenyl d14			109.1		%		40-130	28-AUG-19
<b>ALK-WT</b>		<b>Water</b>						
<b>Batch</b>	<b>R4767976</b>							
<b>WG3141843-4</b>	<b>DUP</b>	<b>WG3141843-3</b>						
Alkalinity, Total (as CaCO3)		63	62		mg/L	0.6	20	23-AUG-19
<b>WG3141843-2</b>	<b>LCS</b>							
Alkalinity, Total (as CaCO3)			101.3		%		85-115	23-AUG-19
<b>WG3141843-1</b>	<b>MB</b>							



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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
<b>ALK-WT Water</b>								
Batch	R4767976							
WG3141843-1	MB							
Alkalinity, Total (as CaCO3)			<10		mg/L		10	23-AUG-19
<b>BR-IC-N-WT Water</b>								
Batch	R4768839							
WG3141427-14	DUP	WG3141427-13						
Bromide (Br)		2.43	2.43		mg/L	0.2	20	23-AUG-19
WG3141427-12	LCS							
Bromide (Br)			101.1		%		85-115	23-AUG-19
WG3141427-11	MB							
Bromide (Br)			<0.10		mg/L		0.1	23-AUG-19
WG3141427-15	MS	WG3141427-13						
Bromide (Br)			N/A	MS-B	%		-	23-AUG-19
<b>CL-IC-N-WT Water</b>								
Batch	R4768839							
WG3141427-14	DUP	WG3141427-13						
Chloride (Cl)		69.2	69.2		mg/L	0.0	20	23-AUG-19
WG3141427-12	LCS							
Chloride (Cl)			102.7		%		90-110	23-AUG-19
WG3141427-11	MB							
Chloride (Cl)			<0.50		mg/L		0.5	23-AUG-19
WG3141427-15	MS	WG3141427-13						
Chloride (Cl)			99.99		%		75-125	23-AUG-19
<b>CN-TOT-WT Water</b>								
Batch	R4768608							
WG3141722-8	DUP	L2334377-1						
Cyanide, Total		<0.0020	<0.0020	RPD-NA	mg/L	N/A	20	23-AUG-19
WG3141722-6	LCS							
Cyanide, Total			90.4		%		80-120	23-AUG-19
WG3141722-5	MB							
Cyanide, Total			<0.0020		mg/L		0.002	23-AUG-19
WG3141722-7	MS	L2334377-1						
Cyanide, Total			87.6		%		70-130	23-AUG-19
<b>COD-T-WT Water</b>								



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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
<b>COD-T-WT</b>		<b>Water</b>						
Batch	R4771960							
<b>WG3145395-3</b>	<b>DUP</b>	<b>L2333790-1</b>						
COD		<10	<10	RPD-NA	mg/L	N/A	20	28-AUG-19
<b>WG3145395-2</b>	<b>LCS</b>							
COD			95.0		%		85-115	28-AUG-19
<b>WG3145395-1</b>	<b>MB</b>							
COD			<10		mg/L		10	28-AUG-19
<b>WG3145395-4</b>	<b>MS</b>	<b>L2333790-1</b>						
COD			92.4		%		75-125	28-AUG-19
<b>CR-CR6-IC-WT</b>		<b>Water</b>						
Batch	R4768380							
<b>WG3143055-4</b>	<b>DUP</b>	<b>WG3143055-3</b>						
Chromium, Hexavalent		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	23-AUG-19
<b>WG3143055-2</b>	<b>LCS</b>							
Chromium, Hexavalent			97.7		%		80-120	23-AUG-19
<b>WG3143055-1</b>	<b>MB</b>							
Chromium, Hexavalent			<0.00050		mg/L		0.0005	23-AUG-19
<b>WG3143055-5</b>	<b>MS</b>	<b>WG3143055-3</b>						
Chromium, Hexavalent			95.8		%		70-130	23-AUG-19
<b>DOC-WT</b>		<b>Water</b>						
Batch	R4771412							
<b>WG3142214-3</b>	<b>DUP</b>	<b>L2331538-1</b>						
Dissolved Organic Carbon		2.24	2.29		mg/L	2.3	20	27-AUG-19
<b>WG3142214-2</b>	<b>LCS</b>							
Dissolved Organic Carbon			97.4		%		80-120	27-AUG-19
<b>WG3142214-1</b>	<b>MB</b>							
Dissolved Organic Carbon			<0.50		mg/L		0.5	27-AUG-19
<b>WG3142214-4</b>	<b>MS</b>	<b>L2331538-1</b>						
Dissolved Organic Carbon			95.2		%		70-130	27-AUG-19
<b>EC-WT</b>		<b>Water</b>						
Batch	R4767976							
<b>WG3141843-4</b>	<b>DUP</b>	<b>WG3141843-3</b>						
Conductivity		147	148		umhos/cm	0.5	10	23-AUG-19
<b>WG3141843-2</b>	<b>LCS</b>							
Conductivity			101.5		%		90-110	23-AUG-19
<b>WG3141843-1</b>	<b>MB</b>							
Conductivity			<3.0		umhos/cm		3	23-AUG-19
<b>F-IC-N-WT</b>		<b>Water</b>						



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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
<b>F-IC-N-WT</b>		<b>Water</b>						
<b>Batch</b>	<b>R4768839</b>							
<b>WG3141427-14</b>	<b>DUP</b>	<b>WG3141427-13</b>						
Fluoride (F)		0.597	0.593		mg/L	0.7	20	23-AUG-19
<b>WG3141427-12</b>	<b>LCS</b>							
Fluoride (F)			103.9		%		90-110	23-AUG-19
<b>WG3141427-11</b>	<b>MB</b>							
Fluoride (F)			<0.020		mg/L		0.02	23-AUG-19
<b>WG3141427-15</b>	<b>MS</b>	<b>WG3141427-13</b>						
Fluoride (F)			96.7		%		75-125	23-AUG-19
<b>HG-T-CVAA-WT</b>		<b>Water</b>						
<b>Batch</b>	<b>R4766053</b>							
<b>WG3141235-4</b>	<b>DUP</b>	<b>WG3141235-3</b>						
Mercury (Hg)-Total		<0.0000050	<0.0000050	RPD-NA	mg/L	N/A	20	23-AUG-19
<b>WG3141235-2</b>	<b>LCS</b>							
Mercury (Hg)-Total			98.8		%		80-120	23-AUG-19
<b>WG3141235-1</b>	<b>MB</b>							
Mercury (Hg)-Total			<0.0000050		mg/L		0.000005	23-AUG-19
<b>WG3141235-7</b>	<b>MS</b>	<b>WG3141235-5</b>						
Mercury (Hg)-Total			101.0		%		70-130	23-AUG-19
<b>MET-T-CCMS-WT</b>		<b>Water</b>						
<b>Batch</b>	<b>R4765749</b>							
<b>WG3141081-4</b>	<b>DUP</b>	<b>WG3141081-3</b>						
Aluminum (Al)-Total		0.0154	0.0167		mg/L	8.0	20	23-AUG-19
Antimony (Sb)-Total		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	23-AUG-19
Arsenic (As)-Total		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	23-AUG-19
Barium (Ba)-Total		0.0117	0.0115		mg/L	1.4	20	23-AUG-19
Beryllium (Be)-Total		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	23-AUG-19
Bismuth (Bi)-Total		<0.000050	<0.000050	RPD-NA	mg/L	N/A	20	23-AUG-19
Boron (B)-Total		<0.010	<0.010	RPD-NA	mg/L	N/A	20	23-AUG-19
Cadmium (Cd)-Total		<0.0000050	<0.0000050	RPD-NA	mg/L	N/A	20	23-AUG-19
Calcium (Ca)-Total		15.7	15.7		mg/L	0.2	20	23-AUG-19
Cobalt (Co)-Total		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	23-AUG-19
Copper (Cu)-Total		0.0022	0.0022		mg/L	0.2	20	23-AUG-19
Iron (Fe)-Total		0.016	0.017		mg/L	8.7	20	23-AUG-19
Lead (Pb)-Total		<0.000050	<0.000050	RPD-NA	mg/L	N/A	20	23-AUG-19
Magnesium (Mg)-Total		10.1	10.0		mg/L	0.8	20	23-AUG-19
Manganese (Mn)-Total		0.00089	0.00088		mg/L	1.6	20	23-AUG-19



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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
<b>MET-T-CCMS-WT</b>								
	<b>Water</b>							
<b>Batch</b>	<b>R4765749</b>							
<b>WG3141081-4</b>	<b>DUP</b>	<b>WG3141081-3</b>						
Molybdenum (Mo)-Total		0.00142	0.00141		mg/L	0.3	20	23-AUG-19
Nickel (Ni)-Total		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	23-AUG-19
Potassium (K)-Total		2.57	2.54		mg/L	1.3	20	23-AUG-19
Selenium (Se)-Total		0.000112	0.000112		mg/L	0.2	20	23-AUG-19
Silicon (Si)-Total		0.93	0.93		mg/L	0.2	20	23-AUG-19
Silver (Ag)-Total		<0.000050	<0.000050	RPD-NA	mg/L	N/A	20	23-AUG-19
Sodium (Na)-Total		0.735	0.730		mg/L	0.6	20	23-AUG-19
Strontium (Sr)-Total		0.0113	0.0111		mg/L	1.4	20	23-AUG-19
Thallium (Tl)-Total		0.000015	0.000016		mg/L	0.6	20	23-AUG-19
Tin (Sn)-Total		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	23-AUG-19
Vanadium (V)-Total		0.00053	0.00054		mg/L	2.0	20	23-AUG-19
Zinc (Zn)-Total		<0.0030	<0.0030	RPD-NA	mg/L	N/A	20	23-AUG-19
<b>WG3141081-2</b>	<b>LCS</b>							
Aluminum (Al)-Total			99.8		%		80-120	23-AUG-19
Antimony (Sb)-Total			100.5		%		80-120	23-AUG-19
Arsenic (As)-Total			96.0		%		80-120	23-AUG-19
Barium (Ba)-Total			98.7		%		80-120	23-AUG-19
Beryllium (Be)-Total			97.3		%		80-120	23-AUG-19
Bismuth (Bi)-Total			97.1		%		80-120	23-AUG-19
Boron (B)-Total			94.9		%		80-120	23-AUG-19
Cadmium (Cd)-Total			96.2		%		80-120	23-AUG-19
Calcium (Ca)-Total			98.7		%		80-120	23-AUG-19
Cobalt (Co)-Total			95.5		%		80-120	23-AUG-19
Copper (Cu)-Total			95.8		%		80-120	23-AUG-19
Iron (Fe)-Total			100.8		%		80-120	23-AUG-19
Lead (Pb)-Total			99.1		%		80-120	23-AUG-19
Magnesium (Mg)-Total			97.7		%		80-120	23-AUG-19
Manganese (Mn)-Total			98.6		%		80-120	23-AUG-19
Molybdenum (Mo)-Total			100.7		%		80-120	23-AUG-19
Nickel (Ni)-Total			95.2		%		80-120	23-AUG-19
Potassium (K)-Total			101.4		%		80-120	23-AUG-19
Selenium (Se)-Total			94.1		%		80-120	23-AUG-19
Silicon (Si)-Total			105.9		%		60-140	23-AUG-19



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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
<b>MET-T-CCMS-WT</b>		<b>Water</b>						
<b>Batch</b>	<b>R4765749</b>							
<b>WG3141081-2</b>	<b>LCS</b>							
Silver (Ag)-Total			99.5		%		80-120	23-AUG-19
Sodium (Na)-Total			98.3		%		80-120	23-AUG-19
Strontium (Sr)-Total			98.5		%		80-120	23-AUG-19
Thallium (Tl)-Total			97.5		%		80-120	23-AUG-19
Tin (Sn)-Total			99.7		%		80-120	23-AUG-19
Vanadium (V)-Total			98.5		%		80-120	23-AUG-19
Zinc (Zn)-Total			96.8		%		80-120	23-AUG-19
<b>WG3141081-1</b>	<b>MB</b>							
Aluminum (Al)-Total			<0.0050		mg/L		0.005	23-AUG-19
Antimony (Sb)-Total			<0.00010		mg/L		0.0001	23-AUG-19
Arsenic (As)-Total			<0.00010		mg/L		0.0001	23-AUG-19
Barium (Ba)-Total			<0.00010		mg/L		0.0001	23-AUG-19
Beryllium (Be)-Total			<0.00010		mg/L		0.0001	23-AUG-19
Bismuth (Bi)-Total			<0.000050		mg/L		0.00005	23-AUG-19
Boron (B)-Total			<0.010		mg/L		0.01	23-AUG-19
Cadmium (Cd)-Total			<0.0000050		mg/L		0.000005	23-AUG-19
Calcium (Ca)-Total			<0.050		mg/L		0.05	23-AUG-19
Cobalt (Co)-Total			<0.00010		mg/L		0.0001	23-AUG-19
Copper (Cu)-Total			<0.0010		mg/L		0.001	23-AUG-19
Iron (Fe)-Total			<0.010		mg/L		0.01	23-AUG-19
Lead (Pb)-Total			<0.000050		mg/L		0.00005	23-AUG-19
Magnesium (Mg)-Total			<0.0050		mg/L		0.005	23-AUG-19
Manganese (Mn)-Total			<0.00050		mg/L		0.0005	23-AUG-19
Molybdenum (Mo)-Total			<0.000050		mg/L		0.00005	23-AUG-19
Nickel (Ni)-Total			<0.00050		mg/L		0.0005	23-AUG-19
Potassium (K)-Total			<0.050		mg/L		0.05	23-AUG-19
Selenium (Se)-Total			<0.000050		mg/L		0.00005	23-AUG-19
Silicon (Si)-Total			<0.10		mg/L		0.1	23-AUG-19
Silver (Ag)-Total			<0.000050		mg/L		0.00005	23-AUG-19
Sodium (Na)-Total			<0.050		mg/L		0.05	23-AUG-19
Strontium (Sr)-Total			<0.0010		mg/L		0.001	23-AUG-19
Thallium (Tl)-Total			<0.000010		mg/L		0.00001	23-AUG-19
Tin (Sn)-Total			<0.00010		mg/L		0.0001	23-AUG-19
Vanadium (V)-Total			<0.00050		mg/L		0.0005	23-AUG-19







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Client: GHD Limited (Waterloo)  
 455 PHILLIP STREET  
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Contact: LAURA ERMETA

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>NH3-F-WT</b>								
<b>Water</b>								
<b>Batch</b>	<b>R4765438</b>							
<b>WG3140124-18</b>	<b>LCS</b>							
Ammonia, Total (as N)			89.6		%		85-115	22-AUG-19
<b>WG3140124-17</b>	<b>MB</b>							
Ammonia, Total (as N)			<0.010		mg/L		0.01	22-AUG-19
<b>WG3140124-20</b>	<b>MS</b>	<b>L2333390-16</b>						
Ammonia, Total (as N)			109.9		%		75-125	22-AUG-19
<b>Batch</b>	<b>R4769343</b>							
<b>WG3143370-3</b>	<b>DUP</b>	<b>L2333805-1</b>						
Ammonia, Total (as N)		<0.010	<0.010	RPD-NA	mg/L	N/A	20	26-AUG-19
<b>WG3143370-2</b>	<b>LCS</b>							
Ammonia, Total (as N)			89.8		%		85-115	26-AUG-19
<b>WG3143370-1</b>	<b>MB</b>							
Ammonia, Total (as N)			<0.010		mg/L		0.01	26-AUG-19
<b>WG3143370-4</b>	<b>MS</b>	<b>L2333805-1</b>						
Ammonia, Total (as N)			98.1		%		75-125	26-AUG-19
<b>NO2-IC-WT</b>								
<b>Water</b>								
<b>Batch</b>	<b>R4768839</b>							
<b>WG3141427-14</b>	<b>DUP</b>	<b>WG3141427-13</b>						
Nitrite (as N)		<0.010	<0.010	RPD-NA	mg/L	N/A	20	23-AUG-19
<b>WG3141427-12</b>	<b>LCS</b>							
Nitrite (as N)			103.7		%		90-110	23-AUG-19
<b>WG3141427-11</b>	<b>MB</b>							
Nitrite (as N)			<0.010		mg/L		0.01	23-AUG-19
<b>WG3141427-15</b>	<b>MS</b>	<b>WG3141427-13</b>						
Nitrite (as N)			101.8		%		75-125	23-AUG-19
<b>NO3-IC-WT</b>								
<b>Water</b>								
<b>Batch</b>	<b>R4768839</b>							
<b>WG3141427-14</b>	<b>DUP</b>	<b>WG3141427-13</b>						
Nitrate (as N)		0.049	0.049		mg/L	0.7	20	23-AUG-19
<b>WG3141427-12</b>	<b>LCS</b>							
Nitrate (as N)			101.8		%		90-110	23-AUG-19
<b>WG3141427-11</b>	<b>MB</b>							
Nitrate (as N)			<0.020		mg/L		0.02	23-AUG-19
<b>WG3141427-15</b>	<b>MS</b>	<b>WG3141427-13</b>						
Nitrate (as N)			98.6		%		75-125	23-AUG-19
<b>P-T-COL-WT</b>								
<b>Water</b>								



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Contact: LAURA ERMETA

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>P-T-COL-WT</b>								
	<b>Water</b>							
<b>Batch</b>	<b>R4768775</b>							
<b>WG3141879-3</b>	<b>DUP</b>	<b>L2333383-1</b>						
Phosphorus, Total		0.0049	0.0055		mg/L	12	20	26-AUG-19
<b>WG3141879-2</b>	<b>LCS</b>							
Phosphorus, Total			100.2		%		80-120	26-AUG-19
<b>WG3141879-1</b>	<b>MB</b>							
Phosphorus, Total			<0.0030		mg/L		0.003	26-AUG-19
<b>WG3141879-4</b>	<b>MS</b>	<b>L2333383-1</b>						
Phosphorus, Total			92.5		%		70-130	26-AUG-19
<b>Batch</b>	<b>R4771928</b>							
<b>WG3144590-3</b>	<b>DUP</b>	<b>L2333927-6</b>						
Phosphorus, Total		0.0416	0.0393		mg/L	5.5	20	28-AUG-19
<b>WG3144590-2</b>	<b>LCS</b>							
Phosphorus, Total			100.7		%		80-120	28-AUG-19
<b>WG3144590-1</b>	<b>MB</b>							
Phosphorus, Total			<0.0030		mg/L		0.003	28-AUG-19
<b>WG3144590-4</b>	<b>MS</b>	<b>L2333927-6</b>						
Phosphorus, Total			91.0		%		70-130	28-AUG-19
<b>PH-WT</b>								
	<b>Water</b>							
<b>Batch</b>	<b>R4767976</b>							
<b>WG3141843-4</b>	<b>DUP</b>	<b>WG3141843-3</b>						
pH		7.70	7.72	J	pH units	0.02	0.2	23-AUG-19
<b>WG3141843-2</b>	<b>LCS</b>							
pH			7.00		pH units		6.9-7.1	23-AUG-19
<b>PHENOLS-4AAP-WT</b>								
	<b>Water</b>							
<b>Batch</b>	<b>R4768691</b>							
<b>WG3141510-7</b>	<b>DUP</b>	<b>L2332571-1</b>						
Phenols (4AAP)		0.874	0.889		mg/L	1.7	20	23-AUG-19
<b>WG3141510-6</b>	<b>LCS</b>							
Phenols (4AAP)			102.4		%		85-115	23-AUG-19
<b>WG3141510-5</b>	<b>MB</b>							
Phenols (4AAP)			<0.0010		mg/L		0.001	23-AUG-19
<b>WG3141510-8</b>	<b>MS</b>	<b>L2332571-1</b>						
Phenols (4AAP)			N/A	MS-B	%		-	23-AUG-19
<b>Batch</b>	<b>R4769626</b>							
<b>WG3143546-7</b>	<b>DUP</b>	<b>L2334833-11</b>						
Phenols (4AAP)		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	26-AUG-19
<b>WG3143546-6</b>	<b>LCS</b>							



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Client: GHD Limited (Waterloo)  
 455 PHILLIP STREET  
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Contact: LAURA ERMETA

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>PHENOLS-4AAP-WT</b>								
<b>Water</b>								
Batch	R4769626							
WG3143546-6	LCS							
Phenols (4AAP)			102.1		%		85-115	26-AUG-19
WG3143546-5	MB							
Phenols (4AAP)			<0.0010		mg/L		0.001	26-AUG-19
WG3143546-8	MS	L2334833-11						
Phenols (4AAP)			102.7		%		75-125	26-AUG-19
<b>SO4-IC-N-WT</b>								
<b>Water</b>								
Batch	R4768839							
WG3141427-14	DUP	WG3141427-13						
Sulfate (SO4)		117	117		mg/L	0.1	20	23-AUG-19
WG3141427-12	LCS							
Sulfate (SO4)			103.2		%		90-110	23-AUG-19
WG3141427-11	MB							
Sulfate (SO4)			<0.30		mg/L		0.3	23-AUG-19
WG3141427-15	MS	WG3141427-13						
Sulfate (SO4)			N/A	MS-B	%		-	23-AUG-19
<b>SOLIDS-TDS-WT</b>								
<b>Water</b>								
Batch	R4777589							
WG3145502-3	DUP	L2333305-1						
Total Dissolved Solids		428	441		mg/L	3.0	20	28-AUG-19
WG3145502-2	LCS							
Total Dissolved Solids			102.2		%		85-115	28-AUG-19
WG3145502-1	MB							
Total Dissolved Solids			<10		mg/L		10	28-AUG-19
<b>SOLIDS-TSS-WT</b>								
<b>Water</b>								
Batch	R4770408							
WG3144409-3	DUP	L2334186-3						
Total Suspended Solids		2350	2380		mg/L	1.3	20	28-AUG-19
WG3144409-2	LCS							
Total Suspended Solids			101.2		%		85-115	28-AUG-19
WG3144409-1	MB							
Total Suspended Solids			<2.0		mg/L		2	28-AUG-19
<b>TKN-WT</b>								
<b>Water</b>								
Batch	R4769564							
WG3143892-3	DUP	L2333390-1						
Total Kjeldahl Nitrogen		0.22	<0.15	RPD-NA	mg/L	N/A	20	27-AUG-19
WG3143892-2	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
<b>TKN-WT</b>								
	<b>Water</b>							
<b>Batch</b>	<b>R4769564</b>							
<b>WG3143892-2</b>	<b>LCS</b>							
Total Kjeldahl Nitrogen			95.1		%		75-125	27-AUG-19
<b>WG3143892-1</b>	<b>MB</b>							
Total Kjeldahl Nitrogen			<0.15		mg/L		0.15	27-AUG-19
<b>WG3143892-4</b>	<b>MS</b>	<b>L2333390-1</b>						
Total Kjeldahl Nitrogen			95.4		%		70-130	27-AUG-19
<b>Batch</b>	<b>R4771968</b>							
<b>WG3145067-3</b>	<b>DUP</b>	<b>L2333847-1</b>						
Total Kjeldahl Nitrogen		0.54	0.27	J	mg/L	0.27	0.3	28-AUG-19
<b>WG3145067-2</b>	<b>LCS</b>							
Total Kjeldahl Nitrogen			98.9		%		75-125	28-AUG-19
<b>WG3145067-1</b>	<b>MB</b>							
Total Kjeldahl Nitrogen			<0.15		mg/L		0.15	28-AUG-19
<b>WG3145067-4</b>	<b>MS</b>	<b>L2333847-1</b>						
Total Kjeldahl Nitrogen			100.2		%		70-130	28-AUG-19
<b>VOC-ROU-HS-WT</b>								
	<b>Water</b>							
<b>Batch</b>	<b>R4774139</b>							
<b>WG3136450-4</b>	<b>DUP</b>	<b>WG3136450-3</b>						
1,1,1,2-Tetrachloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	29-AUG-19
1,1,2,2-Tetrachloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	29-AUG-19
1,1,1-Trichloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	29-AUG-19
1,1,2-Trichloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	29-AUG-19
1,2-Dibromoethane		<0.20	<0.20	RPD-NA	ug/L	N/A	30	29-AUG-19
1,1-Dichloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	29-AUG-19
1,1-Dichloroethylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	29-AUG-19
1,2-Dichlorobenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	29-AUG-19
1,2-Dichloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	29-AUG-19
1,2-Dichloropropane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	29-AUG-19
1,3-Dichlorobenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	29-AUG-19
1,4-Dichlorobenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	29-AUG-19
Acetone		<20	<20	RPD-NA	ug/L	N/A	30	29-AUG-19
Benzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	29-AUG-19
Bromodichloromethane		<1.0	<1.0	RPD-NA	ug/L	N/A	30	29-AUG-19
Bromoform		<1.0	<1.0	RPD-NA	ug/L	N/A	30	29-AUG-19
Bromomethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	29-AUG-19



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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
<b>VOC-ROU-HS-WT</b>		<b>Water</b>						
<b>Batch</b>	<b>R4774139</b>							
<b>WG3136450-4</b>	<b>DUP</b>	<b>WG3136450-3</b>						
Carbon tetrachloride		<0.50	<0.50	RPD-NA	ug/L	N/A	30	29-AUG-19
Chlorobenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	29-AUG-19
Chloroethane		<1.0	<1.0	RPD-NA	ug/L	N/A	30	29-AUG-19
Chloroform		<1.0	<1.0	RPD-NA	ug/L	N/A	30	29-AUG-19
cis-1,2-Dichloroethylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	29-AUG-19
cis-1,3-Dichloropropene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	29-AUG-19
Dibromochloromethane		<1.0	<1.0	RPD-NA	ug/L	N/A	30	29-AUG-19
Dichlorodifluoromethane		<1.0	<1.0	RPD-NA	ug/L	N/A	30	29-AUG-19
Dichloromethane		<2.0	<2.0	RPD-NA	ug/L	N/A	30	29-AUG-19
Ethylbenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	29-AUG-19
m+p-Xylenes		<1.0	<1.0	RPD-NA	ug/L	N/A	30	29-AUG-19
Methyl Ethyl Ketone		<20	<20	RPD-NA	ug/L	N/A	30	29-AUG-19
Methyl Isobutyl Ketone		<20	<20	RPD-NA	ug/L	N/A	30	29-AUG-19
n-Hexane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	29-AUG-19
MTBE		<0.50	<0.50	RPD-NA	ug/L	N/A	30	29-AUG-19
o-Xylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	29-AUG-19
Styrene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	29-AUG-19
Tetrachloroethylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	29-AUG-19
Toluene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	29-AUG-19
trans-1,2-Dichloroethylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	29-AUG-19
trans-1,3-Dichloropropene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	29-AUG-19
Trichloroethylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	29-AUG-19
Trichlorofluoromethane		<1.0	<1.0	RPD-NA	ug/L	N/A	30	29-AUG-19
Vinyl chloride		<0.50	<0.50	RPD-NA	ug/L	N/A	30	29-AUG-19
<b>WG3136450-1</b>	<b>LCS</b>							
1,1,1,2-Tetrachloroethane			106.7		%		70-130	28-AUG-19
1,1,2,2-Tetrachloroethane			108.1		%		70-130	28-AUG-19
1,1,1-Trichloroethane			105.0		%		70-130	28-AUG-19
1,1,2-Trichloroethane			112.0		%		70-130	28-AUG-19
1,2-Dibromoethane			112.7		%		70-130	28-AUG-19
1,1-Dichloroethane			107.3		%		70-130	28-AUG-19
1,1-Dichloroethylene			104.8		%		70-130	28-AUG-19
1,2-Dichlorobenzene			109.1		%		70-130	28-AUG-19



## Quality Control Report

Workorder: L2333790

Report Date: 30-AUG-19

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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
<b>VOC-ROU-HS-WT</b>								
	<b>Water</b>							
<b>Batch</b>	<b>R4774139</b>							
<b>WG3136450-1</b>	<b>LCS</b>							
1,2-Dichloroethane			109.0		%		70-130	28-AUG-19
1,2-Dichloropropane			109.3		%		70-130	28-AUG-19
1,3-Dichlorobenzene			104.6		%		70-130	28-AUG-19
1,4-Dichlorobenzene			104.4		%		70-130	28-AUG-19
Acetone			116.3		%		60-140	28-AUG-19
Benzene			109.1		%		70-130	28-AUG-19
Bromodichloromethane			107.1		%		70-130	28-AUG-19
Bromoform			110.0		%		70-130	28-AUG-19
Bromomethane			98.2		%		60-140	28-AUG-19
Carbon tetrachloride			104.7		%		70-130	28-AUG-19
Chlorobenzene			107.4		%		70-130	28-AUG-19
Chloroethane			121.4		%		70-130	28-AUG-19
Chloroform			102.2		%		70-130	28-AUG-19
cis-1,2-Dichloroethylene			104.0		%		70-130	28-AUG-19
cis-1,3-Dichloropropene			108.5		%		70-130	28-AUG-19
Dibromochloromethane			106.6		%		70-130	28-AUG-19
Dichlorodifluoromethane			115.4		%		50-140	28-AUG-19
Dichloromethane			106.1		%		70-130	28-AUG-19
Ethylbenzene			105.1		%		70-130	28-AUG-19
m+p-Xylenes			104.2		%		70-130	28-AUG-19
Methyl Ethyl Ketone			101.4		%		60-140	28-AUG-19
Methyl Isobutyl Ketone			102.1		%		50-150	28-AUG-19
n-Hexane			98.7		%		70-130	28-AUG-19
MTBE			106.7		%		70-130	28-AUG-19
o-Xylene			108.4		%		70-130	28-AUG-19
Styrene			108.5		%		70-130	28-AUG-19
Tetrachloroethylene			103.7		%		70-130	28-AUG-19
Toluene			106.5		%		70-130	28-AUG-19
trans-1,2-Dichloroethylene			103.4		%		70-130	28-AUG-19
trans-1,3-Dichloropropene			105.8		%		70-130	28-AUG-19
Trichloroethylene			104.2		%		70-130	28-AUG-19
Trichlorofluoromethane			108.0		%		60-140	28-AUG-19
Vinyl chloride			123.0		%		60-140	28-AUG-19
<b>WG3136450-2</b>	<b>MB</b>							



## Quality Control Report

Workorder: L2333790

Report Date: 30-AUG-19

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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
<b>VOC-ROU-HS-WT</b>								
	<b>Water</b>							
<b>Batch</b>	<b>R4774139</b>							
<b>WG3136450-2 MB</b>								
1,1,1,2-Tetrachloroethane			<0.50		ug/L		0.5	28-AUG-19
1,1,2,2-Tetrachloroethane			<0.50		ug/L		0.5	28-AUG-19
1,1,1-Trichloroethane			<0.50		ug/L		0.5	28-AUG-19
1,1,2-Trichloroethane			<0.50		ug/L		0.5	28-AUG-19
1,2-Dibromoethane			<0.20		ug/L		0.2	28-AUG-19
1,1-Dichloroethane			<0.50		ug/L		0.5	28-AUG-19
1,1-Dichloroethylene			<0.50		ug/L		0.5	28-AUG-19
1,2-Dichlorobenzene			<0.50		ug/L		0.5	28-AUG-19
1,2-Dichloroethane			<0.50		ug/L		0.5	28-AUG-19
1,2-Dichloropropane			<0.50		ug/L		0.5	28-AUG-19
1,3-Dichlorobenzene			<0.50		ug/L		0.5	28-AUG-19
1,4-Dichlorobenzene			<0.50		ug/L		0.5	28-AUG-19
Acetone			<20		ug/L		20	28-AUG-19
Benzene			<0.50		ug/L		0.5	28-AUG-19
Bromodichloromethane			<1.0		ug/L		1	28-AUG-19
Bromoform			<1.0		ug/L		1	28-AUG-19
Bromomethane			<0.50		ug/L		0.5	28-AUG-19
Carbon tetrachloride			<0.50		ug/L		0.5	28-AUG-19
Chlorobenzene			<0.50		ug/L		0.5	28-AUG-19
Chloroethane			<1.0		ug/L		1	28-AUG-19
Chloroform			<1.0		ug/L		1	28-AUG-19
cis-1,2-Dichloroethylene			<0.50		ug/L		0.5	28-AUG-19
cis-1,3-Dichloropropene			<0.50		ug/L		0.5	28-AUG-19
Dibromochloromethane			<1.0		ug/L		1	28-AUG-19
Dichlorodifluoromethane			<1.0		ug/L		1	28-AUG-19
Dichloromethane			<2.0		ug/L		2	28-AUG-19
Ethylbenzene			<0.50		ug/L		0.5	28-AUG-19
m+p-Xylenes			<1.0		ug/L		1	28-AUG-19
Methyl Ethyl Ketone			<20		ug/L		20	28-AUG-19
Methyl Isobutyl Ketone			<20		ug/L		20	28-AUG-19
n-Hexane			<0.50		ug/L		0.5	28-AUG-19
MTBE			<0.50		ug/L		0.5	28-AUG-19
o-Xylene			<0.50		ug/L		0.5	28-AUG-19





### Quality Control Report

Workorder: L2333790

Report Date: 30-AUG-19

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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
<b>VOC-ROU-HS-WT</b>								
	<b>Water</b>							
<b>Batch</b>	<b>R4774139</b>							
<b>WG3136450-2 MB</b>								
Styrene			<0.50		ug/L		0.5	28-AUG-19
Tetrachloroethylene			<0.50		ug/L		0.5	28-AUG-19
Toluene			<0.50		ug/L		0.5	28-AUG-19
trans-1,2-Dichloroethylene			<0.50		ug/L		0.5	28-AUG-19
trans-1,3-Dichloropropene			<0.50		ug/L		0.5	28-AUG-19
Trichloroethylene			<0.50		ug/L		0.5	28-AUG-19
Trichlorofluoromethane			<1.0		ug/L		1	28-AUG-19
Vinyl chloride			<0.50		ug/L		0.5	28-AUG-19
Surrogate: 1,4-Difluorobenzene			96.0		%		70-130	28-AUG-19
Surrogate: 4-Bromofluorobenzene			95.5		%		70-130	28-AUG-19
<b>WG3136450-5 MS</b>		<b>WG3136450-3</b>						
1,1,1,2-Tetrachloroethane			105.2		%		50-150	29-AUG-19
1,1,2,2-Tetrachloroethane			100.7		%		50-150	29-AUG-19
1,1,1-Trichloroethane			107.8		%		50-150	29-AUG-19
1,1,2-Trichloroethane			103.5		%		50-150	29-AUG-19
1,2-Dibromoethane			101.2		%		50-150	29-AUG-19
1,1-Dichloroethane			106.6		%		50-150	29-AUG-19
1,1-Dichloroethylene			108.6		%		50-150	29-AUG-19
1,2-Dichlorobenzene			109.1		%		50-150	29-AUG-19
1,2-Dichloroethane			100.5		%		50-150	29-AUG-19
1,2-Dichloropropane			106.5		%		50-150	29-AUG-19
1,3-Dichlorobenzene			107.7		%		50-150	29-AUG-19
1,4-Dichlorobenzene			107.0		%		50-150	29-AUG-19
Acetone			99.1		%		50-150	29-AUG-19
Benzene			108.9		%		50-150	29-AUG-19
Bromodichloromethane			103.5		%		50-150	29-AUG-19
Bromoform			101.2		%		50-150	29-AUG-19
Bromomethane			94.9		%		50-150	29-AUG-19
Carbon tetrachloride			108.1		%		50-150	29-AUG-19
Chlorobenzene			107.8		%		50-150	29-AUG-19
Chloroethane			121.9		%		50-150	29-AUG-19
Chloroform			100.5		%		50-150	29-AUG-19
cis-1,2-Dichloroethylene			101.9		%		50-150	29-AUG-19
cis-1,3-Dichloropropene			107.2		%		50-150	29-AUG-19



## Quality Control Report

Workorder: L2333790

Report Date: 30-AUG-19

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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
<b>VOC-ROU-HS-WT</b>								
	<b>Water</b>							
<b>Batch</b>	<b>R4774139</b>							
<b>WG3136450-5 MS</b>		<b>WG3136450-3</b>						
Dibromochloromethane			99.95		%		50-150	29-AUG-19
Dichlorodifluoromethane			112.6		%		50-150	29-AUG-19
Dichloromethane			100.1		%		50-150	29-AUG-19
Ethylbenzene			108.6		%		50-150	29-AUG-19
m+p-Xylenes			108.7		%		50-150	29-AUG-19
Methyl Ethyl Ketone			81.6		%		50-150	29-AUG-19
Methyl Isobutyl Ketone			89.9		%		50-150	29-AUG-19
n-Hexane			103.1		%		50-150	29-AUG-19
MTBE			107.0		%		50-150	29-AUG-19
o-Xylene			110.9		%		50-150	29-AUG-19
Styrene			108.5		%		50-150	29-AUG-19
Tetrachloroethylene			109.1		%		50-150	29-AUG-19
Toluene			109.1		%		50-150	29-AUG-19
trans-1,2-Dichloroethylene			106.9		%		50-150	29-AUG-19
trans-1,3-Dichloropropene			104.2		%		50-150	29-AUG-19
Trichloroethylene			106.3		%		50-150	29-AUG-19
Trichlorofluoromethane			112.1		%		50-150	29-AUG-19
Vinyl chloride			124.9		%		50-150	29-AUG-19

# Quality Control Report

Workorder: L2333790

Report Date: 30-AUG-19

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

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## Legend:

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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:

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Qualifier	Description
J	Duplicate results and limits are expressed in terms of absolute difference.
LCS-H	Lab Control Sample recovery was above ALS DQO. Non-detected sample results are considered reliable. Other results, if reported, have been qualified.
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.

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## 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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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.



www.alsglobal.com

<b>Report To</b>		<b>Acct#13791</b>		<b>Report Format / Distribution</b>				<b>Select Service Level Below (Rush Turnaround Time (TAT) is not available for all tests)</b>																																																																																						
Company: <b>GHD LIMITED</b>		Contact: <b>Laura Ermeta</b>		Address: <b>455 Phillip St N2L 3X2</b>		Phone: <b>519-884-0510</b>		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 <b>laura.ermeta@ghd.com</b> Email 2 <b>See PO</b>				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:																																																																																		
<b>Invoice To</b>		Same as Report To <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		<b>Invoice Distribution</b>				<b>Analysis Request</b>																																																																																						
Copy of Invoice with Report <input type="checkbox"/> Yes <input type="checkbox"/> No		Company: <b>GHD LIMITED</b>		Contact: <b>Laura Ermeta</b>		Select Invoice Distribution: <input checked="" type="checkbox"/> EMAIL <input type="checkbox"/> MAIL <input checked="" type="checkbox"/> FAX Email 1 or Fax <b>laura.ermeta@ghd.com</b> Email 2				Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below																																																																																				
<b>Project Information</b>		ALS Quote #: <b>44985-20-19</b>		Job #: <b>73506479</b>		PO / AFE: <b>LSD:</b>		<b>Oil and Gas Required Fields (client use)</b>				<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td>ALK, Conductivity, pH, TDS, TSS, Phenols</td> <td>Br, NO2, NO3, SO4, Cl, F (ANIONS-IC-6-WT)</td> <td>DOC (DOC-WT), COD, TKN, TP</td> <td>Total CN (CN-TOT-WT)</td> <td>Un-ionized NH3 (NH3.ETL-NH3-UNION-CL)</td> <td>Total Metals (MET-T-COMSS-WT-WT-44985-Met)</td> <td>Total Mercury (HG-T-CVAA-WT)</td> <td>Total Cr 6+ (CR-CR6-IC-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" style="writing-mode: vertical-rl; text-orientation: mixed;">Number of Containers</td> </tr> <tr> <td>Approver ID:</td> <td>Cost Center:</td> <td>GL Account:</td> <td>Routing Code:</td> <td>Activity Code:</td> <td>Location:</td> <td>ALS Contact: <b>Rick H.</b></td> <td>Sampler:</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>EQ Pond Discharge</td> <td>21/08/19</td> <td>11:15</td> <td>Water</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>R</td><td>32</td><td>7.58</td> </tr> <tr> <td>West Storm Water Pond</td> <td>21/08/19</td> <td>11:30</td> <td>Water</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>R</td><td>26</td><td>7.60</td> </tr> <tr> <td>East Storm Water Pond</td> <td>21/08/19</td> <td>11:45</td> <td>Water</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>R</td><td>24</td><td>7.31</td> </tr> </table>										ALK, Conductivity, pH, TDS, TSS, Phenols	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	Approver ID:	Cost Center:	GL Account:	Routing Code:	Activity Code:	Location:	ALS Contact: <b>Rick H.</b>	Sampler:					EQ Pond Discharge	21/08/19	11:15	Water	R	R	R	R	R	R	R	R	R	R	32	7.58	West Storm Water Pond	21/08/19	11:30	Water	R	R	R	R	R	R	R	R	R	R	26	7.60	East Storm Water Pond	21/08/19	11:45	Water	R	R	R	R	R	R	R	R	R	R	24	7.31
ALK, Conductivity, pH, TDS, TSS, Phenols	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																																																																																		
Approver ID:	Cost Center:	GL Account:	Routing Code:	Activity Code:	Location:	ALS Contact: <b>Rick H.</b>	Sampler:																																																																																							
EQ Pond Discharge	21/08/19	11:15	Water	R	R	R	R	R	R	R	R		R	R	32	7.58																																																																														
West Storm Water Pond	21/08/19	11:30	Water	R	R	R	R	R	R	R	R		R	R	26	7.60																																																																														
East Storm Water Pond	21/08/19	11:45	Water	R	R	R	R	R	R	R	R	R	R	24	7.31																																																																															
<b>ALS Lab Work Order # (lab use only)</b>		<b>L233379081</b>		ALS Contact: <b>Rick H.</b>		Sampler:																																																																																								
<b>ALS Sample # (lab use only)</b>	<b>Sample Identification and/or Coordinates</b> (This description will appear on the report)			<b>Date</b> (dd-mmm-yy)	<b>Time</b> (hh:mm)	<b>Sample Type</b>																																																																																								
	EQ Pond Discharge			21/08/19	11:15	Water																																																																																								
	West Storm Water Pond			21/08/19	11:30	Water																																																																																								
	East Storm Water Pond			21/08/19	11:45	Water																																																																																								
<b>Drinking Water (DW) Samples<sup>1</sup> (client use)</b>				<b>Special Instructions / Specify Criteria to add on report (client Use)</b>								<b>SAMPLE CONDITION AS RECEIVED (lab use only)</b>																																																																																		
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 type="checkbox"/> No												INITIAL COOLER TEMPERATURES °C								FINAL COOLER TEMPERATURES °C																																																																										
SHIPMENT RELEASE (client use)				INITIAL SHIPMENT RECEPTION (lab use only)								FINAL SHIPMENT RECEPTION (lab use only)																																																																																		
Released by: <b>R Tobin</b>		Date: <b>August 19</b>		Time: <b>13:00</b>		Received by:		Date: <b>22-8-19</b>		Time: <b>9:15</b>																																																																																				



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

Date Received: 21-AUG-19  
Report Date: 27-AUG-19 13:37 (MT)  
Version: FINAL

Client Phone: 519-884-0510

## Certificate of Analysis

Lab Work Order #: L2332639  
Project P.O. #: 73506479  
Job Reference: 44985-20-19  
C of C Numbers:  
Legal Site Desc:

Taryn Symborski  
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  
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
L2332639-1 EQ POND DISCHARGE Sampled By: CLIENT on 20-AUG-19 @ 13:20 Matrix: WATER  <b>Miscellaneous</b> Special Request	See Attached					27-AUG-19	R4769706

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

## Reference Information

**Test Method References:**

ALS Test Code	Matrix	Test Description	Method Reference**
SPECIAL REQUEST-AG	Misc.	Special Request AGAT Labs	SEE SUBLET LAB RESULTS

\*\* 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
AG	AGAT LABS

**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: L2332639

Report Date: 27-AUG-19

Page 1 of 2

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

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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
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# Quality Control Report

Workorder: L2332639

Report Date: 27-AUG-19

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

Page 2 of 2

## Legend:

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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

## 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.



CLIENT NAME: ALS ENVIRONMENTAL  
1313 44 Avenue NE  
CALGARY, AB T2E6L5  
(403) 214-5431

ATTENTION TO: Rani Mangru

PROJECT: L2332639

AGAT WORK ORDER: 19E509328

MICROTOX ANALYSIS REVIEWED BY: Shanna Mills, Inorganics Manager

DATE REPORTED: Aug 27, 2019

PAGES (INCLUDING COVER): 6

VERSION\*: 1

Should you require any information regarding this analysis please contact your client services representative at (780) 395-2525

\*NOTES

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



## Certificate of Analysis

AGAT WORK ORDER: 19E509328

PROJECT: L2332639

6310 ROPER ROAD  
EDMONTON, ALBERTA  
CANADA T6B 3P9  
TEL (780)395-2525  
FAX (780)462-2490  
<http://www.agatlabs.com>

CLIENT NAME: ALS ENVIRONMENTAL

ATTENTION TO: Rani Mangru

SAMPLING SITE:

SAMPLED BY:

### Microtox Analysis

DATE RECEIVED: 2019-08-21

DATE REPORTED: 2019-08-24

L2332639-1 EQ

SAMPLE DESCRIPTION: Pond Discharge

SAMPLE TYPE: Water

DATE SAMPLED: 2019-08-20

Parameter	Unit	G / S	RDL	467697
Microtox Original (Passed/Failed)			NA	Passed
Microtox - EC50 (15min)	%		NA	>81.9
Microtox Charcoal (Passed/Failed)			NA	NA
Microtox - EC50 (15min) Charcoal	%		NA	NA
Initial pH			0.02	7.93
Final pH			0.02	7.93
Colour				Clear
Color Corrected (Yes/No)				No
Turbidity	NTU		0.5	1.1
Clarification (Centrifugation)	Minutes		NA	30
Treatment (1:1 Extraction)			NA	NA

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard

467697 Environmental Canada detailed report available on request.

Analysis performed at AGAT Edmonton (unless marked by \*)

Certified By:



## Quality Assurance

CLIENT NAME: ALS ENVIRONMENTAL  
PROJECT: L2332639  
SAMPLING SITE:

AGAT WORK ORDER: 19E509328  
ATTENTION TO: Rani Mangru  
SAMPLED BY:

### Microtox Analysis

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

Microtox Analysis

Microtox Original (Passed/Failed)	2345	467697	Passed	Passed	0.0%									
Microtox - EC50 (15min)	2345	467697	>81.9	>81.9	0.0%	103%	70%	130%						
Initial pH	2345	467697	7.93	7.95	0.3%	< 0.02	99%	80%	120%					
Final pH	2345	467697	7.93	7.95	0.3%	< 0.02								
Turbidity	2345	467697	1.1	1.2	8.7%	< 0.5	92%	80%	120%					

Certified By: \_\_\_\_\_



## Method Summary

CLIENT NAME: ALS ENVIRONMENTAL

AGAT WORK ORDER: 19E509328

PROJECT: L2332639

ATTENTION TO: Rani Mangru

SAMPLING SITE:

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Microtox Analysis			
Microtox Original (Passed/Failed)	TOX-171-7100	EPS (EPS1/RM/24) & D50 2012	Microtox Analyser
Microtox - EC50 (15min)	TOX-171-7100	EPS (EPS1/RM/24) & D50 2012	Microtox Analyser
Microtox Charcoal (Passed/Failed)	TOX-171-7100	EPS (EPS1/RM/24) & D50 2012	Microtox Analyser
Microtox - EC50 (15min) Charcoal	TOX-171-7100	EPS (EPS1/RM/24) & D50 2012	Microtox Analyser
Initial pH	TOX-171-7100	SM 4500 H+	pH METER
Final pH	TOX-171-7100	SM 4500 H+	pH METER
Colour	TOX-171-7100	SM 2120 B	Visual
Color Corrected (Yes/No)	TOX-171-7100	EPS (EPS1/RM/24) & D50 2012	Spectrometer
Turbidity	INORG-171-6101	SM 2130 B	NEPHELOMETER
Clarification (Centrifugation)	TOX-171-7100	EPS (EPS1/RM/24) & D50 2012	Centrifuge
Treatment (1:1 Extraction)	TOX-171-7100	EPS (EPS1/RM/24) & D50 2012	Visual



**ALS Environmental**

*\* Request: Environmental Microtox*

**L2332639**

EDMONTON

**Subcontract Request Form**

**Subcontract To:**

**AGAT LABS**

*19E509308*

**NOTES:** Please reference on final report and invoice: PO# L2332639  
ALS requires QC data to be provided with your final results.

Please see enclosed 1 sample(s) in 1 Container(s)

SAMPLE NUMBER	ANALYTICAL REQUIRED	DATE SAMPLED	PRIORITY Flag
---------------	---------------------	--------------	---------------

<b>L2332639-1 EQ POND DISCHARGE</b>		8/20/2019	
Special Request AGAT Labs (SPECIAL REQUEST-AG 14) 8/28/2019			

*7697*

Subcontract Info Contact: Rani Mangru (780) 413-5242  
Analysis and reporting info contact: Taryn Symborski  
9450 17 AVENUE NW  
EDMONTON, AB T6N 1M9

Phone: (780) 413-5242 Email: Taryn.Symborski@alsglobal.com

**Please email confirmation of receipt to: Taryn.Symborski@alsglobal.com**

Shipped By: \_\_\_\_\_ Date Shipped: \_\_\_\_\_

Received By: *Taryn Symborski* Date Received: \_\_\_\_\_

Verified By: \_\_\_\_\_ Date Verified: \_\_\_\_\_

Temperature: \_\_\_\_\_

Sample Integrity Issues: \_\_\_\_\_

19 AUG 21 12:01

**SAMPLE INTEGRITY RECEIPT FORM**



**Temperature** (Bottles/Jars only) N/A if only Soil Bags Received

**FROZEN** (Please Circle if samples received Frozen)

1 (Bottle/Jar)	+ = 12.1°C	2 (Bottle/Jar)	+ = °C
3 (Bottle/Jar)	+ = °C	4 (Bottle/Jar)	+ = °C
5 (Bottle/Jar)	+ = °C	6 (Bottle/Jar)	+ = °C
7 (Bottle/Jar)	+ = °C	8 (Bottle/Jar)	+ = °C
9 (Bottle/Jar)	+ = °C	10 (Bottle/Jar)	+ = °C

(If more than 10 coolers are received use another sheet of paper and attach)

**LOGISTICS USE ONLY**

Worker No: ME 509328

Samples Damaged: Yes  No  If YES why?

No Bubble Wrap  Frozen  Courier

Other: \_\_\_\_\_

Account Project Manager: \_\_\_\_\_ have they been notified of the above issues: Yes No

Whom spoken to: \_\_\_\_\_ Date/Time: \_\_\_\_\_

CPM Initial \_\_\_\_\_

General Comments: \_\_\_\_\_

**RECEIVING BASICS - Shipping**

Company/Consultant: ALS

Courier: DO Prepaid  Collect

Waybill# \_\_\_\_\_

Branch  EDM GP FN FM RD VAN LYD FSJ EST Other: \_\_\_\_\_

If multiple sites were submitted at once: Yes  No

Custody Seal Intact: Yes  No

TAT: <24hr 24-48hr 48-72hr Reg Other 25XN619

Cooler Quantity: \_\_\_\_\_

**TIME SENSITIVE ISSUES - Shipping**

ALREADY EXCEEDED HOLD TIME? Yes  No

Inorganic Tests (Please Circle): Mibi, BOD, Nitrate/Nitrite, Turbidity, Microtox, Ortho PO4, Tedlar Bag, Residual Chlorine, Chlorophyll\*, Chloroamines\* \_\_\_\_\_

Earliest Expiry: \_\_\_\_\_

Hydrocarbons: Earliest Expiry \_\_\_\_\_

**SAMPLE INTEGRITY - Shipping**

Hazardous Samples: YES  NO  Precaution Taken: \_\_\_\_\_

Legal Samples: Yes  No

International Samples: Yes  No

Tape Sealed: Yes  No

Coolant Used: Icepack  Bagged Ice  Free Ice  Free Water  None



L2332639-COFC

<b>Report To</b>		<b>Acct#13791</b>		<b>Report Format / Distribution</b>		<b>Select Service Level Below (Rush Turnaround Time (TAT) is not available for all tests)</b>											
<b>Company:</b> GHD LIMITED		<b>Contact:</b> Laura Ermeta		<b>Address:</b> 455 Phillip St N2L 3X2		<b>Phone:</b> 519-884-0510		Select Report Format: <input 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		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:					
<b>Invoice To</b> Same as Report To <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		<b>Copy of Invoice with Report</b> <input type="checkbox"/> Yes <input type="checkbox"/> No		<b>Company:</b> GHD LIMITED		<b>Contact:</b> Laura Ermeta		<b>Project Information</b>		<b>Oil and Gas Required Fields (client use)</b>		<b>Analysis Request</b>					
<b>ALS Quote #:</b> TEMPLATE: T44985MTX		<b>Job #:</b> 44985-20-19		<b>PO / AFE:</b> 73506479		<b>LSD:</b>		<b>ALS Lab Work Order # (lab use only)</b> L2332639		<b>ALS Contact:</b> Rick H		<b>Sampler:</b>					
<b>ALS Sample # (lab use only)</b>		<b>Sample Identification and/or Coordinates (This description will appear on the report)</b>				<b>Date (dd-mmm-yy)</b>		<b>Time (hr:mm)</b>		<b>Sample Type</b>		<b>Number of Containers</b>					
		EQ Pond Discharge				20/08/14		13:20		Water		2					
<b>Drinking Water (DW) Samples<sup>1</sup> (client use)</b>				<b>Special Instructions / Specify Criteria to add on report (client use)</b>				<b>SAMPLE CONDITION AS RECEIVED (lab use only)</b>									
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"/>									
Are samples for human drinking water use? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No								INITIAL COOLER TEMPERATURES °C		FINAL COOLER TEMPERATURES °C							
12.6																	
<b>SHIPMENT RELEASE (client use)</b>				<b>INITIAL SHIPMENT RECEPTION (lab use only)</b>				<b>FINAL SHIPMENT RECEPTION (lab use only)</b>									
<b>Released by:</b> R Tobin		<b>Date:</b> Aug 21/14		<b>Time:</b> 13:30		<b>Received by:</b> [Signature]		<b>Date:</b> Aug 21/14		<b>Time:</b> 9:28A		<b>Received by:</b>		<b>Date:</b>		<b>Time:</b>	

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

ALS Form 02/06 (08 Print) 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: 05-NOV-19  
Report Date: 14-NOV-19 13:12 (MT)  
Version: FINAL

Client Phone: 519-884-0510

## Certificate of Analysis

Lab Work Order #: L2377419  
Project P.O. #: 73506479  
Job Reference: 44985-20-19  
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
L2377419-1 EQ POND DISCHARGE							
Sampled By: CLIENT on 04-NOV-19 @ 09:00							
Matrix: WATER							
<b>Field Tests</b>							
pH, Client Supplied	7.76		0.10	pH		06-NOV-19	R4899770
Temperature, Client	10.0		-50	Deg. C		06-NOV-19	R4899770
<b>Physical Tests</b>							
Conductivity	968		3.0	umhos/cm		06-NOV-19	R4901910
Hardness (as CaCO3)	218	HTC	1.3	mg/L		11-NOV-19	
pH	8.20		0.10	pH units		06-NOV-19	R4901910
Total Suspended Solids	5.4		2.0	mg/L	08-NOV-19	11-NOV-19	R4904192
Total Dissolved Solids	544	DLDS	20	mg/L		10-NOV-19	R4904247
<b>Anions and Nutrients</b>							
Alkalinity, Total (as CaCO3)	133		10	mg/L		06-NOV-19	R4901910
Unionized ammonia	0.00124		0.00013	mg/L		12-NOV-19	
Ammonia, Total (as N)	0.096		0.010	mg/L		11-NOV-19	R4904317
Bromide (Br)	8.50		0.10	mg/L		07-NOV-19	R4903280
Chloride (Cl)	125		0.50	mg/L		07-NOV-19	R4903280
Fluoride (F)	0.661		0.020	mg/L		07-NOV-19	R4903280
Nitrate (as N)	0.200		0.020	mg/L		07-NOV-19	R4903280
Nitrite (as N)	<0.010		0.010	mg/L		07-NOV-19	R4903280
Total Kjeldahl Nitrogen	0.51		0.15	mg/L	08-NOV-19	11-NOV-19	R4904439
Phosphorus, Total	0.0196		0.0030	mg/L	11-NOV-19	12-NOV-19	R4904927
Sulfate (SO4)	126		0.30	mg/L		07-NOV-19	R4903280
<b>Cyanides</b>							
Cyanide, Total	<0.0020		0.0020	mg/L		07-NOV-19	R4902324
<b>Organic / Inorganic Carbon</b>							
Dissolved Carbon Filtration Location	LAB	PEHR				07-NOV-19	R4902665
Dissolved Organic Carbon	4.85		0.50	mg/L	07-NOV-19	11-NOV-19	R4904940
<b>Total Metals</b>							
Aluminum (Al)-Total	0.107		0.010	mg/L	06-NOV-19	06-NOV-19	R4902348
Antimony (Sb)-Total	0.00048		0.00010	mg/L	06-NOV-19	06-NOV-19	R4902348
Arsenic (As)-Total	0.00140		0.00010	mg/L	06-NOV-19	06-NOV-19	R4902348
Barium (Ba)-Total	0.0582		0.00020	mg/L	06-NOV-19	06-NOV-19	R4902348
Beryllium (Be)-Total	<0.00010		0.00010	mg/L	06-NOV-19	06-NOV-19	R4902348
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	06-NOV-19	06-NOV-19	R4902348
Boron (B)-Total	0.174		0.010	mg/L	06-NOV-19	06-NOV-19	R4902348
Cadmium (Cd)-Total	<0.000050	DLM	0.000050	mg/L	06-NOV-19	06-NOV-19	R4902348
Calcium (Ca)-Total	55.0		0.50	mg/L	06-NOV-19	06-NOV-19	R4902348
Cobalt (Co)-Total	0.00031		0.00010	mg/L	06-NOV-19	06-NOV-19	R4902348
Copper (Cu)-Total	0.0020		0.0010	mg/L	06-NOV-19	06-NOV-19	R4902348
Iron (Fe)-Total	0.138		0.050	mg/L	06-NOV-19	06-NOV-19	R4902348
Lead (Pb)-Total	0.00018		0.00010	mg/L	06-NOV-19	06-NOV-19	R4902348
Magnesium (Mg)-Total	19.6		0.050	mg/L	06-NOV-19	06-NOV-19	R4902348
Manganese (Mn)-Total	0.0234		0.00050	mg/L	06-NOV-19	06-NOV-19	R4902348
Mercury (Hg)-Total	<0.0000050		0.0000050	mg/L		06-NOV-19	R4900526

\* 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
L2377419-1 EQ POND DISCHARGE							
Sampled By: CLIENT on 04-NOV-19 @ 09:00							
Matrix: WATER							
<b>Total Metals</b>							
Molybdenum (Mo)-Total	0.0635		0.000050	mg/L	06-NOV-19	06-NOV-19	R4902348
Nickel (Ni)-Total	0.0117		0.00050	mg/L	06-NOV-19	06-NOV-19	R4902348
Potassium (K)-Total	24.7		0.050	mg/L	06-NOV-19	06-NOV-19	R4902348
Selenium (Se)-Total	0.00115		0.000050	mg/L	06-NOV-19	06-NOV-19	R4902348
Silicon (Si)-Total	1.74		0.10	mg/L	06-NOV-19	06-NOV-19	R4902348
Silver (Ag)-Total	<0.000050		0.000050	mg/L	06-NOV-19	06-NOV-19	R4902348
Sodium (Na)-Total	86.1		0.50	mg/L	06-NOV-19	06-NOV-19	R4902348
Strontium (Sr)-Total	0.556		0.0010	mg/L	06-NOV-19	06-NOV-19	R4902348
Thallium (Tl)-Total	0.000059		0.000010	mg/L	06-NOV-19	06-NOV-19	R4902348
Tin (Sn)-Total	<0.00010		0.00010	mg/L	06-NOV-19	06-NOV-19	R4902348
Vanadium (V)-Total	0.00053		0.00050	mg/L	06-NOV-19	06-NOV-19	R4902348
Zinc (Zn)-Total	0.0036		0.0030	mg/L	06-NOV-19	06-NOV-19	R4902348
<b>Speciated Metals</b>							
Chromium, Hexavalent	<0.00050		0.00050	mg/L		06-NOV-19	R4901732
<b>Aggregate Organics</b>							
COD	13		10	mg/L		12-NOV-19	R4905014
Phenols (4AAP)	<0.0010		0.0010	mg/L		06-NOV-19	R4901001
<b>Volatile Organic Compounds</b>							
Acetone	<20		20	ug/L		08-NOV-19	R4903056
Benzene	<0.50		0.50	ug/L		08-NOV-19	R4903056
Bromodichloromethane	<1.0		1.0	ug/L		08-NOV-19	R4903056
Bromoform	<1.0		1.0	ug/L		08-NOV-19	R4903056
Bromomethane	<0.50		0.50	ug/L		08-NOV-19	R4903056
Carbon tetrachloride	<0.50		0.50	ug/L		08-NOV-19	R4903056
Chlorobenzene	<0.50		0.50	ug/L		08-NOV-19	R4903056
Dibromochloromethane	<1.0		1.0	ug/L		08-NOV-19	R4903056
Chloroethane	<1.0		1.0	ug/L		08-NOV-19	R4903056
Chloroform	<1.0		1.0	ug/L		08-NOV-19	R4903056
1,2-Dibromoethane	<0.20		0.20	ug/L		08-NOV-19	R4903056
1,2-Dichlorobenzene	<0.50		0.50	ug/L		08-NOV-19	R4903056
1,3-Dichlorobenzene	<0.50		0.50	ug/L		08-NOV-19	R4903056
1,4-Dichlorobenzene	<0.50		0.50	ug/L		08-NOV-19	R4903056
Dichlorodifluoromethane	<1.0		1.0	ug/L		08-NOV-19	R4903056
1,1-Dichloroethane	<0.50		0.50	ug/L		08-NOV-19	R4903056
1,2-Dichloroethane	<0.50		0.50	ug/L		08-NOV-19	R4903056
1,1-Dichloroethylene	<0.50		0.50	ug/L		08-NOV-19	R4903056
cis-1,2-Dichloroethylene	<0.50		0.50	ug/L		08-NOV-19	R4903056
trans-1,2-Dichloroethylene	<0.50		0.50	ug/L		08-NOV-19	R4903056
Dichloromethane	<2.0		2.0	ug/L		08-NOV-19	R4903056
1,2-Dichloropropane	<0.50		0.50	ug/L		08-NOV-19	R4903056
cis-1,3-Dichloropropene	<0.50		0.50	ug/L		08-NOV-19	R4903056
trans-1,3-Dichloropropene	<0.50		0.50	ug/L		08-NOV-19	R4903056

\* 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
L2377419-1 EQ POND DISCHARGE							
Sampled By: CLIENT on 04-NOV-19 @ 09:00							
Matrix: WATER							
<b>Volatile Organic Compounds</b>							
Ethylbenzene	<0.50		0.50	ug/L		08-NOV-19	R4903056
n-Hexane	<0.50		0.50	ug/L		08-NOV-19	R4903056
Methyl Ethyl Ketone	<20		20	ug/L		08-NOV-19	R4903056
Methyl Isobutyl Ketone	<20		20	ug/L		08-NOV-19	R4903056
MTBE	<0.50		0.50	ug/L		08-NOV-19	R4903056
Styrene	<0.50		0.50	ug/L		08-NOV-19	R4903056
1,1,1,2-Tetrachloroethane	<0.50		0.50	ug/L		08-NOV-19	R4903056
1,1,2,2-Tetrachloroethane	<0.50		0.50	ug/L		08-NOV-19	R4903056
Tetrachloroethylene	<0.50		0.50	ug/L		08-NOV-19	R4903056
Toluene	<0.50		0.50	ug/L		08-NOV-19	R4903056
1,1,1-Trichloroethane	<0.50		0.50	ug/L		08-NOV-19	R4903056
1,1,2-Trichloroethane	<0.50		0.50	ug/L		08-NOV-19	R4903056
Trichloroethylene	<0.50		0.50	ug/L		08-NOV-19	R4903056
Trichlorofluoromethane	<1.0		1.0	ug/L		08-NOV-19	R4903056
Vinyl chloride	<0.50		0.50	ug/L		08-NOV-19	R4903056
o-Xylene	<0.50		0.50	ug/L		08-NOV-19	R4903056
m+p-Xylenes	<1.0		1.0	ug/L		08-NOV-19	R4903056
Xylenes (Total)	<1.1		1.1	ug/L		08-NOV-19	
Surrogate: 4-Bromofluorobenzene	95.8		70-130	%		08-NOV-19	R4903056
Surrogate: 1,4-Difluorobenzene	101.3		70-130	%		08-NOV-19	R4903056
<b>Trihalomethanes</b>							
Total THMs	<2.0		2.0	ug/L		08-NOV-19	
<b>Acid Extractables</b>							
2,3,6-Trichlorophenol	<0.50		0.50	ug/L	12-NOV-19	14-NOV-19	R4906867
Surrogate: 2,4,6-Tribromophenol	104.3		40-150	%	12-NOV-19	14-NOV-19	R4906867
<b>Semi-Volatile Organics</b>							
Acenaphthene	<0.20		0.20	ug/L	12-NOV-19	14-NOV-19	R4905993
Acenaphthylene	<0.20		0.20	ug/L	12-NOV-19	14-NOV-19	R4905993
Anthracene	<0.20		0.20	ug/L	12-NOV-19	14-NOV-19	R4905993
Benzo(a)anthracene	<0.20		0.20	ug/L	12-NOV-19	14-NOV-19	R4905993
Benzo(a)pyrene	<0.050		0.050	ug/L	12-NOV-19	14-NOV-19	R4905993
Benzo(b)fluoranthene	<0.20		0.20	ug/L	12-NOV-19	14-NOV-19	R4905993
Benzo(ghi)perylene	<0.20		0.20	ug/L	12-NOV-19	14-NOV-19	R4905993
Benzo(k)fluoranthene	<0.20		0.20	ug/L	12-NOV-19	14-NOV-19	R4905993
4-Chloroaniline	<0.40		0.40	ug/L	12-NOV-19	14-NOV-19	R4905993
Bis(2-chloroethyl)ether	<0.40		0.40	ug/L	12-NOV-19	14-NOV-19	R4905993
2-Chlorophenol	<0.30		0.30	ug/L	12-NOV-19	14-NOV-19	R4905993
Chrysene	<0.20		0.20	ug/L	12-NOV-19	14-NOV-19	R4905993
Dibenzo(a,h)anthracene	<0.20		0.20	ug/L	12-NOV-19	14-NOV-19	R4905993
1,2-Dichlorobenzene	<0.40		0.40	ug/L	12-NOV-19	14-NOV-19	R4905993
1,3-Dichlorobenzene	<0.40		0.40	ug/L	12-NOV-19	14-NOV-19	R4905993
1,4-Dichlorobenzene	<0.40		0.40	ug/L	12-NOV-19	14-NOV-19	R4905993

\* 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
L2377419-1 EQ POND DISCHARGE Sampled By: CLIENT on 04-NOV-19 @ 09:00 Matrix: WATER							
<b>Semi-Volatile Organics</b>							
3,3'-Dichlorobenzidine	<0.40		0.40	ug/L	12-NOV-19	14-NOV-19	R4905993
2,4-Dichlorophenol	<0.30		0.30	ug/L	12-NOV-19	14-NOV-19	R4905993
Diethylphthalate	<0.20		0.20	ug/L	12-NOV-19	14-NOV-19	R4905993
Dimethylphthalate	<0.20		0.20	ug/L	12-NOV-19	14-NOV-19	R4905993
2,4-Dimethylphenol	<0.50		0.50	ug/L	12-NOV-19	14-NOV-19	R4905993
2,4-Dinitrophenol	<1.0		1.0	ug/L	12-NOV-19	14-NOV-19	R4905993
2,4-Dinitrotoluene	<0.40		0.40	ug/L	12-NOV-19	14-NOV-19	R4905993
2,6-Dinitrotoluene	<0.40		0.40	ug/L	12-NOV-19	14-NOV-19	R4905993
Bis(2-ethylhexyl)phthalate	<2.0		2.0	ug/L	12-NOV-19	14-NOV-19	R4905993
Fluoranthene	<0.20		0.20	ug/L	12-NOV-19	14-NOV-19	R4905993
Fluorene	<0.20		0.20	ug/L	12-NOV-19	14-NOV-19	R4905993
Hexachlorobenzene	<0.040		0.040	ug/L	12-NOV-19	14-NOV-19	R4905993
Hexachlorobutadiene	<0.20		0.20	ug/L	12-NOV-19	14-NOV-19	R4905993
Indeno(1,2,3-cd)pyrene	<0.20		0.20	ug/L	12-NOV-19	14-NOV-19	R4905993
1-Methylnaphthalene	<0.40		0.40	ug/L	12-NOV-19	14-NOV-19	R4905993
2-Methylnaphthalene	<0.40		0.40	ug/L	12-NOV-19	14-NOV-19	R4905993
Naphthalene	<0.20		0.20	ug/L	12-NOV-19	14-NOV-19	R4905993
Pentachlorophenol	<0.50		0.50	ug/L	12-NOV-19	14-NOV-19	R4905993
Perylene	<0.20		0.20	ug/L	12-NOV-19	14-NOV-19	R4905993
Phenanthrene	<0.20		0.20	ug/L	12-NOV-19	14-NOV-19	R4905993
Pyrene	<0.20		0.20	ug/L	12-NOV-19	14-NOV-19	R4905993
2,3,4,5-Tetrachlorophenol	<0.50		0.50	ug/L	12-NOV-19	14-NOV-19	R4905993
2,3,4,6-Tetrachlorophenol	<0.50		0.50	ug/L	12-NOV-19	14-NOV-19	R4905993
1,2,4-Trichlorobenzene	<0.40		0.40	ug/L	12-NOV-19	14-NOV-19	R4905993
2,4,5-Trichlorophenol	<0.50		0.50	ug/L	12-NOV-19	14-NOV-19	R4905993
2,4,6-Trichlorophenol	<0.50		0.50	ug/L	12-NOV-19	14-NOV-19	R4905993
Surrogate: 2-Fluorobiphenyl	90.5		40-130	%	12-NOV-19	14-NOV-19	R4905993
Surrogate: Nitrobenzene d5	95.4		40-130	%	12-NOV-19	14-NOV-19	R4905993
Surrogate: p-Terphenyl d14	89.5		40-130	%	12-NOV-19	14-NOV-19	R4905993
Report Remarks : raised Cd LOR to remove potential Mo interference							
L2377419-2 WEST STORM WATER POND Sampled By: CLIENT on 04-NOV-19 @ 09:00 Matrix: WATER							
<b>Field Tests</b>							
pH, Client Supplied	7.73		0.10	pH		06-NOV-19	R4899770
Temperature, Client	13.0		-50	Deg. C		06-NOV-19	R4899770
<b>Physical Tests</b>							
Conductivity	825		3.0	umhos/cm		06-NOV-19	R4901894
Hardness (as CaCO3)	215	HTC	1.3	mg/L		07-NOV-19	
pH	8.19		0.10	pH units		06-NOV-19	R4901894
Total Suspended Solids	9.3		2.0	mg/L	08-NOV-19	11-NOV-19	R4904192
Total Dissolved Solids	474	DLDS	20	mg/L		10-NOV-19	R4904247

\* 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
L2377419-2 WEST STORM WATER POND							
Sampled By: CLIENT on 04-NOV-19 @ 09:00							
Matrix: WATER							
<b>Physical Tests</b>							
<b>Anions and Nutrients</b>							
Alkalinity, Total (as CaCO <sub>3</sub> )	133		10	mg/L		06-NOV-19	R4901894
Unionized ammonia	0.00353		0.00015	mg/L		12-NOV-19	
Ammonia, Total (as N)	0.233		0.010	mg/L		11-NOV-19	R4904317
Bromide (Br)	5.18		0.10	mg/L		07-NOV-19	R4903280
Chloride (Cl)	91.1		0.50	mg/L		07-NOV-19	R4903280
Fluoride (F)	0.650		0.020	mg/L		07-NOV-19	R4903280
Nitrate (as N)	0.055		0.020	mg/L		07-NOV-19	R4903280
Nitrite (as N)	<0.010		0.010	mg/L		07-NOV-19	R4903280
Total Kjeldahl Nitrogen	0.91		0.15	mg/L	08-NOV-19	11-NOV-19	R4904439
Phosphorus, Total	0.0325		0.0030	mg/L	11-NOV-19	12-NOV-19	R4904927
Sulfate (SO <sub>4</sub> )	114		0.30	mg/L		07-NOV-19	R4903280
<b>Cyanides</b>							
Cyanide, Total	<0.0020		0.0020	mg/L		07-NOV-19	R4902324
<b>Organic / Inorganic Carbon</b>							
Dissolved Carbon Filtration Location	LAB	PEHR				07-NOV-19	R4902665
Dissolved Organic Carbon	9.88		0.50	mg/L	07-NOV-19	11-NOV-19	R4904940
<b>Total Metals</b>							
Aluminum (Al)-Total	0.432		0.010	mg/L	06-NOV-19	06-NOV-19	R4902348
Antimony (Sb)-Total	0.00043		0.00010	mg/L	06-NOV-19	06-NOV-19	R4902348
Arsenic (As)-Total	0.00190		0.00010	mg/L	06-NOV-19	06-NOV-19	R4902348
Barium (Ba)-Total	0.0638		0.00020	mg/L	06-NOV-19	06-NOV-19	R4902348
Beryllium (Be)-Total	<0.00010		0.00010	mg/L	06-NOV-19	06-NOV-19	R4902348
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	06-NOV-19	06-NOV-19	R4902348
Boron (B)-Total	0.148		0.010	mg/L	06-NOV-19	06-NOV-19	R4902348
Cadmium (Cd)-Total	<0.00020	DLM	0.000020	mg/L	06-NOV-19	06-NOV-19	R4902348
Calcium (Ca)-Total	56.9		0.50	mg/L	06-NOV-19	06-NOV-19	R4902348
Cobalt (Co)-Total	0.00059		0.00010	mg/L	06-NOV-19	06-NOV-19	R4902348
Copper (Cu)-Total	0.0033		0.0010	mg/L	06-NOV-19	06-NOV-19	R4902348
Iron (Fe)-Total	0.502		0.050	mg/L	06-NOV-19	06-NOV-19	R4902348
Lead (Pb)-Total	0.00058		0.00010	mg/L	06-NOV-19	06-NOV-19	R4902348
Magnesium (Mg)-Total	17.8		0.050	mg/L	06-NOV-19	06-NOV-19	R4902348
Manganese (Mn)-Total	0.0292		0.00050	mg/L	06-NOV-19	06-NOV-19	R4902348
Mercury (Hg)-Total	<0.0000050		0.0000050	mg/L		06-NOV-19	R4900526
Molybdenum (Mo)-Total	0.0588		0.000050	mg/L	06-NOV-19	06-NOV-19	R4902348
Nickel (Ni)-Total	0.0104		0.00050	mg/L	06-NOV-19	06-NOV-19	R4902348
Potassium (K)-Total	19.6		0.050	mg/L	06-NOV-19	06-NOV-19	R4902348
Selenium (Se)-Total	0.00117		0.000050	mg/L	06-NOV-19	06-NOV-19	R4902348
Silicon (Si)-Total	1.82		0.10	mg/L	06-NOV-19	06-NOV-19	R4902348
Silver (Ag)-Total	<0.000050		0.000050	mg/L	06-NOV-19	06-NOV-19	R4902348
Sodium (Na)-Total	64.6		0.50	mg/L	06-NOV-19	06-NOV-19	R4902348
Strontium (Sr)-Total	0.520		0.0010	mg/L	06-NOV-19	06-NOV-19	R4902348

\* 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
L2377419-2 WEST STORM WATER POND							
Sampled By: CLIENT on 04-NOV-19 @ 09:00							
Matrix: WATER							
<b>Total Metals</b>							
Thallium (Tl)-Total	0.000102		0.000010	mg/L	06-NOV-19	06-NOV-19	R4902348
Tin (Sn)-Total	0.00013		0.00010	mg/L	06-NOV-19	06-NOV-19	R4902348
Vanadium (V)-Total	0.00122		0.00050	mg/L	06-NOV-19	06-NOV-19	R4902348
Zinc (Zn)-Total	0.0056		0.0030	mg/L	06-NOV-19	06-NOV-19	R4902348
<b>Speciated Metals</b>							
Chromium, Hexavalent	<0.00050		0.00050	mg/L		06-NOV-19	R4901732
<b>Aggregate Organics</b>							
COD	19		10	mg/L		12-NOV-19	R4905014
Phenols (4AAP)	0.0025		0.0010	mg/L		06-NOV-19	R4901001
<b>Volatile Organic Compounds</b>							
Acetone	<20		20	ug/L		08-NOV-19	R4903056
Benzene	<0.50		0.50	ug/L		08-NOV-19	R4903056
Bromodichloromethane	<1.0		1.0	ug/L		08-NOV-19	R4903056
Bromoform	<1.0		1.0	ug/L		08-NOV-19	R4903056
Bromomethane	<0.50		0.50	ug/L		08-NOV-19	R4903056
Carbon tetrachloride	<0.50		0.50	ug/L		08-NOV-19	R4903056
Chlorobenzene	<0.50		0.50	ug/L		08-NOV-19	R4903056
Dibromochloromethane	<1.0		1.0	ug/L		08-NOV-19	R4903056
Chloroethane	<1.0		1.0	ug/L		08-NOV-19	R4903056
Chloroform	<1.0		1.0	ug/L		08-NOV-19	R4903056
1,2-Dibromoethane	<0.20		0.20	ug/L		08-NOV-19	R4903056
1,2-Dichlorobenzene	<0.50		0.50	ug/L		08-NOV-19	R4903056
1,3-Dichlorobenzene	<0.50		0.50	ug/L		08-NOV-19	R4903056
1,4-Dichlorobenzene	<0.50		0.50	ug/L		08-NOV-19	R4903056
Dichlorodifluoromethane	<1.0		1.0	ug/L		08-NOV-19	R4903056
1,1-Dichloroethane	<0.50		0.50	ug/L		08-NOV-19	R4903056
1,2-Dichloroethane	<0.50		0.50	ug/L		08-NOV-19	R4903056
1,1-Dichloroethylene	<0.50		0.50	ug/L		08-NOV-19	R4903056
cis-1,2-Dichloroethylene	<0.50		0.50	ug/L		08-NOV-19	R4903056
trans-1,2-Dichloroethylene	<0.50		0.50	ug/L		08-NOV-19	R4903056
Dichloromethane	<2.0		2.0	ug/L		08-NOV-19	R4903056
1,2-Dichloropropane	<0.50		0.50	ug/L		08-NOV-19	R4903056
cis-1,3-Dichloropropene	<0.50		0.50	ug/L		08-NOV-19	R4903056
trans-1,3-Dichloropropene	<0.50		0.50	ug/L		08-NOV-19	R4903056
Ethylbenzene	<0.50		0.50	ug/L		08-NOV-19	R4903056
n-Hexane	<0.50		0.50	ug/L		08-NOV-19	R4903056
Methyl Ethyl Ketone	<20		20	ug/L		08-NOV-19	R4903056
Methyl Isobutyl Ketone	<20		20	ug/L		08-NOV-19	R4903056
MTBE	<0.50		0.50	ug/L		08-NOV-19	R4903056
Styrene	<0.50		0.50	ug/L		08-NOV-19	R4903056
1,1,1,2-Tetrachloroethane	<0.50		0.50	ug/L		08-NOV-19	R4903056
1,1,2,2-Tetrachloroethane	<0.50		0.50	ug/L		08-NOV-19	R4903056

\* 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
L2377419-2 WEST STORM WATER POND Sampled By: CLIENT on 04-NOV-19 @ 09:00 Matrix: WATER							
<b>Volatile Organic Compounds</b>							
Tetrachloroethylene	<0.50		0.50	ug/L		08-NOV-19	R4903056
Toluene	<0.50		0.50	ug/L		08-NOV-19	R4903056
1,1,1-Trichloroethane	<0.50		0.50	ug/L		08-NOV-19	R4903056
1,1,2-Trichloroethane	<0.50		0.50	ug/L		08-NOV-19	R4903056
Trichloroethylene	<0.50		0.50	ug/L		08-NOV-19	R4903056
Trichlorofluoromethane	<1.0		1.0	ug/L		08-NOV-19	R4903056
Vinyl chloride	<0.50		0.50	ug/L		08-NOV-19	R4903056
o-Xylene	<0.50		0.50	ug/L		08-NOV-19	R4903056
m+p-Xylenes	<1.0		1.0	ug/L		08-NOV-19	R4903056
Xylenes (Total)	<1.1		1.1	ug/L		08-NOV-19	
Surrogate: 4-Bromofluorobenzene	96.1		70-130	%		08-NOV-19	R4903056
Surrogate: 1,4-Difluorobenzene	101.0		70-130	%		08-NOV-19	R4903056
<b>Trihalomethanes</b>							
Total THMs	<2.0		2.0	ug/L		08-NOV-19	
<b>Acid Extractables</b>							
2,3,6-Trichlorophenol	<0.50		0.50	ug/L	12-NOV-19	14-NOV-19	R4906867
Surrogate: 2,4,6-Tribromophenol	85.4		40-150	%	12-NOV-19	14-NOV-19	R4906867
<b>Semi-Volatile Organics</b>							
Acenaphthene	<0.20		0.20	ug/L	12-NOV-19	14-NOV-19	R4905993
Acenaphthylene	<0.20		0.20	ug/L	12-NOV-19	14-NOV-19	R4905993
Anthracene	<0.20		0.20	ug/L	12-NOV-19	14-NOV-19	R4905993
Benzo(a)anthracene	<0.20		0.20	ug/L	12-NOV-19	14-NOV-19	R4905993
Benzo(a)pyrene	<0.050		0.050	ug/L	12-NOV-19	14-NOV-19	R4905993
Benzo(b)fluoranthene	<0.20		0.20	ug/L	12-NOV-19	14-NOV-19	R4905993
Benzo(ghi)perylene	<0.20		0.20	ug/L	12-NOV-19	14-NOV-19	R4905993
Benzo(k)fluoranthene	<0.20		0.20	ug/L	12-NOV-19	14-NOV-19	R4905993
4-Chloroaniline	<0.40		0.40	ug/L	12-NOV-19	14-NOV-19	R4905993
Bis(2-chloroethyl)ether	<0.40		0.40	ug/L	12-NOV-19	14-NOV-19	R4905993
2-Chlorophenol	<0.30		0.30	ug/L	12-NOV-19	14-NOV-19	R4905993
Chrysene	<0.20		0.20	ug/L	12-NOV-19	14-NOV-19	R4905993
Dibenzo(a,h)anthracene	<0.20		0.20	ug/L	12-NOV-19	14-NOV-19	R4905993
1,2-Dichlorobenzene	<0.40		0.40	ug/L	12-NOV-19	14-NOV-19	R4905993
1,3-Dichlorobenzene	<0.40		0.40	ug/L	12-NOV-19	14-NOV-19	R4905993
1,4-Dichlorobenzene	<0.40		0.40	ug/L	12-NOV-19	14-NOV-19	R4905993
3,3'-Dichlorobenzidine	<0.40		0.40	ug/L	12-NOV-19	14-NOV-19	R4905993
2,4-Dichlorophenol	<0.30		0.30	ug/L	12-NOV-19	14-NOV-19	R4905993
Diethylphthalate	<0.20		0.20	ug/L	12-NOV-19	14-NOV-19	R4905993
Dimethylphthalate	<0.20		0.20	ug/L	12-NOV-19	14-NOV-19	R4905993
2,4-Dimethylphenol	<0.50		0.50	ug/L	12-NOV-19	14-NOV-19	R4905993
2,4-Dinitrophenol	<1.0		1.0	ug/L	12-NOV-19	14-NOV-19	R4905993
2,4-Dinitrotoluene	<0.40		0.40	ug/L	12-NOV-19	14-NOV-19	R4905993
2,6-Dinitrotoluene	<0.40		0.40	ug/L	12-NOV-19	14-NOV-19	R4905993

\* 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
L2377419-2 WEST STORM WATER POND Sampled By: CLIENT on 04-NOV-19 @ 09:00 Matrix: WATER							
<b>Semi-Volatile Organics</b>							
Bis(2-ethylhexyl)phthalate	<2.0		2.0	ug/L	12-NOV-19	14-NOV-19	R4905993
Fluoranthene	<0.20		0.20	ug/L	12-NOV-19	14-NOV-19	R4905993
Fluorene	<0.20		0.20	ug/L	12-NOV-19	14-NOV-19	R4905993
Hexachlorobenzene	<0.040		0.040	ug/L	12-NOV-19	14-NOV-19	R4905993
Hexachlorobutadiene	<0.20		0.20	ug/L	12-NOV-19	14-NOV-19	R4905993
Indeno(1,2,3-cd)pyrene	<0.20		0.20	ug/L	12-NOV-19	14-NOV-19	R4905993
1-Methylnaphthalene	<0.40		0.40	ug/L	12-NOV-19	14-NOV-19	R4905993
2-Methylnaphthalene	<0.40		0.40	ug/L	12-NOV-19	14-NOV-19	R4905993
Naphthalene	<0.20		0.20	ug/L	12-NOV-19	14-NOV-19	R4905993
Pentachlorophenol	<0.50		0.50	ug/L	12-NOV-19	14-NOV-19	R4905993
Perylene	<0.20		0.20	ug/L	12-NOV-19	14-NOV-19	R4905993
Phenanthrene	<0.20		0.20	ug/L	12-NOV-19	14-NOV-19	R4905993
Pyrene	<0.20		0.20	ug/L	12-NOV-19	14-NOV-19	R4905993
2,3,4,5-Tetrachlorophenol	<0.50		0.50	ug/L	12-NOV-19	14-NOV-19	R4905993
2,3,4,6-Tetrachlorophenol	<0.50		0.50	ug/L	12-NOV-19	14-NOV-19	R4905993
1,2,4-Trichlorobenzene	<0.40		0.40	ug/L	12-NOV-19	14-NOV-19	R4905993
2,4,5-Trichlorophenol	<0.50		0.50	ug/L	12-NOV-19	14-NOV-19	R4905993
2,4,6-Trichlorophenol	<0.50		0.50	ug/L	12-NOV-19	14-NOV-19	R4905993
Surrogate: 2-Fluorobiphenyl	83.5		40-130	%	12-NOV-19	14-NOV-19	R4905993
Surrogate: Nitrobenzene d5	110.5		40-130	%	12-NOV-19	14-NOV-19	R4905993
Surrogate: p-Terphenyl d14	93.9		40-130	%	12-NOV-19	14-NOV-19	R4905993
Report Remarks : raised Cd LOR to remove potential	Mo interference						
L2377419-3 EAST STORM WATER POND Sampled By: CLIENT on 04-NOV-19 @ 09:30 Matrix: WATER							
<b>Field Tests</b>							
pH, Client Supplied	7.50		0.10	pH		06-NOV-19	R4899770
Temperature, Client	13.0		-50	Deg. C		06-NOV-19	R4899770
<b>Physical Tests</b>							
Conductivity	847		3.0	umhos/cm		06-NOV-19	R4901894
Hardness (as CaCO3)	238	HTC	1.3	mg/L		07-NOV-19	
pH	8.04		0.10	pH units		06-NOV-19	R4901894
Total Suspended Solids	15.7		2.0	mg/L	08-NOV-19	11-NOV-19	R4904192
Total Dissolved Solids	511	DLDS	20	mg/L		10-NOV-19	R4904247
<b>Anions and Nutrients</b>							
Alkalinity, Total (as CaCO3)	148		10	mg/L		06-NOV-19	R4901894
Unionized ammonia	0.00281		0.000089	mg/L		12-NOV-19	
Ammonia, Total (as N)	0.315		0.010	mg/L		11-NOV-19	R4904317
Bromide (Br)	2.70		0.10	mg/L		07-NOV-19	R4903280
Chloride (Cl)	78.0		0.50	mg/L		07-NOV-19	R4903280
Fluoride (F)	0.893		0.020	mg/L		07-NOV-19	R4903280
Nitrate (as N)	0.059		0.020	mg/L		07-NOV-19	R4903280

\* 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
L2377419-3 EAST STORM WATER POND Sampled By: CLIENT on 04-NOV-19 @ 09:30 Matrix: WATER							
<b>Anions and Nutrients</b>							
Nitrite (as N)	<0.010		0.010	mg/L		07-NOV-19	R4903280
Total Kjeldahl Nitrogen	1.32		0.15	mg/L	08-NOV-19	11-NOV-19	R4904439
Phosphorus, Total	0.0696		0.0030	mg/L	11-NOV-19	12-NOV-19	R4904927
Sulfate (SO4)	141		0.30	mg/L		07-NOV-19	R4903280
<b>Cyanides</b>							
Cyanide, Total	0.0045		0.0020	mg/L		07-NOV-19	R4902324
<b>Organic / Inorganic Carbon</b>							
Dissolved Carbon Filtration Location	LAB	PEHR				07-NOV-19	R4902665
Dissolved Organic Carbon	7.29		0.50	mg/L	07-NOV-19	11-NOV-19	R4904940
<b>Total Metals</b>							
Aluminum (Al)-Total	1.28		0.010	mg/L	06-NOV-19	06-NOV-19	R4902348
Antimony (Sb)-Total	0.00055		0.00010	mg/L	06-NOV-19	06-NOV-19	R4902348
Arsenic (As)-Total	0.00278		0.00010	mg/L	06-NOV-19	06-NOV-19	R4902348
Barium (Ba)-Total	0.0722		0.00020	mg/L	06-NOV-19	06-NOV-19	R4902348
Beryllium (Be)-Total	<0.00010		0.00010	mg/L	06-NOV-19	06-NOV-19	R4902348
Bismuth (Bi)-Total	0.000058		0.000050	mg/L	06-NOV-19	06-NOV-19	R4902348
Boron (B)-Total	0.124		0.010	mg/L	06-NOV-19	06-NOV-19	R4902348
Cadmium (Cd)-Total	<0.00080	DLM	0.00080	mg/L	06-NOV-19	06-NOV-19	R4902348
Calcium (Ca)-Total	64.3		0.50	mg/L	06-NOV-19	06-NOV-19	R4902348
Cobalt (Co)-Total	0.00165		0.00010	mg/L	06-NOV-19	06-NOV-19	R4902348
Copper (Cu)-Total	0.0045		0.0010	mg/L	06-NOV-19	06-NOV-19	R4902348
Iron (Fe)-Total	1.51		0.050	mg/L	06-NOV-19	06-NOV-19	R4902348
Lead (Pb)-Total	0.00478		0.00010	mg/L	06-NOV-19	06-NOV-19	R4902348
Magnesium (Mg)-Total	18.8		0.050	mg/L	06-NOV-19	06-NOV-19	R4902348
Manganese (Mn)-Total	0.0705		0.00050	mg/L	06-NOV-19	06-NOV-19	R4902348
Mercury (Hg)-Total	0.0000389		0.000050	mg/L		06-NOV-19	R4900526
Molybdenum (Mo)-Total	0.0846		0.000050	mg/L	06-NOV-19	06-NOV-19	R4902348
Nickel (Ni)-Total	0.00961		0.00050	mg/L	06-NOV-19	06-NOV-19	R4902348
Potassium (K)-Total	25.9		0.050	mg/L	06-NOV-19	06-NOV-19	R4902348
Selenium (Se)-Total	0.00183		0.000050	mg/L	06-NOV-19	06-NOV-19	R4902348
Silicon (Si)-Total	3.10		0.10	mg/L	06-NOV-19	06-NOV-19	R4902348
Silver (Ag)-Total	<0.000050		0.000050	mg/L	06-NOV-19	06-NOV-19	R4902348
Sodium (Na)-Total	65.7		0.50	mg/L	06-NOV-19	06-NOV-19	R4902348
Strontium (Sr)-Total	0.566		0.0010	mg/L	06-NOV-19	06-NOV-19	R4902348
Thallium (Tl)-Total	0.000287		0.000010	mg/L	06-NOV-19	06-NOV-19	R4902348
Tin (Sn)-Total	0.00023		0.00010	mg/L	06-NOV-19	06-NOV-19	R4902348
Vanadium (V)-Total	0.00307		0.00050	mg/L	06-NOV-19	06-NOV-19	R4902348
Zinc (Zn)-Total	0.0182		0.0030	mg/L	06-NOV-19	06-NOV-19	R4902348
<b>Speciated Metals</b>							
Chromium, Hexavalent	<0.00050		0.00050	mg/L		07-NOV-19	R4903016
<b>Aggregate Organics</b>							
COD	28		10	mg/L		12-NOV-19	R4905014

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## ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2377419-3 EAST STORM WATER POND Sampled By: CLIENT on 04-NOV-19 @ 09:30 Matrix: WATER							
<b>Aggregate Organics</b>							
Phenols (4AAP)	0.0016		0.0010	mg/L		06-NOV-19	R4901001
<b>Volatile Organic Compounds</b>							
Acetone	<20		20	ug/L		08-NOV-19	R4903056
Benzene	<0.50		0.50	ug/L		08-NOV-19	R4903056
Bromodichloromethane	<1.0		1.0	ug/L		08-NOV-19	R4903056
Bromoform	<1.0		1.0	ug/L		08-NOV-19	R4903056
Bromomethane	<0.50		0.50	ug/L		08-NOV-19	R4903056
Carbon tetrachloride	<0.50		0.50	ug/L		08-NOV-19	R4903056
Chlorobenzene	<0.50		0.50	ug/L		08-NOV-19	R4903056
Dibromochloromethane	<1.0		1.0	ug/L		08-NOV-19	R4903056
Chloroethane	<1.0		1.0	ug/L		08-NOV-19	R4903056
Chloroform	<1.0		1.0	ug/L		08-NOV-19	R4903056
1,2-Dibromoethane	<0.20		0.20	ug/L		08-NOV-19	R4903056
1,2-Dichlorobenzene	<0.50		0.50	ug/L		08-NOV-19	R4903056
1,3-Dichlorobenzene	<0.50		0.50	ug/L		08-NOV-19	R4903056
1,4-Dichlorobenzene	<0.50		0.50	ug/L		08-NOV-19	R4903056
Dichlorodifluoromethane	<1.0		1.0	ug/L		08-NOV-19	R4903056
1,1-Dichloroethane	<0.50		0.50	ug/L		08-NOV-19	R4903056
1,2-Dichloroethane	<0.50		0.50	ug/L		08-NOV-19	R4903056
1,1-Dichloroethylene	<0.50		0.50	ug/L		08-NOV-19	R4903056
cis-1,2-Dichloroethylene	<0.50		0.50	ug/L		08-NOV-19	R4903056
trans-1,2-Dichloroethylene	<0.50		0.50	ug/L		08-NOV-19	R4903056
Dichloromethane	<2.0		2.0	ug/L		08-NOV-19	R4903056
1,2-Dichloropropane	<0.50		0.50	ug/L		08-NOV-19	R4903056
cis-1,3-Dichloropropene	<0.50		0.50	ug/L		08-NOV-19	R4903056
trans-1,3-Dichloropropene	<0.50		0.50	ug/L		08-NOV-19	R4903056
Ethylbenzene	<0.50		0.50	ug/L		08-NOV-19	R4903056
n-Hexane	<0.50		0.50	ug/L		08-NOV-19	R4903056
Methyl Ethyl Ketone	<20		20	ug/L		08-NOV-19	R4903056
Methyl Isobutyl Ketone	<20		20	ug/L		08-NOV-19	R4903056
MTBE	<0.50		0.50	ug/L		08-NOV-19	R4903056
Styrene	<0.50		0.50	ug/L		08-NOV-19	R4903056
1,1,1,2-Tetrachloroethane	<0.50		0.50	ug/L		08-NOV-19	R4903056
1,1,2,2-Tetrachloroethane	<0.50		0.50	ug/L		08-NOV-19	R4903056
Tetrachloroethylene	<0.50		0.50	ug/L		08-NOV-19	R4903056
Toluene	<0.50		0.50	ug/L		08-NOV-19	R4903056
1,1,1-Trichloroethane	<0.50		0.50	ug/L		08-NOV-19	R4903056
1,1,2-Trichloroethane	<0.50		0.50	ug/L		08-NOV-19	R4903056
Trichloroethylene	<0.50		0.50	ug/L		08-NOV-19	R4903056
Trichlorofluoromethane	<1.0		1.0	ug/L		08-NOV-19	R4903056
Vinyl chloride	<0.50		0.50	ug/L		08-NOV-19	R4903056

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## ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2377419-3 EAST STORM WATER POND							
Sampled By: CLIENT on 04-NOV-19 @ 09:30							
Matrix: WATER							
<b>Volatile Organic Compounds</b>							
o-Xylene	<0.50		0.50	ug/L		08-NOV-19	R4903056
m+p-Xylenes	<1.0		1.0	ug/L		08-NOV-19	R4903056
Xylenes (Total)	<1.1		1.1	ug/L		08-NOV-19	
Surrogate: 4-Bromofluorobenzene	95.8		70-130	%		08-NOV-19	R4903056
Surrogate: 1,4-Difluorobenzene	100.9		70-130	%		08-NOV-19	R4903056
<b>Trihalomethanes</b>							
Total THMs	<2.0		2.0	ug/L		08-NOV-19	
<b>Acid Extractables</b>							
2,3,6-Trichlorophenol	<0.50		0.50	ug/L	12-NOV-19	14-NOV-19	R4906867
Surrogate: 2,4,6-Tribromophenol	133.4		40-150	%	12-NOV-19	14-NOV-19	R4906867
<b>Semi-Volatile Organics</b>							
Acenaphthene	<0.20		0.20	ug/L	12-NOV-19	14-NOV-19	R4905993
Acenaphthylene	<0.20		0.20	ug/L	12-NOV-19	14-NOV-19	R4905993
Anthracene	<0.20		0.20	ug/L	12-NOV-19	14-NOV-19	R4905993
Benzo(a)anthracene	<0.20		0.20	ug/L	12-NOV-19	14-NOV-19	R4905993
Benzo(a)pyrene	<0.050		0.050	ug/L	12-NOV-19	14-NOV-19	R4905993
Benzo(b)fluoranthene	<0.20		0.20	ug/L	12-NOV-19	14-NOV-19	R4905993
Benzo(ghi)perylene	<0.20		0.20	ug/L	12-NOV-19	14-NOV-19	R4905993
Benzo(k)fluoranthene	<0.20		0.20	ug/L	12-NOV-19	14-NOV-19	R4905993
4-Chloroaniline	<0.40		0.40	ug/L	12-NOV-19	14-NOV-19	R4905993
Bis(2-chloroethyl)ether	<0.40		0.40	ug/L	12-NOV-19	14-NOV-19	R4905993
2-Chlorophenol	<0.30		0.30	ug/L	12-NOV-19	14-NOV-19	R4905993
Chrysene	<0.20		0.20	ug/L	12-NOV-19	14-NOV-19	R4905993
Dibenzo(a,h)anthracene	<0.20		0.20	ug/L	12-NOV-19	14-NOV-19	R4905993
1,2-Dichlorobenzene	<0.40		0.40	ug/L	12-NOV-19	14-NOV-19	R4905993
1,3-Dichlorobenzene	<0.40		0.40	ug/L	12-NOV-19	14-NOV-19	R4905993
1,4-Dichlorobenzene	<0.40		0.40	ug/L	12-NOV-19	14-NOV-19	R4905993
3,3'-Dichlorobenzidine	<0.40		0.40	ug/L	12-NOV-19	14-NOV-19	R4905993
2,4-Dichlorophenol	<0.30		0.30	ug/L	12-NOV-19	14-NOV-19	R4905993
Diethylphthalate	<0.20		0.20	ug/L	12-NOV-19	14-NOV-19	R4905993
Dimethylphthalate	<0.20		0.20	ug/L	12-NOV-19	14-NOV-19	R4905993
2,4-Dimethylphenol	<0.50		0.50	ug/L	12-NOV-19	14-NOV-19	R4905993
2,4-Dinitrophenol	<1.0		1.0	ug/L	12-NOV-19	14-NOV-19	R4905993
2,4-Dinitrotoluene	<0.40		0.40	ug/L	12-NOV-19	14-NOV-19	R4905993
2,6-Dinitrotoluene	<0.40		0.40	ug/L	12-NOV-19	14-NOV-19	R4905993
Bis(2-ethylhexyl)phthalate	<2.0		2.0	ug/L	12-NOV-19	14-NOV-19	R4905993
Fluoranthene	<0.20		0.20	ug/L	12-NOV-19	14-NOV-19	R4905993
Fluorene	<0.20		0.20	ug/L	12-NOV-19	14-NOV-19	R4905993
Hexachlorobenzene	<0.040		0.040	ug/L	12-NOV-19	14-NOV-19	R4905993
Hexachlorobutadiene	<0.20		0.20	ug/L	12-NOV-19	14-NOV-19	R4905993
Indeno(1,2,3-cd)pyrene	<0.20		0.20	ug/L	12-NOV-19	14-NOV-19	R4905993
1-Methylnaphthalene	<0.40		0.40	ug/L	12-NOV-19	14-NOV-19	R4905993

\* 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
L2377419-3 EAST STORM WATER POND Sampled By: CLIENT on 04-NOV-19 @ 09:30 Matrix: WATER							
<b>Semi-Volatile Organics</b>							
2-Methylnaphthalene	<0.40		0.40	ug/L	12-NOV-19	14-NOV-19	R4905993
Naphthalene	<0.20		0.20	ug/L	12-NOV-19	14-NOV-19	R4905993
Pentachlorophenol	<0.50		0.50	ug/L	12-NOV-19	14-NOV-19	R4905993
Perylene	<0.20		0.20	ug/L	12-NOV-19	14-NOV-19	R4905993
Phenanthrene	<0.20		0.20	ug/L	12-NOV-19	14-NOV-19	R4905993
Pyrene	<0.20		0.20	ug/L	12-NOV-19	14-NOV-19	R4905993
2,3,4,5-Tetrachlorophenol	<0.50		0.50	ug/L	12-NOV-19	14-NOV-19	R4905993
2,3,4,6-Tetrachlorophenol	<0.50		0.50	ug/L	12-NOV-19	14-NOV-19	R4905993
1,2,4-Trichlorobenzene	<0.40		0.40	ug/L	12-NOV-19	14-NOV-19	R4905993
2,4,5-Trichlorophenol	<0.50		0.50	ug/L	12-NOV-19	14-NOV-19	R4905993
2,4,6-Trichlorophenol	<0.50		0.50	ug/L	12-NOV-19	14-NOV-19	R4905993
Surrogate: 2-Fluorobiphenyl	89.7		40-130	%	12-NOV-19	14-NOV-19	R4905993
Surrogate: Nitrobenzene d5	103.9		40-130	%	12-NOV-19	14-NOV-19	R4905993
Surrogate: p-Terphenyl d14	80.1		40-130	%	12-NOV-19	14-NOV-19	R4905993
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 &amp; Comments:

QC Type Description	Parameter	Qualifier	Applies to Sample Number(s)
Method Blank	Magnesium (Mg)-Total	B	L2377419-1, -2, -3
Matrix Spike	Bromide (Br)	MS-B	L2377419-1, -2, -3
Matrix Spike	Chromium, Hexavalent	MS-B	L2377419-1, -2
Matrix Spike	Aluminum (Al)-Total	MS-B	L2377419-1, -2, -3
Matrix Spike	Barium (Ba)-Total	MS-B	L2377419-1, -2, -3
Matrix Spike	Boron (B)-Total	MS-B	L2377419-1, -2, -3
Matrix Spike	Calcium (Ca)-Total	MS-B	L2377419-1, -2, -3
Matrix Spike	Iron (Fe)-Total	MS-B	L2377419-1, -2, -3
Matrix Spike	Magnesium (Mg)-Total	MS-B	L2377419-1, -2, -3
Matrix Spike	Manganese (Mn)-Total	MS-B	L2377419-1, -2, -3
Matrix Spike	Molybdenum (Mo)-Total	MS-B	L2377419-1, -2, -3
Matrix Spike	Potassium (K)-Total	MS-B	L2377419-1, -2, -3
Matrix Spike	Silicon (Si)-Total	MS-B	L2377419-1, -2, -3
Matrix Spike	Sodium (Na)-Total	MS-B	L2377419-1, -2, -3
Matrix Spike	Strontium (Sr)-Total	MS-B	L2377419-1, -2, -3
Matrix Spike	Phosphorus, Total	MS-B	L2377419-1, -2, -3
Matrix Spike	Sulfate (SO4)	MS-B	L2377419-1, -2, -3

## Sample Parameter Qualifier key listed:

Qualifier	Description
B	Method Blank exceeds ALS DQO. Associated sample results which are < Limit of Reporting or > 5 times blank level are considered reliable.
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.
PEHR	Parameter Exceeded Recommended Holding Time On Receipt: Proceed With Analysis As Requested.

## Test Method References:

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 CaCO3)	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

## Reference Information

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-SCREEN-WT      Water      Conductivity Screen (Internal Use Only)      APHA 2510

Qualitative analysis of conductivity where required during preparation of other tests - e.g. TDS, metals, etc.

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<sub>3</sub> 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 ICPMS      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-F-WT      Water      Ammonia in Water by Fluorescence      J. ENVIRON. MONIT., 2005, 7, 37-42, RSC

This analysis is carried out, on sulfuric acid preserved samples, using procedures modified from J. Environ. Monit., 2005, 7, 37 - 42, The Royal Society of Chemistry, "Flow-injection analysis with fluorescence detection for the determination of trace levels of ammonium in seawater", Roslyn J. Waston et al.

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.

## 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). Holdtime for samples under this regulation is 28 days

PHENOLS-4AAP-WT	Water	Phenol (4AAP)	EPA 9066
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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)
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Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

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

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

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*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: L2377419

Report Date: 14-NOV-19

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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
<b>625-ACID-EXTRA-WT</b>	<b>Water</b>							
<b>Batch</b>	<b>R4906867</b>							
<b>WG3216188-2 LCS</b>								
2,3,6-Trichlorophenol			91.8		%		50-130	14-NOV-19
<b>WG3216188-1 MB</b>								
2,3,6-Trichlorophenol			<0.50		ug/L		0.5	14-NOV-19
Surrogate: 2,4,6-Tribromophenol			85.3		%		40-150	14-NOV-19
<b>625-WT</b>	<b>Water</b>							
<b>Batch</b>	<b>R4905993</b>							
<b>WG3216188-2 LCS</b>								
1-Methylnaphthalene			72.0		%		50-140	13-NOV-19
1,2-Dichlorobenzene			66.5		%		40-130	13-NOV-19
1,2,4-Trichlorobenzene			67.3		%		50-130	13-NOV-19
1,3-Dichlorobenzene			65.5		%		50-140	13-NOV-19
1,4-Dichlorobenzene			66.1		%		40-130	13-NOV-19
2-Chlorophenol			78.7		%		65-130	13-NOV-19
2-Methylnaphthalene			78.2		%		50-140	13-NOV-19
2,3,4,5-Tetrachlorophenol			96.0		%		50-130	13-NOV-19
2,3,4,6-Tetrachlorophenol			92.4		%		65-130	13-NOV-19
2,4-Dichlorophenol			94.1		%		65-130	13-NOV-19
2,4-Dimethylphenol			85.8		%		30-130	13-NOV-19
2,4-Dinitrophenol			135.4		%		40-140	13-NOV-19
2,4-Dinitrotoluene			101.1		%		50-140	13-NOV-19
2,4,5-Trichlorophenol			98.9		%		65-130	13-NOV-19
2,4,6-Trichlorophenol			97.4		%		65-130	13-NOV-19
2,6-Dinitrotoluene			104.7		%		50-140	13-NOV-19
3,3'-Dichlorobenzidine			68.9		%		50-140	13-NOV-19
4-Chloroaniline			34.6		%		30-140	13-NOV-19
Acenaphthene			93.0		%		50-140	13-NOV-19
Acenaphthylene			98.2		%		50-140	13-NOV-19
Anthracene			95.2		%		50-140	13-NOV-19
Benzo(a)anthracene			97.3		%		50-140	13-NOV-19
Benzo(a)pyrene			88.7		%		60-130	13-NOV-19
Benzo(b)fluoranthene			91.8		%		50-140	13-NOV-19
Benzo(ghi)perylene			76.0		%		50-140	13-NOV-19
Benzo(k)fluoranthene			80.3		%		50-140	13-NOV-19
Bis(2-chloroethyl)ether			75.7		%		50-140	13-NOV-19



### Quality Control Report

Workorder: L2377419

Report Date: 14-NOV-19

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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
<b>625-WT</b>	<b>Water</b>							
<b>Batch</b>	<b>R4905993</b>							
<b>WG3216188-2 LCS</b>								
Bis(2-ethylhexyl)phthalate			83.2		%		50-140	13-NOV-19
Chrysene			90.4		%		50-140	13-NOV-19
Dibenzo(a,h)anthracene			79.7		%		50-140	13-NOV-19
Diethylphthalate			83.5		%		50-140	13-NOV-19
Dimethylphthalate			93.7		%		50-140	13-NOV-19
Fluoranthene			82.4		%		50-140	13-NOV-19
Fluorene			84.7		%		50-140	13-NOV-19
Hexachlorobenzene			69.4		%		40-130	13-NOV-19
Hexachlorobutadiene			57.8		%		40-130	13-NOV-19
Indeno(1,2,3-cd)pyrene			84.8		%		50-140	13-NOV-19
Naphthalene			81.8		%		50-140	13-NOV-19
Pentachlorophenol			111.9		%		60-130	13-NOV-19
Perylene			70.5		%		50-140	13-NOV-19
Phenanthrene			90.5		%		50-140	13-NOV-19
Pyrene			79.9		%		50-140	13-NOV-19
COMMENTS: LCS recovery is outside of ALS DQOs. Related samples have been qualified accordingly								
<b>WG3216188-1 MB</b>								
1-Methylnaphthalene			<0.40		ug/L		0.4	13-NOV-19
1,2-Dichlorobenzene			<0.40		ug/L		0.4	13-NOV-19
1,2,4-Trichlorobenzene			<0.40		ug/L		0.4	13-NOV-19
1,3-Dichlorobenzene			<0.40		ug/L		0.4	13-NOV-19
1,4-Dichlorobenzene			<0.40		ug/L		0.4	13-NOV-19
2-Chlorophenol			<0.30		ug/L		0.3	13-NOV-19
2-Methylnaphthalene			<0.40		ug/L		0.4	13-NOV-19
2,3,4,5-Tetrachlorophenol			<0.50		ug/L		0.5	13-NOV-19
2,3,4,6-Tetrachlorophenol			<0.50		ug/L		0.5	13-NOV-19
2,4-Dichlorophenol			<0.30		ug/L		0.3	13-NOV-19
2,4-Dimethylphenol			<0.50		ug/L		0.5	13-NOV-19
2,4-Dinitrophenol			<1.0		ug/L		1	13-NOV-19
2,4-Dinitrotoluene			<0.40		ug/L		0.4	13-NOV-19
2,4,5-Trichlorophenol			<0.50		ug/L		0.5	13-NOV-19
2,4,6-Trichlorophenol			<0.50		ug/L		0.5	13-NOV-19
2,6-Dinitrotoluene			<0.40		ug/L		0.4	13-NOV-19
3,3'-Dichlorobenzidine			<0.40		ug/L		0.4	13-NOV-19



### Quality Control Report

Workorder: L2377419

Report Date: 14-NOV-19

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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	
<b>625-WT</b>		<b>Water</b>							
<b>Batch</b>	<b>R4905993</b>								
<b>WG3216188-1</b>	<b>MB</b>								
4-Chloroaniline			<0.40		ug/L		0.4	13-NOV-19	
Acenaphthene			<0.20		ug/L		0.2	13-NOV-19	
Acenaphthylene			<0.20		ug/L		0.2	13-NOV-19	
Anthracene			<0.20		ug/L		0.2	13-NOV-19	
Benzo(a)anthracene			<0.20		ug/L		0.2	13-NOV-19	
Benzo(a)pyrene			<0.050		ug/L		0.05	13-NOV-19	
Benzo(b)fluoranthene			<0.20		ug/L		0.2	13-NOV-19	
Benzo(ghi)perylene			<0.20		ug/L		0.2	13-NOV-19	
Benzo(k)fluoranthene			<0.20		ug/L		0.2	13-NOV-19	
Bis(2-chloroethyl)ether			<0.40		ug/L		0.4	13-NOV-19	
Bis(2-ethylhexyl)phthalate			<1.0		ug/L		1	13-NOV-19	
Chrysene			<0.20		ug/L		0.2	13-NOV-19	
Dibenzo(a,h)anthracene			<0.20		ug/L		0.2	13-NOV-19	
Diethylphthalate			<0.20		ug/L		0.2	13-NOV-19	
Dimethylphthalate			<0.20		ug/L		0.2	13-NOV-19	
Fluoranthene			<0.20		ug/L		0.2	13-NOV-19	
Fluorene			<0.20		ug/L		0.2	13-NOV-19	
Hexachlorobenzene			<0.040		ug/L		0.04	13-NOV-19	
Hexachlorobutadiene			<0.20		ug/L		0.2	13-NOV-19	
Indeno(1,2,3-cd)pyrene			<0.20		ug/L		0.2	13-NOV-19	
Naphthalene			<0.20		ug/L		0.2	13-NOV-19	
Pentachlorophenol			<0.50		ug/L		0.5	13-NOV-19	
Perylene			<0.20		ug/L		0.2	13-NOV-19	
Phenanthrene			<0.20		ug/L		0.2	13-NOV-19	
Pyrene			<0.20		ug/L		0.2	13-NOV-19	
Surrogate: 2-Fluorobiphenyl			80.6		%		40-130	13-NOV-19	
Surrogate: Nitrobenzene d5			85.8		%		40-130	13-NOV-19	
Surrogate: p-Terphenyl d14			80.7		%		40-130	13-NOV-19	
<b>ALK-WT</b>		<b>Water</b>							
<b>Batch</b>	<b>R4901894</b>								
<b>WG3211771-4</b>	<b>DUP</b>	<b>WG3211771-3</b>							
Alkalinity, Total (as CaCO3)		115	114		mg/L		0.3	20	06-NOV-19
<b>WG3211771-2</b>	<b>LCS</b>								
Alkalinity, Total (as CaCO3)			101.3		%		85-115	06-NOV-19	





## Quality Control Report

Workorder: L2377419

Report Date: 14-NOV-19

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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
<b>CN-TOT-WT</b>								
	<b>Water</b>							
<b>Batch</b>	<b>R4902324</b>							
<b>WG3213106-1</b>	<b>MB</b>							
Cyanide, Total			<0.0020		mg/L		0.002	06-NOV-19
<b>WG3213106-4</b>	<b>MS</b>	<b>L2376042-1</b>						
Cyanide, Total			84.2		%		70-130	06-NOV-19
<b>COD-T-WT</b>								
	<b>Water</b>							
<b>Batch</b>	<b>R4905014</b>							
<b>WG3216192-3</b>	<b>DUP</b>	<b>L2379859-6</b>						
COD		<10	<10	RPD-NA	mg/L	N/A	20	12-NOV-19
<b>WG3216192-2</b>	<b>LCS</b>							
COD			103.0		%		85-115	12-NOV-19
<b>WG3216192-1</b>	<b>MB</b>							
COD			<10		mg/L		10	12-NOV-19
<b>WG3216192-4</b>	<b>MS</b>	<b>L2379859-6</b>						
COD			91.8		%		75-125	12-NOV-19
<b>CR-CR6-IC-WT</b>								
	<b>Water</b>							
<b>Batch</b>	<b>R4901732</b>							
<b>WG3212248-4</b>	<b>DUP</b>	<b>WG3212248-3</b>						
Chromium, Hexavalent		0.295	0.297		mg/L	0.7	20	06-NOV-19
<b>WG3212248-2</b>	<b>LCS</b>							
Chromium, Hexavalent			97.4		%		80-120	06-NOV-19
<b>WG3212248-1</b>	<b>MB</b>							
Chromium, Hexavalent			<0.00050		mg/L		0.0005	06-NOV-19
<b>WG3212248-5</b>	<b>MS</b>	<b>WG3212248-3</b>						
Chromium, Hexavalent			N/A	MS-B	%		-	06-NOV-19
<b>Batch</b>	<b>R4903016</b>							
<b>WG3213549-4</b>	<b>DUP</b>	<b>WG3213549-3</b>						
Chromium, Hexavalent		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	07-NOV-19
<b>WG3213549-2</b>	<b>LCS</b>							
Chromium, Hexavalent			100.6		%		80-120	07-NOV-19
<b>WG3213549-1</b>	<b>MB</b>							
Chromium, Hexavalent			<0.00050		mg/L		0.0005	07-NOV-19
<b>WG3213549-5</b>	<b>MS</b>	<b>WG3213549-3</b>						
Chromium, Hexavalent			98.2		%		70-130	07-NOV-19
<b>DOC-WT</b>								
	<b>Water</b>							



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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
<b>DOC-WT</b>		<b>Water</b>						
<b>Batch</b>	<b>R4904940</b>							
<b>WG3213844-3</b>	<b>DUP</b>	<b>L2377288-2</b>						
Dissolved Organic Carbon		6.51	6.72		mg/L	3.2	20	11-NOV-19
<b>WG3213844-2</b>	<b>LCS</b>							
Dissolved Organic Carbon			103.1		%		80-120	11-NOV-19
<b>WG3213844-1</b>	<b>MB</b>							
Dissolved Organic Carbon			<0.50		mg/L		0.5	11-NOV-19
<b>WG3213844-4</b>	<b>MS</b>	<b>L2377288-2</b>						
Dissolved Organic Carbon			101.6		%		70-130	11-NOV-19
<b>EC-WT</b>		<b>Water</b>						
<b>Batch</b>	<b>R4901894</b>							
<b>WG3211771-4</b>	<b>DUP</b>	<b>WG3211771-3</b>						
Conductivity		1260	1270		umhos/cm	0.5	10	06-NOV-19
<b>WG3211771-2</b>	<b>LCS</b>							
Conductivity			104.2		%		90-110	06-NOV-19
<b>WG3211771-1</b>	<b>MB</b>							
Conductivity			<3.0		umhos/cm		3	06-NOV-19
<b>Batch</b>	<b>R4901910</b>							
<b>WG3211781-4</b>	<b>DUP</b>	<b>WG3211781-3</b>						
Conductivity		968	962		umhos/cm	0.6	10	06-NOV-19
<b>WG3211781-2</b>	<b>LCS</b>							
Conductivity			105.1		%		90-110	06-NOV-19
<b>WG3211781-1</b>	<b>MB</b>							
Conductivity			<3.0		umhos/cm		3	06-NOV-19
<b>F-IC-N-WT</b>		<b>Water</b>						
<b>Batch</b>	<b>R4903280</b>							
<b>WG3213157-10</b>	<b>DUP</b>	<b>WG3213157-8</b>						
Fluoride (F)		0.650	0.644		mg/L	0.9	20	07-NOV-19
<b>WG3213157-7</b>	<b>LCS</b>							
Fluoride (F)			103.1		%		90-110	07-NOV-19
<b>WG3213157-6</b>	<b>MB</b>							
Fluoride (F)			<0.020		mg/L		0.02	07-NOV-19
<b>WG3213157-9</b>	<b>MS</b>	<b>WG3213157-8</b>						
Fluoride (F)			99.3		%		75-125	07-NOV-19
<b>HG-T-CVAA-WT</b>		<b>Water</b>						



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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
<b>HG-T-CVAA-WT</b>		<b>Water</b>						
<b>Batch</b>	<b>R4900526</b>							
<b>WG3211720-4</b>	<b>DUP</b>	<b>WG3211720-3</b>						
Mercury (Hg)-Total		<0.0000050	<0.0000050	RPD-NA	mg/L	N/A	20	06-NOV-19
<b>WG3211720-2</b>	<b>LCS</b>							
Mercury (Hg)-Total			91.8		%		80-120	06-NOV-19
<b>WG3211720-1</b>	<b>MB</b>							
Mercury (Hg)-Total			<0.0000050		mg/L		0.000005	06-NOV-19
<b>WG3211720-6</b>	<b>MS</b>	<b>WG3211720-5</b>						
Mercury (Hg)-Total			78.9		%		70-130	06-NOV-19
<b>MET-T-CCMS-WT</b>		<b>Water</b>						
<b>Batch</b>	<b>R4902348</b>							
<b>WG3211574-4</b>	<b>DUP</b>	<b>WG3211574-3</b>						
Aluminum (Al)-Total		0.107	0.106		mg/L	0.5	20	06-NOV-19
Antimony (Sb)-Total		0.00048	0.00047		mg/L	1.9	20	06-NOV-19
Arsenic (As)-Total		0.00140	0.00140		mg/L	0.3	20	06-NOV-19
Barium (Ba)-Total		0.0582	0.0582		mg/L	0.1	20	06-NOV-19
Beryllium (Be)-Total		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	06-NOV-19
Bismuth (Bi)-Total		<0.000050	<0.000050	RPD-NA	mg/L	N/A	20	06-NOV-19
Boron (B)-Total		0.174	0.177		mg/L	1.8	20	06-NOV-19
Cadmium (Cd)-Total		0.0000478	0.0000478		mg/L	0.0	20	06-NOV-19
Calcium (Ca)-Total		55.0	55.1		mg/L	0.3	20	06-NOV-19
Cobalt (Co)-Total		0.00031	0.00030		mg/L	1.7	20	06-NOV-19
Copper (Cu)-Total		0.0020	0.0011	J	mg/L	0.0009	0.002	06-NOV-19
Iron (Fe)-Total		0.138	0.133		mg/L	3.4	20	06-NOV-19
Lead (Pb)-Total		0.000179	0.000228	J	mg/L	0.000049	0.0001	06-NOV-19
Magnesium (Mg)-Total		19.6	19.7		mg/L	0.5	20	06-NOV-19
Manganese (Mn)-Total		0.0234	0.0235		mg/L	0.3	20	06-NOV-19
Molybdenum (Mo)-Total		0.0635	0.0643		mg/L	1.3	20	06-NOV-19
Nickel (Ni)-Total		0.0117	0.0115		mg/L	1.7	20	06-NOV-19
Potassium (K)-Total		24.7	25.2		mg/L	2.1	20	06-NOV-19
Selenium (Se)-Total		0.00115	0.00118		mg/L	2.9	20	06-NOV-19
Silicon (Si)-Total		1.74	1.77		mg/L	1.6	20	06-NOV-19
Silver (Ag)-Total		<0.000050	<0.000050	RPD-NA	mg/L	N/A	20	06-NOV-19
Sodium (Na)-Total		86.1	87.4		mg/L	1.5	20	06-NOV-19
Strontium (Sr)-Total		0.556	0.561		mg/L	0.9	20	06-NOV-19
Thallium (Tl)-Total		0.000059	0.000055		mg/L	6.3	20	06-NOV-19



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 455 PHILLIP STREET  
 WATERLOO ON N2L 3X2

Contact: LAURA ERMETA

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>MET-T-CCMS-WT</b>								
	<b>Water</b>							
<b>Batch</b>	<b>R4902348</b>							
<b>WG3211574-4</b>	<b>DUP</b>	<b>WG3211574-3</b>						
Tin (Sn)-Total		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	06-NOV-19
Vanadium (V)-Total		0.00053	0.00051		mg/L	2.4	20	06-NOV-19
Zinc (Zn)-Total		0.0036	<0.0030	RPD-NA	mg/L	N/A	20	06-NOV-19
<b>WG3211574-2</b>	<b>LCS</b>							
Aluminum (Al)-Total			101.4		%		80-120	06-NOV-19
Antimony (Sb)-Total			101.8		%		80-120	06-NOV-19
Arsenic (As)-Total			99.9		%		80-120	06-NOV-19
Barium (Ba)-Total			109.7		%		80-120	06-NOV-19
Beryllium (Be)-Total			89.8		%		80-120	06-NOV-19
Bismuth (Bi)-Total			98.3		%		80-120	06-NOV-19
Boron (B)-Total			88.2		%		80-120	06-NOV-19
Cadmium (Cd)-Total			99.5		%		80-120	06-NOV-19
Calcium (Ca)-Total			96.8		%		80-120	06-NOV-19
Cobalt (Co)-Total			100.1		%		80-120	06-NOV-19
Copper (Cu)-Total			96.9		%		80-120	06-NOV-19
Iron (Fe)-Total			99.1		%		80-120	06-NOV-19
Lead (Pb)-Total			98.7		%		80-120	06-NOV-19
Magnesium (Mg)-Total			99.4		%		80-120	06-NOV-19
Manganese (Mn)-Total			102.5		%		80-120	06-NOV-19
Molybdenum (Mo)-Total			100.4		%		80-120	06-NOV-19
Nickel (Ni)-Total			97.4		%		80-120	06-NOV-19
Potassium (K)-Total			104.1		%		80-120	06-NOV-19
Selenium (Se)-Total			95.8		%		80-120	06-NOV-19
Silicon (Si)-Total			103.4		%		60-140	06-NOV-19
Silver (Ag)-Total			99.7		%		80-120	06-NOV-19
Sodium (Na)-Total			99.3		%		80-120	06-NOV-19
Strontium (Sr)-Total			101.7		%		80-120	06-NOV-19
Thallium (Tl)-Total			98.7		%		80-120	06-NOV-19
Tin (Sn)-Total			99.7		%		80-120	06-NOV-19
Vanadium (V)-Total			101.8		%		80-120	06-NOV-19
Zinc (Zn)-Total			95.0		%		80-120	06-NOV-19
<b>WG3211574-1</b>	<b>MB</b>							
Aluminum (Al)-Total			<0.0050		mg/L		0.005	06-NOV-19
Antimony (Sb)-Total			<0.00010		mg/L		0.0001	06-NOV-19





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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
<b>MET-T-CCMS-WT</b>								
	<b>Water</b>							
<b>Batch</b>	<b>R4902348</b>							
<b>WG3211574-1 MB</b>								
Arsenic (As)-Total			<0.00010		mg/L		0.0001	06-NOV-19
Barium (Ba)-Total			<0.00010		mg/L		0.0001	06-NOV-19
Beryllium (Be)-Total			<0.00010		mg/L		0.0001	06-NOV-19
Bismuth (Bi)-Total			<0.000050		mg/L		0.00005	06-NOV-19
Boron (B)-Total			<0.010		mg/L		0.01	06-NOV-19
Cadmium (Cd)-Total			<0.0000050		mg/L		0.000005	06-NOV-19
Calcium (Ca)-Total			<0.050		mg/L		0.05	06-NOV-19
Cobalt (Co)-Total			<0.00010		mg/L		0.0001	06-NOV-19
Copper (Cu)-Total			<0.0010		mg/L		0.001	06-NOV-19
Iron (Fe)-Total			<0.010		mg/L		0.01	06-NOV-19
Lead (Pb)-Total			<0.000050		mg/L		0.00005	06-NOV-19
Magnesium (Mg)-Total			0.0196	B	mg/L		0.005	06-NOV-19
Manganese (Mn)-Total			<0.00050		mg/L		0.0005	06-NOV-19
Molybdenum (Mo)-Total			<0.000050		mg/L		0.00005	06-NOV-19
Nickel (Ni)-Total			<0.00050		mg/L		0.0005	06-NOV-19
Potassium (K)-Total			<0.050		mg/L		0.05	06-NOV-19
Selenium (Se)-Total			<0.000050		mg/L		0.00005	06-NOV-19
Silicon (Si)-Total			<0.10		mg/L		0.1	06-NOV-19
Silver (Ag)-Total			<0.000050		mg/L		0.00005	06-NOV-19
Sodium (Na)-Total			<0.050		mg/L		0.05	06-NOV-19
Strontium (Sr)-Total			<0.0010		mg/L		0.001	06-NOV-19
Thallium (Tl)-Total			<0.000010		mg/L		0.00001	06-NOV-19
Tin (Sn)-Total			<0.00010		mg/L		0.0001	06-NOV-19
Vanadium (V)-Total			<0.00050		mg/L		0.0005	06-NOV-19
Zinc (Zn)-Total			<0.0030		mg/L		0.003	06-NOV-19
<b>WG3211574-5 MS</b>		<b>WG3211574-3</b>						
Aluminum (Al)-Total			N/A	MS-B	%		-	06-NOV-19
Antimony (Sb)-Total			102.1		%		70-130	06-NOV-19
Arsenic (As)-Total			98.0		%		70-130	06-NOV-19
Barium (Ba)-Total			N/A	MS-B	%		-	06-NOV-19
Beryllium (Be)-Total			88.4		%		70-130	06-NOV-19
Bismuth (Bi)-Total			87.2		%		70-130	06-NOV-19
Boron (B)-Total			N/A	MS-B	%		-	06-NOV-19
Cadmium (Cd)-Total			93.1		%		70-130	06-NOV-19



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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
<b>MET-T-CCMS-WT</b>								
	Water							
<b>Batch</b>	<b>R4902348</b>							
<b>WG3211574-5 MS</b>		<b>WG3211574-3</b>						
Calcium (Ca)-Total			N/A	MS-B	%		-	06-NOV-19
Cobalt (Co)-Total			95.4		%		70-130	06-NOV-19
Copper (Cu)-Total			85.6		%		70-130	06-NOV-19
Iron (Fe)-Total			N/A	MS-B	%		-	06-NOV-19
Lead (Pb)-Total			91.6		%		70-130	06-NOV-19
Magnesium (Mg)-Total			N/A	MS-B	%		-	06-NOV-19
Manganese (Mn)-Total			N/A	MS-B	%		-	06-NOV-19
Molybdenum (Mo)-Total			N/A	MS-B	%		-	06-NOV-19
Nickel (Ni)-Total			92.6		%		70-130	06-NOV-19
Potassium (K)-Total			N/A	MS-B	%		-	06-NOV-19
Selenium (Se)-Total			97.6		%		70-130	06-NOV-19
Silicon (Si)-Total			N/A	MS-B	%		-	06-NOV-19
Silver (Ag)-Total			90.8		%		70-130	06-NOV-19
Sodium (Na)-Total			N/A	MS-B	%		-	06-NOV-19
Strontium (Sr)-Total			N/A	MS-B	%		-	06-NOV-19
Thallium (Tl)-Total			90.4		%		70-130	06-NOV-19
Tin (Sn)-Total			98.3		%		70-130	06-NOV-19
Vanadium (V)-Total			103.7		%		70-130	06-NOV-19
Zinc (Zn)-Total			81.4		%		70-130	06-NOV-19
<b>NH3-F-WT</b>								
	Water							
<b>Batch</b>	<b>R4904317</b>							
<b>WG3215916-15 DUP</b>		<b>L2376922-1</b>						
Ammonia, Total (as N)		<0.010	<0.010	RPD-NA	mg/L	N/A	20	11-NOV-19
<b>WG3215916-14 LCS</b>								
Ammonia, Total (as N)			95.3		%		85-115	11-NOV-19
<b>WG3215916-13 MB</b>								
Ammonia, Total (as N)			<0.010		mg/L		0.01	11-NOV-19
<b>WG3215916-16 MS</b>		<b>L2376922-1</b>						
Ammonia, Total (as N)			100.3		%		75-125	11-NOV-19
<b>NO2-IC-WT</b>								
	Water							
<b>Batch</b>	<b>R4903280</b>							
<b>WG3213157-10 DUP</b>		<b>WG3213157-8</b>						
Nitrite (as N)		<0.010	<0.010	RPD-NA	mg/L	N/A	20	07-NOV-19
<b>WG3213157-7 LCS</b>								
Nitrite (as N)			102.9				90-110	



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455 PHILLIP STREET  
WATERLOO ON N2L 3X2

Contact: LAURA ERMETA

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>NO2-IC-WT</b>		<b>Water</b>						
<b>Batch</b>	<b>R4903280</b>							
<b>WG3213157-7</b>	<b>LCS</b>							
Nitrite (as N)			102.9		%		90-110	07-NOV-19
<b>WG3213157-6</b>	<b>MB</b>							
Nitrite (as N)			<0.010		mg/L		0.01	07-NOV-19
<b>WG3213157-9</b>	<b>MS</b>	<b>WG3213157-8</b>						
Nitrite (as N)			102.5		%		75-125	07-NOV-19
<b>NO3-IC-WT</b>		<b>Water</b>						
<b>Batch</b>	<b>R4903280</b>							
<b>WG3213157-10</b>	<b>DUP</b>	<b>WG3213157-8</b>						
Nitrate (as N)		0.054	0.053		mg/L	1.6	20	07-NOV-19
<b>WG3213157-7</b>	<b>LCS</b>							
Nitrate (as N)			101.2		%		90-110	07-NOV-19
<b>WG3213157-6</b>	<b>MB</b>							
Nitrate (as N)			<0.020		mg/L		0.02	07-NOV-19
<b>WG3213157-9</b>	<b>MS</b>	<b>WG3213157-8</b>						
Nitrate (as N)			99.0		%		75-125	07-NOV-19
<b>P-T-COL-WT</b>		<b>Water</b>						
<b>Batch</b>	<b>R4904927</b>							
<b>WG3215906-7</b>	<b>DUP</b>	<b>L2376479-1</b>						
Phosphorus, Total		0.262	0.267		mg/L	1.7	20	12-NOV-19
<b>WG3215906-6</b>	<b>LCS</b>							
Phosphorus, Total			98.0		%		80-120	12-NOV-19
<b>WG3215906-5</b>	<b>MB</b>							
Phosphorus, Total			<0.0030		mg/L		0.003	12-NOV-19
<b>WG3215906-8</b>	<b>MS</b>	<b>L2376479-1</b>						
Phosphorus, Total			N/A	MS-B	%		-	12-NOV-19
<b>PH-WT</b>		<b>Water</b>						
<b>Batch</b>	<b>R4901894</b>							
<b>WG3211771-4</b>	<b>DUP</b>	<b>WG3211771-3</b>						
pH		8.02	8.05	J	pH units	0.03	0.2	06-NOV-19
<b>WG3211771-2</b>	<b>LCS</b>							
pH			7.00		pH units		6.9-7.1	06-NOV-19
<b>Batch</b>	<b>R4901910</b>							
<b>WG3211781-4</b>	<b>DUP</b>	<b>WG3211781-3</b>						
pH		8.20	8.21	J	pH units	0.01	0.2	06-NOV-19
<b>WG3211781-2</b>	<b>LCS</b>							
pH			7.00		pH units		6.9-7.1	06-NOV-19



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 455 PHILLIP STREET  
 WATERLOO ON N2L 3X2

Contact: LAURA ERMETA

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>PHENOLS-4AAP-WT</b>		<b>Water</b>						
<b>Batch</b>	<b>R4901001</b>							
<b>WG3212127-11</b>	<b>DUP</b>	<b>L2376816-42</b>						
Phenols (4AAP)		0.0022	0.0023		mg/L	8.6	20	06-NOV-19
<b>WG3212127-15</b>	<b>DUP</b>	<b>L2378183-3</b>						
Phenols (4AAP)		<0.0010	0.0012	RPD-NA	mg/L	N/A	20	06-NOV-19
<b>WG3212127-10</b>	<b>LCS</b>							
Phenols (4AAP)			97.1		%		85-115	06-NOV-19
<b>WG3212127-14</b>	<b>LCS</b>							
Phenols (4AAP)			95.4		%		85-115	06-NOV-19
<b>WG3212127-13</b>	<b>MB</b>							
Phenols (4AAP)			<0.0010		mg/L		0.001	06-NOV-19
<b>WG3212127-9</b>	<b>MB</b>							
Phenols (4AAP)			<0.0010		mg/L		0.001	06-NOV-19
<b>WG3212127-12</b>	<b>MS</b>	<b>L2376816-42</b>						
Phenols (4AAP)			91.0		%		75-125	06-NOV-19
<b>WG3212127-16</b>	<b>MS</b>	<b>L2378183-3</b>						
Phenols (4AAP)			90.1		%		75-125	06-NOV-19
<b>SO4-IC-N-WT</b>		<b>Water</b>						
<b>Batch</b>	<b>R4903280</b>							
<b>WG3213157-10</b>	<b>DUP</b>	<b>WG3213157-8</b>						
Sulfate (SO4)		114	114		mg/L	0.1	20	07-NOV-19
<b>WG3213157-7</b>	<b>LCS</b>							
Sulfate (SO4)			102.2		%		90-110	07-NOV-19
<b>WG3213157-6</b>	<b>MB</b>							
Sulfate (SO4)			<0.30		mg/L		0.3	07-NOV-19
<b>WG3213157-9</b>	<b>MS</b>	<b>WG3213157-8</b>						
Sulfate (SO4)			N/A	MS-B	%		-	07-NOV-19
<b>SOLIDS-TDS-WT</b>		<b>Water</b>						
<b>Batch</b>	<b>R4904247</b>							
<b>WG3215580-3</b>	<b>DUP</b>	<b>L2376685-1</b>						
Total Dissolved Solids		402	408		mg/L	1.4	20	10-NOV-19
<b>WG3215580-2</b>	<b>LCS</b>							
Total Dissolved Solids			98.3		%		85-115	10-NOV-19
<b>WG3215580-1</b>	<b>MB</b>							
Total Dissolved Solids			<10		mg/L		10	10-NOV-19
<b>SOLIDS-TSS-WT</b>		<b>Water</b>						



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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
<b>SOLIDS-TSS-WT</b>		<b>Water</b>						
<b>Batch</b>	<b>R4904192</b>							
<b>WG3214031-3</b>	<b>DUP</b>	<b>WG3214031-4</b>						
Total Suspended Solids		3880	3930		mg/L	1.3	20	11-NOV-19
<b>WG3214031-2</b>	<b>LCS</b>							
Total Suspended Solids			100.6		%		85-115	11-NOV-19
<b>WG3214031-1</b>	<b>MB</b>							
Total Suspended Solids			<2.0		mg/L		2	11-NOV-19
<b>TKN-WT</b>		<b>Water</b>						
<b>Batch</b>	<b>R4904439</b>							
<b>WG3214733-3</b>	<b>DUP</b>	<b>L2377262-7</b>						
Total Kjeldahl Nitrogen		3.75	3.73		mg/L	0.6	20	11-NOV-19
<b>WG3214733-2</b>	<b>LCS</b>							
Total Kjeldahl Nitrogen			97.1		%		75-125	11-NOV-19
<b>WG3214733-1</b>	<b>MB</b>							
Total Kjeldahl Nitrogen			<0.15		mg/L		0.15	11-NOV-19
<b>WG3214733-4</b>	<b>MS</b>	<b>L2377262-7</b>						
Total Kjeldahl Nitrogen			97.0		%		70-130	11-NOV-19
<b>VOC-ROU-HS-WT</b>		<b>Water</b>						
<b>Batch</b>	<b>R4903056</b>							
<b>WG3209832-4</b>	<b>DUP</b>	<b>WG3209832-3</b>						
1,1,1,2-Tetrachloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	08-NOV-19
1,1,2,2-Tetrachloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	08-NOV-19
1,1,1-Trichloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	08-NOV-19
1,1,2-Trichloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	08-NOV-19
1,2-Dibromoethane		<0.20	<0.20	RPD-NA	ug/L	N/A	30	08-NOV-19
1,1-Dichloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	08-NOV-19
1,1-Dichloroethylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	08-NOV-19
1,2-Dichlorobenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	08-NOV-19
1,2-Dichloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	08-NOV-19
1,2-Dichloropropane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	08-NOV-19
1,3-Dichlorobenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	08-NOV-19
1,4-Dichlorobenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	08-NOV-19
Acetone		<20	<20	RPD-NA	ug/L	N/A	30	08-NOV-19
Benzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	08-NOV-19
Bromodichloromethane		<1.0	<1.0	RPD-NA	ug/L	N/A	30	08-NOV-19
Bromoform		<1.0	<1.0	RPD-NA	ug/L	N/A	30	08-NOV-19



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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
<b>VOC-ROU-HS-WT</b>								
	Water							
<b>Batch</b>	<b>R4903056</b>							
<b>WG3209832-4</b>	<b>DUP</b>	<b>WG3209832-3</b>						
Bromomethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	08-NOV-19
Carbon tetrachloride		<0.50	<0.50	RPD-NA	ug/L	N/A	30	08-NOV-19
Chlorobenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	08-NOV-19
Chloroethane		<1.0	<1.0	RPD-NA	ug/L	N/A	30	08-NOV-19
Chloroform		<1.0	<1.0	RPD-NA	ug/L	N/A	30	08-NOV-19
cis-1,2-Dichloroethylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	08-NOV-19
cis-1,3-Dichloropropene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	08-NOV-19
Dibromochloromethane		<1.0	<1.0	RPD-NA	ug/L	N/A	30	08-NOV-19
Dichlorodifluoromethane		<1.0	<1.0	RPD-NA	ug/L	N/A	30	08-NOV-19
Dichloromethane		<2.0	<2.0	RPD-NA	ug/L	N/A	30	08-NOV-19
Ethylbenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	08-NOV-19
m+p-Xylenes		<1.0	<1.0	RPD-NA	ug/L	N/A	30	08-NOV-19
Methyl Ethyl Ketone		<20	<20	RPD-NA	ug/L	N/A	30	08-NOV-19
Methyl Isobutyl Ketone		<20	<20	RPD-NA	ug/L	N/A	30	08-NOV-19
n-Hexane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	08-NOV-19
MTBE		<0.50	<0.50	RPD-NA	ug/L	N/A	30	08-NOV-19
o-Xylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	08-NOV-19
Styrene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	08-NOV-19
Tetrachloroethylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	08-NOV-19
Toluene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	08-NOV-19
trans-1,2-Dichloroethylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	08-NOV-19
trans-1,3-Dichloropropene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	08-NOV-19
Trichloroethylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	08-NOV-19
Trichlorofluoromethane		<1.0	<1.0	RPD-NA	ug/L	N/A	30	08-NOV-19
Vinyl chloride		<0.50	<0.50	RPD-NA	ug/L	N/A	30	08-NOV-19
<b>WG3209832-1</b>	<b>LCS</b>							
1,1,1,2-Tetrachloroethane			101.2		%		70-130	08-NOV-19
1,1,2,2-Tetrachloroethane			93.5		%		70-130	08-NOV-19
1,1,1-Trichloroethane			114.2		%		70-130	08-NOV-19
1,1,2-Trichloroethane			94.5		%		70-130	08-NOV-19
1,2-Dibromoethane			91.3		%		70-130	08-NOV-19
1,1-Dichloroethane			113.6		%		70-130	08-NOV-19
1,1-Dichloroethylene			113.8		%		70-130	08-NOV-19

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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
<b>VOC-ROU-HS-WT</b>								
	<b>Water</b>							
<b>Batch</b>	<b>R4903056</b>							
<b>WG3209832-1</b>	<b>LCS</b>							
1,2-Dichlorobenzene			111.8		%		70-130	08-NOV-19
1,2-Dichloroethane			95.6		%		70-130	08-NOV-19
1,2-Dichloropropane			104.5		%		70-130	08-NOV-19
1,3-Dichlorobenzene			116.3		%		70-130	08-NOV-19
1,4-Dichlorobenzene			116.0		%		70-130	08-NOV-19
Acetone			97.6		%		60-140	08-NOV-19
Benzene			113.3		%		70-130	08-NOV-19
Bromodichloromethane			100.7		%		70-130	08-NOV-19
Bromoform			91.4		%		70-130	08-NOV-19
Bromomethane			104.2		%		60-140	08-NOV-19
Carbon tetrachloride			116.6		%		70-130	08-NOV-19
Chlorobenzene			106.3		%		70-130	08-NOV-19
Chloroethane			127.1		%		70-130	08-NOV-19
Chloroform			109.8		%		70-130	08-NOV-19
cis-1,2-Dichloroethylene			105.3		%		70-130	08-NOV-19
cis-1,3-Dichloropropene			101.5		%		70-130	08-NOV-19
Dibromochloromethane			94.2		%		70-130	08-NOV-19
Dichlorodifluoromethane			113.2		%		50-140	08-NOV-19
Dichloromethane			106.8		%		70-130	08-NOV-19
Ethylbenzene			111.4		%		70-130	08-NOV-19
m+p-Xylenes			110.0		%		70-130	08-NOV-19
Methyl Ethyl Ketone			84.1		%		60-140	08-NOV-19
Methyl Isobutyl Ketone			76.8		%		50-150	08-NOV-19
n-Hexane			116.1		%		70-130	08-NOV-19
MTBE			110.3		%		70-130	08-NOV-19
o-Xylene			106.5		%		70-130	08-NOV-19
Styrene			97.8		%		70-130	08-NOV-19
Tetrachloroethylene			118.5		%		70-130	08-NOV-19
Toluene			113.1		%		70-130	08-NOV-19
trans-1,2-Dichloroethylene			113.7		%		70-130	08-NOV-19
trans-1,3-Dichloropropene			96.9		%		70-130	08-NOV-19
Trichloroethylene			112.3		%		70-130	08-NOV-19
Trichlorofluoromethane			119.4		%		60-140	08-NOV-19



## 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
<b>VOC-ROU-HS-WT</b>								
	<b>Water</b>							
<b>Batch</b>	<b>R4903056</b>							
<b>WG3209832-1</b>	<b>LCS</b>							
Vinyl chloride			128.6		%		60-140	08-NOV-19
<b>WG3209832-2</b>	<b>MB</b>							
1,1,1,2-Tetrachloroethane			<0.50		ug/L		0.5	08-NOV-19
1,1,2,2-Tetrachloroethane			<0.50		ug/L		0.5	08-NOV-19
1,1,1-Trichloroethane			<0.50		ug/L		0.5	08-NOV-19
1,1,2-Trichloroethane			<0.50		ug/L		0.5	08-NOV-19
1,2-Dibromoethane			<0.20		ug/L		0.2	08-NOV-19
1,1-Dichloroethane			<0.50		ug/L		0.5	08-NOV-19
1,1-Dichloroethylene			<0.50		ug/L		0.5	08-NOV-19
1,2-Dichlorobenzene			<0.50		ug/L		0.5	08-NOV-19
1,2-Dichloroethane			<0.50		ug/L		0.5	08-NOV-19
1,2-Dichloropropane			<0.50		ug/L		0.5	08-NOV-19
1,3-Dichlorobenzene			<0.50		ug/L		0.5	08-NOV-19
1,4-Dichlorobenzene			<0.50		ug/L		0.5	08-NOV-19
Acetone			<20		ug/L		20	08-NOV-19
Benzene			<0.50		ug/L		0.5	08-NOV-19
Bromodichloromethane			<1.0		ug/L		1	08-NOV-19
Bromoform			<1.0		ug/L		1	08-NOV-19
Bromomethane			<0.50		ug/L		0.5	08-NOV-19
Carbon tetrachloride			<0.50		ug/L		0.5	08-NOV-19
Chlorobenzene			<0.50		ug/L		0.5	08-NOV-19
Chloroethane			<1.0		ug/L		1	08-NOV-19
Chloroform			<1.0		ug/L		1	08-NOV-19
cis-1,2-Dichloroethylene			<0.50		ug/L		0.5	08-NOV-19
cis-1,3-Dichloropropene			<0.50		ug/L		0.5	08-NOV-19
Dibromochloromethane			<1.0		ug/L		1	08-NOV-19
Dichlorodifluoromethane			<1.0		ug/L		1	08-NOV-19
Dichloromethane			<2.0		ug/L		2	08-NOV-19
Ethylbenzene			<0.50		ug/L		0.5	08-NOV-19
m+p-Xylenes			<1.0		ug/L		1	08-NOV-19
Methyl Ethyl Ketone			<20		ug/L		20	08-NOV-19
Methyl Isobutyl Ketone			<20		ug/L		20	08-NOV-19
n-Hexane			<0.50		ug/L		0.5	08-NOV-19
MTBE			<0.50		ug/L		0.5	08-NOV-19





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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
<b>VOC-ROU-HS-WT</b>								
	<b>Water</b>							
<b>Batch</b>	<b>R4903056</b>							
<b>WG3209832-2</b>	<b>MB</b>							
o-Xylene			<0.50		ug/L		0.5	08-NOV-19
Styrene			<0.50		ug/L		0.5	08-NOV-19
Tetrachloroethylene			<0.50		ug/L		0.5	08-NOV-19
Toluene			<0.50		ug/L		0.5	08-NOV-19
trans-1,2-Dichloroethylene			<0.50		ug/L		0.5	08-NOV-19
trans-1,3-Dichloropropene			<0.50		ug/L		0.5	08-NOV-19
Trichloroethylene			<0.50		ug/L		0.5	08-NOV-19
Trichlorofluoromethane			<1.0		ug/L		1	08-NOV-19
Vinyl chloride			<0.50		ug/L		0.5	08-NOV-19
Surrogate: 1,4-Difluorobenzene			102.3		%		70-130	08-NOV-19
Surrogate: 4-Bromofluorobenzene			96.5		%		70-130	08-NOV-19
<b>WG3209832-5</b>	<b>MS</b>	<b>WG3209832-3</b>						
1,1,1,2-Tetrachloroethane			103.9		%		50-150	08-NOV-19
1,1,2,2-Tetrachloroethane			103.5		%		50-150	08-NOV-19
1,1,1-Trichloroethane			112.9		%		50-150	08-NOV-19
1,1,2-Trichloroethane			102.4		%		50-150	08-NOV-19
1,2-Dibromoethane			100.1		%		50-150	08-NOV-19
1,1-Dichloroethane			116.7		%		50-150	08-NOV-19
1,1-Dichloroethylene			110.6		%		50-150	08-NOV-19
1,2-Dichlorobenzene			111.1		%		50-150	08-NOV-19
1,2-Dichloroethane			105.9		%		50-150	08-NOV-19
1,2-Dichloropropane			111.0		%		50-150	08-NOV-19
1,3-Dichlorobenzene			110.4		%		50-150	08-NOV-19
1,4-Dichlorobenzene			110.9		%		50-150	08-NOV-19
Acetone			120.1		%		50-150	08-NOV-19
Benzene			115.3		%		50-150	08-NOV-19
Bromodichloromethane			106.5		%		50-150	08-NOV-19
Bromoform			99.6		%		50-150	08-NOV-19
Bromomethane			102.1		%		50-150	08-NOV-19
Carbon tetrachloride			113.6		%		50-150	08-NOV-19
Chlorobenzene			106.4		%		50-150	08-NOV-19
Chloroethane			125.7		%		50-150	08-NOV-19
Chloroform			112.6		%		50-150	08-NOV-19
cis-1,2-Dichloroethylene			107.8		%		50-150	08-NOV-19



## 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
<b>VOC-ROU-HS-WT</b>								
	<b>Water</b>							
<b>Batch</b>	<b>R4903056</b>							
<b>WG3209832-5 MS</b>		<b>WG3209832-3</b>						
cis-1,3-Dichloropropene			102.3		%		50-150	08-NOV-19
Dibromochloromethane			100.2		%		50-150	08-NOV-19
Dichlorodifluoromethane			100.8		%		50-150	08-NOV-19
Dichloromethane			111.6		%		50-150	08-NOV-19
Ethylbenzene			107.6		%		50-150	08-NOV-19
m+p-Xylenes			105.8		%		50-150	08-NOV-19
Methyl Ethyl Ketone			94.0		%		50-150	08-NOV-19
Methyl Isobutyl Ketone			92.1		%		50-150	08-NOV-19
n-Hexane			110.5		%		50-150	08-NOV-19
MTBE			110.7		%		50-150	08-NOV-19
o-Xylene			104.7		%		50-150	08-NOV-19
Styrene			97.6		%		50-150	08-NOV-19
Tetrachloroethylene			110.6		%		50-150	08-NOV-19
Toluene			110.9		%		50-150	08-NOV-19
trans-1,2-Dichloroethylene			110.5		%		50-150	08-NOV-19
trans-1,3-Dichloropropene			98.3		%		50-150	08-NOV-19
Trichloroethylene			108.9		%		50-150	08-NOV-19
Trichlorofluoromethane			114.2		%		50-150	08-NOV-19
Vinyl chloride			122.3		%		50-150	08-NOV-19

# Quality Control Report

Workorder: L2377419

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

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## Legend:

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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:

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Qualifier	Description
B	Method Blank exceeds ALS DQO. Associated sample results which are < Limit of Reporting or > 5 times blank level are considered reliable.
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.

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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



COC Number: 14 -

Canada Toll Free: 1 800 668 9878

L2377419-COFC

Page 1 of 1

www.alsglobal.com

<b>Report To</b>		<b>Acct#13791</b>		<b>Report Format / Distribution</b>			<b>Select Service Level Below (Rush Turnaround Time (TAT) is not available for all tests)</b>																																	
Company: <b>GHD LIMITED</b>		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: <a href="mailto:laura.ermeta@ghd.com">laura.ermeta@ghd.com</a>		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		<b>Invoice Distribution</b>			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			<b>Specify Date Required for E2,E or P:</b>																																			
Company: GHD LIMITED		Email 1 or Fax: <a href="mailto:laura.ermeta@ghd.com">laura.ermeta@ghd.com</a>			<b>Analysis Request</b>																																			
Contact: Laura Ermeta		Email 2:			Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below																																			
<b>Project Information</b>		<b>Oil and Gas Required Fields (client use)</b>			ALK, Conductivity, pH, TDS, TSS, Phenols																																			
ALS Quote #:		Approver ID:			Cost Center:			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 **		
Job #: 44985-20-19		GL Account:			Routing Code:			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 **								
PO / AFE: 73506479		Activity Code:			Location:			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 **								
LSD:		ALS Lab Work Order # (lab use only) <b>L2377419</b>			ALS Contact: Rick H			Sampler:			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 **					
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		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 **					
		EQ Pond Discharge			04-NOV-19		9:00		Water		R			R			R			R			R			R			R			R			10 7.76			7.76		
		West Storm Water Pond			04-NOV-19		9:00		Water		R			R			R			R			R			R			R			R			13 7.73			7.73		
		East Storm Water Pond			04-NOV-19		9:30		Water		R			R			R			R			R			R			R			R			13 7.50			7.50		



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

Date Received: 05-NOV-19  
Report Date: 07-NOV-19 15:12 (MT)  
Version: FINAL

Client Phone: 519-884-0510

## Certificate of Analysis

Lab Work Order #: L2376953  
Project P.O. #: 73506479  
Job Reference: 44985-20-19  
C of C Numbers:  
Legal Site Desc:

Taryn Symborski  
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
L2376953-1 EQ POND DISCHARGE Sampled By: CLIENT on 04-NOV-19 @ 09:00 Matrix: WATER							
<b>Microtox Physical Tests</b>							
Turbidity	N/A				06-NOV-19	06-NOV-19	R4901119
Colour	Colourless				06-NOV-19	06-NOV-19	R4901119
Clarification	None				06-NOV-19	06-NOV-19	R4901119
Initial pH	8.1		0.10	pH	06-NOV-19	06-NOV-19	R4901119
Final pH	8.1		0.10	pH	06-NOV-19	06-NOV-19	R4901119
Lab Treatment	None				06-NOV-19	06-NOV-19	R4901119
<b>Microtox Original</b>							
EC50 (15min) Original	>100		1.0	%	06-NOV-19	06-NOV-19	R4901119
EC20 (15min) Original	>100		1.0	%	06-NOV-19	06-NOV-19	R4901119
EC50 (5min) Original	>100		1.0	%	06-NOV-19	06-NOV-19	R4901119
EC20 (5min) Original	>100		1.0	%	06-NOV-19	06-NOV-19	R4901119
Interpretation Original	NON TOXIC				06-NOV-19	06-NOV-19	R4901119

\* 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: L2376953

Report Date: 07-NOV-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
<b>MICROTOX-ORG-ED</b>								
	Water							
<b>Batch</b>	<b>R4901119</b>							
<b>WG3212147-2 CRM</b>		<b>PHENOL_ED</b>						
EC50 (5min) Original			13.7		mg/L		13-26	06-NOV-19
<b>WG3212147-3 CRM</b>		<b>PHENOL_ED</b>						
EC50 (5min) Original			14.6		mg/L		13-26	06-NOV-19
<b>WG3212147-4 DUP</b>		<b>L2376953-1</b>						
EC50 (15min) Original		>100	>100	RPD-NA	%	N/A		06-NOV-19
EC20 (15min) Original		>100	>100	RPD-NA	%	N/A		06-NOV-19
EC50 (5min) Original		>100	>100	RPD-NA	%	N/A		06-NOV-19
EC20 (5min) Original		>100	>100	RPD-NA	%	N/A		06-NOV-19
<b>WG3212147-1 MB</b>								
EC50 (15min) Original			PASS					06-NOV-19
EC20 (15min) Original			PASS					06-NOV-19
EC50 (5min) Original			PASS					06-NOV-19
EC20 (5min) Original			PASS					06-NOV-19



# Quality Control Report

Workorder: L2376953

Report Date: 07-NOV-19

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

Page 2 of 2

## Legend:

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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:

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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.

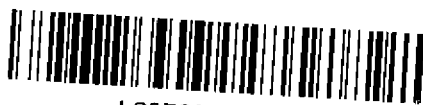
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Please note that this report may contain QC results from anonymous Sample Duplicates and Matrix Spikes that do not originate from this Work Order.



Chain of Custody (COC) / Analytical Request Form



L2376953-COFC

COC Number: 14 -

Page 1 of 1

Canada Toll Free: 1 800 668 9878

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<b>Report To</b>		<b>Acct#13791</b>		<b>Report Format / Distribution</b>			<b>Select Service Level Below (Rush Turnaround Time (TAT) is not available for all tests)</b>																									
Company: <b>GHD LIMITED</b>		Contact: <b>Laura Ermeta</b>		Address: <b>455 Phillip St N2L 3X2</b>		Phone: <b>519-884-0510</b>		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			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: Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		Company: <b>GHD LIMITED</b>		Contact: <b>Laura Ermeta</b>		Select Invoice Distribution: <input checked="" type="checkbox"/> EMAIL <input type="checkbox"/> MAIL <input checked="" type="checkbox"/> FAX			Email 1 or Fax: <b>laura.ermeta@ghd.com</b>			Email 2: <b>See PO</b>			Specify Date Required for E2,E or P:															
ALS Quote #: <b>TEMPLATE: T44985MTX</b>		Job #: <b>44985-20-19</b>		PO / AFE: <b>73506479</b>		LSD:		Project Information			Oil and Gas Required Fields (client use)			Indicate Filtered (F), Preserved (P) or Filtered and Preserved (FIP) below																		
ALS Lab Work Order # (lab use only)		ALS Contact: <b>Rick H</b>		Sampler:		Approver ID:			Cost Center:			GL Account:			Routing Code:			Activity Code:			Location:			MICROTOX (MICROTOX-CRG-ED)			MICROTOX (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-mm-yy)		Time (hh:mm)		Sample Type		MICROTOX (MICROTOX-CRG-ED)			MICROTOX (MICROTOX-PHYSICAL-ED)			Number of Containers														
		EQ Pond Discharge				04-23-19		9:00		Water		R																				
Drinking Water (DW) Samples <sup>1</sup> (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? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		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"/>														
Are samples for human drinking water use? Yes <input type="checkbox"/> No <input type="checkbox"/>						INITIAL COOLER TEMPERATURES °C			FINAL COOLER TEMPERATURES °C			6.8																				
SHIPMENT RELEASE (client use)				INITIAL SHIPMENT RECEPTION (lab use only)				FINAL SHIPMENT RECEPTION (lab use only)																								
Released by: <i>J. O'Leary</i>		Date: <i>04/19</i>		Time: <i>9:30</i>		Received by: <i>[Signature]</i>		Date: <i>05/11/19</i>		Time: <i>8:57</i>		Received by:		Date:		Time:																

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY

YELLOW - CLIENT COPY

GREEN - INTERNAL USE ONLY

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: 25-NOV-19  
Report Date: 02-DEC-19 15:07 (MT)  
Version: FINAL

Client Phone: 519-884-0510

## Certificate of Analysis

Lab Work Order #: L2387305  
Project P.O. #: 73506479-1  
Job Reference: 44985-20-19  
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
L2387305-1 STN6							
Sampled By: CLIENT on 25-NOV-19 @ 13:40							
Matrix: WATER							
<b>Physical Tests</b>							
Conductivity	863		3.0	umhos/cm		26-NOV-19	R4925947
Hardness (as CaCO3)	445	HTC	1.3	mg/L		26-NOV-19	
pH	8.45		0.10	pH units		26-NOV-19	R4925947
Total Suspended Solids	4.4		2.0	mg/L	27-NOV-19	28-NOV-19	R4927757
Total Dissolved Solids	556	DLDS	20	mg/L		01-DEC-19	R4929657
<b>Anions and Nutrients</b>							
Alkalinity, Total (as CaCO3)	319		10	mg/L		26-NOV-19	R4925947
Ammonia, Total (as N)	0.060		0.010	mg/L		26-NOV-19	R4927899
Bromide (Br)	<0.10		0.10	mg/L		26-NOV-19	R4926940
Chloride (Cl)	36.4		0.50	mg/L		26-NOV-19	R4926940
Fluoride (F)	0.263		0.020	mg/L		26-NOV-19	R4926940
Nitrate (as N)	4.40		0.020	mg/L		26-NOV-19	R4926940
Nitrite (as N)	<0.010		0.010	mg/L		26-NOV-19	R4926940
Total Kjeldahl Nitrogen	0.72		0.15	mg/L	27-NOV-19	27-NOV-19	R4927077
Phosphorus, Total	0.0420		0.0030	mg/L	28-NOV-19	29-NOV-19	R4928625
Sulfate (SO4)	118		0.30	mg/L		26-NOV-19	R4926940
<b>Cyanides</b>							
Cyanide, Total	<0.0020		0.0020	mg/L		26-NOV-19	R4926440
<b>Organic / Inorganic Carbon</b>							
Dissolved Carbon Filtration Location	LAB					26-NOV-19	R4924346
Dissolved Organic Carbon	5.53		0.50	mg/L	26-NOV-19	28-NOV-19	R4928502
<b>Total Metals</b>							
Aluminum (Al)-Total	0.479		0.010	mg/L	26-NOV-19	26-NOV-19	R4923177
Antimony (Sb)-Total	0.00010		0.00010	mg/L	26-NOV-19	26-NOV-19	R4923177
Arsenic (As)-Total	0.00049		0.00010	mg/L	26-NOV-19	26-NOV-19	R4923177
Barium (Ba)-Total	0.0328		0.00020	mg/L	26-NOV-19	26-NOV-19	R4923177
Beryllium (Be)-Total	<0.00010		0.00010	mg/L	26-NOV-19	26-NOV-19	R4923177
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	26-NOV-19	26-NOV-19	R4923177
Boron (B)-Total	0.041		0.010	mg/L	26-NOV-19	26-NOV-19	R4923177
Cadmium (Cd)-Total	0.000016		0.000010	mg/L	26-NOV-19	26-NOV-19	R4923177
Calcium (Ca)-Total	96.8		0.50	mg/L	26-NOV-19	26-NOV-19	R4923177
Cobalt (Co)-Total	0.00020		0.00010	mg/L	26-NOV-19	26-NOV-19	R4923177
Copper (Cu)-Total	0.0018		0.0010	mg/L	26-NOV-19	26-NOV-19	R4923177
Iron (Fe)-Total	0.352		0.050	mg/L	26-NOV-19	26-NOV-19	R4923177
Lead (Pb)-Total	0.00022		0.00010	mg/L	26-NOV-19	26-NOV-19	R4923177
Magnesium (Mg)-Total	49.3		0.050	mg/L	26-NOV-19	26-NOV-19	R4923177
Manganese (Mn)-Total	0.00896		0.00050	mg/L	26-NOV-19	26-NOV-19	R4923177
Mercury (Hg)-Total	<0.0000050		0.0000050	mg/L		26-NOV-19	R4923715
Molybdenum (Mo)-Total	0.00512		0.000050	mg/L	26-NOV-19	26-NOV-19	R4923177
Nickel (Ni)-Total	0.00129		0.00050	mg/L	26-NOV-19	26-NOV-19	R4923177
Potassium (K)-Total	1.95		0.050	mg/L	26-NOV-19	26-NOV-19	R4923177
Selenium (Se)-Total	0.00158		0.000050	mg/L	26-NOV-19	26-NOV-19	R4923177

\* 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
L2387305-1 STN6 Sampled By: CLIENT on 25-NOV-19 @ 13:40 Matrix: WATER							
<b>Total Metals</b>							
Silicon (Si)-Total	4.37		0.10	mg/L	26-NOV-19	26-NOV-19	R4923177
Silver (Ag)-Total	<0.000050		0.000050	mg/L	26-NOV-19	26-NOV-19	R4923177
Sodium (Na)-Total	23.7		0.50	mg/L	26-NOV-19	26-NOV-19	R4923177
Strontium (Sr)-Total	0.477		0.0010	mg/L	26-NOV-19	26-NOV-19	R4923177
Thallium (Tl)-Total	0.000011		0.000010	mg/L	26-NOV-19	26-NOV-19	R4923177
Tin (Sn)-Total	<0.00010		0.00010	mg/L	26-NOV-19	26-NOV-19	R4923177
Vanadium (V)-Total	0.00166		0.00050	mg/L	26-NOV-19	26-NOV-19	R4923177
Zinc (Zn)-Total	<0.0030		0.0030	mg/L	26-NOV-19	26-NOV-19	R4923177
<b>Speciated Metals</b>							
Chromium, Hexavalent	<0.00050		0.00050	mg/L		26-NOV-19	R4926128
<b>Aggregate Organics</b>							
COD	<10		10	mg/L		02-DEC-19	R4930054
Phenols (4AAP)	0.0334		0.0010	mg/L		26-NOV-19	R4926180
L2387305-2 STN6A Sampled By: CLIENT on 25-NOV-19 @ 13:40 Matrix: WATER							
<b>Physical Tests</b>							
Conductivity	853		3.0	umhos/cm		26-NOV-19	R4925947
Hardness (as CaCO3)	420	HTC	1.3	mg/L		26-NOV-19	
pH	8.33		0.10	pH units		26-NOV-19	R4925947
Total Suspended Solids	12.9		2.0	mg/L	27-NOV-19	28-NOV-19	R4927757
Total Dissolved Solids	546	DLDS	20	mg/L		01-DEC-19	R4929657
<b>Anions and Nutrients</b>							
Alkalinity, Total (as CaCO3)	301		10	mg/L		26-NOV-19	R4925947
Ammonia, Total (as N)	0.117		0.010	mg/L		26-NOV-19	R4927899
Bromide (Br)	0.29		0.10	mg/L		26-NOV-19	R4926940
Chloride (Cl)	41.7		0.50	mg/L		26-NOV-19	R4926940
Fluoride (F)	0.325		0.020	mg/L		26-NOV-19	R4926940
Nitrate (as N)	3.45		0.020	mg/L		26-NOV-19	R4926940
Nitrite (as N)	<0.010		0.010	mg/L		26-NOV-19	R4926940
Total Kjeldahl Nitrogen	0.66		0.15	mg/L	27-NOV-19	27-NOV-19	R4927077
Phosphorus, Total	0.084	DLM	0.030	mg/L	28-NOV-19	29-NOV-19	R4928625
Sulfate (SO4)	116		0.30	mg/L		26-NOV-19	R4926940
<b>Cyanides</b>							
Cyanide, Total	<0.0020		0.0020	mg/L		26-NOV-19	R4926440
<b>Organic / Inorganic Carbon</b>							
Dissolved Carbon Filtration Location	LAB					26-NOV-19	R4924346
Dissolved Organic Carbon	1.24		0.50	mg/L	26-NOV-19	28-NOV-19	R4928502
<b>Total Metals</b>							
Aluminum (Al)-Total	0.537		0.010	mg/L	26-NOV-19	26-NOV-19	R4923177
Antimony (Sb)-Total	0.00014		0.00010	mg/L	26-NOV-19	26-NOV-19	R4923177
Arsenic (As)-Total	0.00062		0.00010	mg/L	26-NOV-19	26-NOV-19	R4923177

\* 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
L2387305-2 STN6A							
Sampled By: CLIENT on 25-NOV-19 @ 13:40							
Matrix: WATER							
<b>Total Metals</b>							
Barium (Ba)-Total	0.0373		0.00020	mg/L	26-NOV-19	26-NOV-19	R4923177
Beryllium (Be)-Total	<0.00010		0.00010	mg/L	26-NOV-19	26-NOV-19	R4923177
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	26-NOV-19	26-NOV-19	R4923177
Boron (B)-Total	0.048		0.010	mg/L	26-NOV-19	26-NOV-19	R4923177
Cadmium (Cd)-Total	0.000027		0.000010	mg/L	26-NOV-19	26-NOV-19	R4923177
Calcium (Ca)-Total	94.7		0.50	mg/L	26-NOV-19	26-NOV-19	R4923177
Cobalt (Co)-Total	0.00027		0.00010	mg/L	26-NOV-19	26-NOV-19	R4923177
Copper (Cu)-Total	0.0019		0.0010	mg/L	26-NOV-19	26-NOV-19	R4923177
Iron (Fe)-Total	0.426		0.050	mg/L	26-NOV-19	26-NOV-19	R4923177
Lead (Pb)-Total	0.00025		0.00010	mg/L	26-NOV-19	26-NOV-19	R4923177
Magnesium (Mg)-Total	44.6		0.050	mg/L	26-NOV-19	26-NOV-19	R4923177
Manganese (Mn)-Total	0.0151		0.00050	mg/L	26-NOV-19	26-NOV-19	R4923177
Mercury (Hg)-Total	<0.0000050		0.0000050	mg/L		26-NOV-19	R4923715
Molybdenum (Mo)-Total	0.0123		0.000050	mg/L	26-NOV-19	26-NOV-19	R4923177
Nickel (Ni)-Total	0.00200		0.00050	mg/L	26-NOV-19	26-NOV-19	R4923177
Potassium (K)-Total	4.36		0.050	mg/L	26-NOV-19	26-NOV-19	R4923177
Selenium (Se)-Total	0.00120		0.000050	mg/L	26-NOV-19	26-NOV-19	R4923177
Silicon (Si)-Total	4.30		0.10	mg/L	26-NOV-19	26-NOV-19	R4923177
Silver (Ag)-Total	<0.000050		0.000050	mg/L	26-NOV-19	26-NOV-19	R4923177
Sodium (Na)-Total	26.9		0.50	mg/L	26-NOV-19	26-NOV-19	R4923177
Strontium (Sr)-Total	0.488		0.0010	mg/L	26-NOV-19	26-NOV-19	R4923177
Thallium (Tl)-Total	0.000020		0.000010	mg/L	26-NOV-19	26-NOV-19	R4923177
Tin (Sn)-Total	0.00013		0.00010	mg/L	26-NOV-19	26-NOV-19	R4923177
Vanadium (V)-Total	0.00173		0.00050	mg/L	26-NOV-19	26-NOV-19	R4923177
Zinc (Zn)-Total	<0.0030		0.0030	mg/L	26-NOV-19	26-NOV-19	R4923177
<b>Speciated Metals</b>							
Chromium, Hexavalent	<0.00050		0.00050	mg/L		26-NOV-19	R4926128
<b>Aggregate Organics</b>							
COD	<10		10	mg/L		02-DEC-19	R4930054
Phenols (4AAP)	0.0023		0.0010	mg/L		26-NOV-19	R4926180

\* 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	Aluminum (Al)-Total	MS-B	L2387305-1, -2
Matrix Spike	Boron (B)-Total	MS-B	L2387305-1, -2
Matrix Spike	Calcium (Ca)-Total	MS-B	L2387305-1, -2
Matrix Spike	Iron (Fe)-Total	MS-B	L2387305-1, -2
Matrix Spike	Magnesium (Mg)-Total	MS-B	L2387305-1, -2
Matrix Spike	Manganese (Mn)-Total	MS-B	L2387305-1, -2
Matrix Spike	Potassium (K)-Total	MS-B	L2387305-1, -2
Matrix Spike	Silicon (Si)-Total	MS-B	L2387305-1, -2
Matrix Spike	Sodium (Na)-Total	MS-B	L2387305-1, -2
Matrix Spike	Strontium (Sr)-Total	MS-B	L2387305-1, -2
Matrix Spike	Ammonia, Total (as N)	MS-B	L2387305-1, -2
Matrix Spike	Nitrate (as N)	MS-B	L2387305-1, -2

### 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**
ALK-WT	Water	Alkalinity, Total (as CaCO <sub>3</sub> )	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-SCREEN-WT	Water	Conductivity Screen (Internal Use Only)	APHA 2510

Qualitative analysis of conductivity where required during preparation of other tests - e.g. TDS, metals, etc.

## Reference Information

EC-WT                      Water              Conductivity                      APHA 2510 B

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

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<sub>3</sub> 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)  
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-F-WT                      Water              Ammonia in Water by Fluorescence      J. ENVIRON. MONIT., 2005, 7, 37-42, RSC

This analysis is carried out, on sulfuric acid preserved samples, using procedures modified from J. Environ. Monit., 2005, 7, 37 - 42, The Royal Society of Chemistry, "Flow-injection analysis with fluorescence detection for the determination of trace levels of ammonium in seawater", Roslyn J. Weston et al.

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-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.



## Reference Information

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:

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

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### Chain of Custody Numbers:

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#### 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: L2387305

Report Date: 02-DEC-19

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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
<b>ALK-WT</b>		<b>Water</b>						
<b>Batch</b>	<b>R4925947</b>							
<b>WG3228135-4</b>	<b>DUP</b>	<b>WG3228135-3</b>						
Alkalinity, Total (as CaCO3)		329	327		mg/L	0.6	20	26-NOV-19
<b>WG3228135-2</b>	<b>LCS</b>							
Alkalinity, Total (as CaCO3)			101.8		%		85-115	26-NOV-19
<b>WG3228135-1</b>	<b>MB</b>							
Alkalinity, Total (as CaCO3)			<10		mg/L		10	26-NOV-19
<b>BR-IC-N-WT</b>		<b>Water</b>						
<b>Batch</b>	<b>R4926940</b>							
<b>WG3228469-19</b>	<b>DUP</b>	<b>WG3228469-20</b>						
Bromide (Br)		<0.10	<0.10	RPD-NA	mg/L	N/A	20	26-NOV-19
<b>WG3228469-17</b>	<b>LCS</b>							
Bromide (Br)			103.9		%		85-115	26-NOV-19
<b>WG3228469-16</b>	<b>MB</b>							
Bromide (Br)			<0.10		mg/L		0.1	26-NOV-19
<b>WG3228469-18</b>	<b>MS</b>	<b>WG3228469-20</b>						
Bromide (Br)			97.7		%		75-125	26-NOV-19
<b>CL-IC-N-WT</b>		<b>Water</b>						
<b>Batch</b>	<b>R4926940</b>							
<b>WG3228469-19</b>	<b>DUP</b>	<b>WG3228469-20</b>						
Chloride (Cl)		18.5	18.5		mg/L	0.1	20	26-NOV-19
<b>WG3228469-17</b>	<b>LCS</b>							
Chloride (Cl)			103.7		%		90-110	26-NOV-19
<b>WG3228469-16</b>	<b>MB</b>							
Chloride (Cl)			<0.50		mg/L		0.5	26-NOV-19
<b>WG3228469-18</b>	<b>MS</b>	<b>WG3228469-20</b>						
Chloride (Cl)			103.5		%		75-125	26-NOV-19
<b>CN-TOT-WT</b>		<b>Water</b>						
<b>Batch</b>	<b>R4926440</b>							
<b>WG3228298-3</b>	<b>DUP</b>	<b>L2387368-1</b>						
Cyanide, Total		0.016	0.015		mg/L	6.1	20	26-NOV-19
<b>WG3228298-2</b>	<b>LCS</b>							
Cyanide, Total			93.3		%		80-120	26-NOV-19
<b>WG3228298-1</b>	<b>MB</b>							
Cyanide, Total			<0.0020		mg/L		0.002	26-NOV-19
<b>WG3228298-4</b>	<b>MS</b>	<b>L2387368-1</b>						
Cyanide, Total			83.4		%		70-130	26-NOV-19
<b>COD-T-WT</b>		<b>Water</b>						



### Quality Control Report

Workorder: L2387305

Report Date: 02-DEC-19

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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
<b>COD-T-WT</b>		<b>Water</b>						
Batch	R4930054							
<b>WG3232817-3</b>	<b>DUP</b>	<b>L2389978-5</b>						
COD		<10	<10	RPD-NA	mg/L	N/A	20	02-DEC-19
<b>WG3232817-2</b>	<b>LCS</b>							
COD			93.3		%		85-115	02-DEC-19
<b>WG3232817-1</b>	<b>MB</b>							
COD			<10		mg/L		10	02-DEC-19
<b>WG3232817-4</b>	<b>MS</b>	<b>L2389978-5</b>						
COD			106.4		%		75-125	02-DEC-19
<b>CR-CR6-IC-WT</b>		<b>Water</b>						
Batch	R4926128							
<b>WG3228858-4</b>	<b>DUP</b>	<b>WG3228858-3</b>						
Chromium, Hexavalent		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	26-NOV-19
<b>WG3228858-2</b>	<b>LCS</b>							
Chromium, Hexavalent			103.6		%		80-120	26-NOV-19
<b>WG3228858-1</b>	<b>MB</b>							
Chromium, Hexavalent			<0.00050		mg/L		0.0005	26-NOV-19
<b>WG3228858-5</b>	<b>MS</b>	<b>WG3228858-3</b>						
Chromium, Hexavalent			98.4		%		70-130	26-NOV-19
<b>DOC-WT</b>		<b>Water</b>						
Batch	R4928502							
<b>WG3228755-3</b>	<b>DUP</b>	<b>L2387265-1</b>						
Dissolved Organic Carbon		4.59	4.79		mg/L	4.4	20	28-NOV-19
<b>WG3228755-2</b>	<b>LCS</b>							
Dissolved Organic Carbon			108.4		%		80-120	28-NOV-19
<b>WG3228755-1</b>	<b>MB</b>							
Dissolved Organic Carbon			<0.50		mg/L		0.5	28-NOV-19
<b>WG3228755-4</b>	<b>MS</b>	<b>L2387265-1</b>						
Dissolved Organic Carbon			105.7		%		70-130	28-NOV-19
<b>EC-WT</b>		<b>Water</b>						
Batch	R4925947							
<b>WG3228135-4</b>	<b>DUP</b>	<b>WG3228135-3</b>						
Conductivity		642	651		umhos/cm	1.4	10	26-NOV-19
<b>WG3228135-2</b>	<b>LCS</b>							
Conductivity			99.4		%		90-110	26-NOV-19
<b>WG3228135-1</b>	<b>MB</b>							
Conductivity			<3.0		umhos/cm		3	26-NOV-19
<b>F-IC-N-WT</b>		<b>Water</b>						



### Quality Control Report

Workorder: L2387305

Report Date: 02-DEC-19

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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
<b>F-IC-N-WT</b>		<b>Water</b>						
<b>Batch</b>	<b>R4926940</b>							
<b>WG3228469-19</b>	<b>DUP</b>	<b>WG3228469-20</b>						
Fluoride (F)		0.060	0.061		mg/L	1.6	20	26-NOV-19
<b>WG3228469-17</b>	<b>LCS</b>							
Fluoride (F)			102.6		%		90-110	26-NOV-19
<b>WG3228469-16</b>	<b>MB</b>							
Fluoride (F)			<0.020		mg/L		0.02	26-NOV-19
<b>WG3228469-18</b>	<b>MS</b>	<b>WG3228469-20</b>						
Fluoride (F)			100.0		%		75-125	26-NOV-19
<b>HG-T-CVAA-WT</b>		<b>Water</b>						
<b>Batch</b>	<b>R4923715</b>							
<b>WG3228449-3</b>	<b>DUP</b>	<b>L2386384-1</b>						
Mercury (Hg)-Total		<0.0000050	<0.0000050	RPD-NA	mg/L	N/A	20	26-NOV-19
<b>WG3228449-2</b>	<b>LCS</b>							
Mercury (Hg)-Total			104.0		%		80-120	26-NOV-19
<b>WG3228449-1</b>	<b>MB</b>							
Mercury (Hg)-Total			<0.0000050		mg/L		0.000005	26-NOV-19
<b>WG3228449-4</b>	<b>MS</b>	<b>L2386384-2</b>						
Mercury (Hg)-Total			96.7		%		70-130	26-NOV-19
<b>MET-T-CCMS-WT</b>		<b>Water</b>						
<b>Batch</b>	<b>R4923177</b>							
<b>WG3227989-4</b>	<b>DUP</b>	<b>WG3227989-3</b>						
Aluminum (Al)-Total		0.444	0.430		mg/L	3.1	20	26-NOV-19
Antimony (Sb)-Total		0.00076	0.00073		mg/L	4.9	20	26-NOV-19
Arsenic (As)-Total		0.00160	0.00157		mg/L	2.2	20	26-NOV-19
Barium (Ba)-Total		0.0159	0.0152		mg/L	4.8	20	26-NOV-19
Beryllium (Be)-Total		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	26-NOV-19
Bismuth (Bi)-Total		<0.000050	<0.000050	RPD-NA	mg/L	N/A	20	26-NOV-19
Boron (B)-Total		0.228	0.221		mg/L	3.1	20	26-NOV-19
Cadmium (Cd)-Total		0.0000683	0.0000669		mg/L	2.1	20	26-NOV-19
Calcium (Ca)-Total		63.5	63.3		mg/L	0.3	20	26-NOV-19
Cobalt (Co)-Total		0.00042	0.00041		mg/L	2.0	20	26-NOV-19
Copper (Cu)-Total		0.184	0.180		mg/L	2.0	20	26-NOV-19
Iron (Fe)-Total		0.494	0.467		mg/L	5.5	20	26-NOV-19
Lead (Pb)-Total		0.0275	0.0269		mg/L	2.3	20	26-NOV-19
Magnesium (Mg)-Total		18.7	18.1		mg/L	3.0	20	26-NOV-19
Manganese (Mn)-Total		0.0342	0.0331		mg/L	3.0	20	26-NOV-19



### Quality Control Report

Workorder: L2387305

Report Date: 02-DEC-19

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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
<b>MET-T-CCMS-WT</b>								
	<b>Water</b>							
<b>Batch</b>	<b>R4923177</b>							
<b>WG3227989-4</b>	<b>DUP</b>	<b>WG3227989-3</b>						
Molybdenum (Mo)-Total		0.00370	0.00359		mg/L	2.9	20	26-NOV-19
Nickel (Ni)-Total		0.00555	0.00533		mg/L	3.9	20	26-NOV-19
Potassium (K)-Total		9.16	8.93		mg/L	2.6	20	26-NOV-19
Selenium (Se)-Total		0.000395	0.000417		mg/L	5.4	20	26-NOV-19
Silicon (Si)-Total		2.13	2.07		mg/L	2.6	20	26-NOV-19
Silver (Ag)-Total		<0.000050	<0.000050	RPD-NA	mg/L	N/A	20	26-NOV-19
Sodium (Na)-Total		125	128		mg/L	2.7	20	26-NOV-19
Strontium (Sr)-Total		0.409	0.399		mg/L	2.5	20	26-NOV-19
Thallium (Tl)-Total		0.000076	0.000075		mg/L	2.1	20	26-NOV-19
Tin (Sn)-Total		0.00056	0.00055		mg/L	1.5	20	26-NOV-19
Vanadium (V)-Total		0.00146	0.00143		mg/L	2.3	20	26-NOV-19
Zinc (Zn)-Total		0.331	0.323		mg/L	2.5	20	26-NOV-19
<b>WG3227989-2</b>	<b>LCS</b>							
Aluminum (Al)-Total			102.0		%		80-120	26-NOV-19
Antimony (Sb)-Total			103.9		%		80-120	26-NOV-19
Arsenic (As)-Total			99.4		%		80-120	26-NOV-19
Barium (Ba)-Total			102.5		%		80-120	26-NOV-19
Beryllium (Be)-Total			98.9		%		80-120	26-NOV-19
Bismuth (Bi)-Total			99.0		%		80-120	26-NOV-19
Boron (B)-Total			102.0		%		80-120	26-NOV-19
Cadmium (Cd)-Total			100.4		%		80-120	26-NOV-19
Calcium (Ca)-Total			102.9		%		80-120	26-NOV-19
Cobalt (Co)-Total			96.8		%		80-120	26-NOV-19
Copper (Cu)-Total			96.3		%		80-120	26-NOV-19
Iron (Fe)-Total			99.7		%		80-120	26-NOV-19
Lead (Pb)-Total			101.6		%		80-120	26-NOV-19
Magnesium (Mg)-Total			105.5		%		80-120	26-NOV-19
Manganese (Mn)-Total			103.5		%		80-120	26-NOV-19
Molybdenum (Mo)-Total			105.7		%		80-120	26-NOV-19
Nickel (Ni)-Total			99.7		%		80-120	26-NOV-19
Potassium (K)-Total			105.8		%		80-120	26-NOV-19
Selenium (Se)-Total			97.6		%		80-120	26-NOV-19
Silicon (Si)-Total			115.3		%		60-140	26-NOV-19



### Quality Control Report

Workorder: L2387305

Report Date: 02-DEC-19

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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
<b>MET-T-CCMS-WT</b>								
	<b>Water</b>							
<b>Batch</b>	<b>R4923177</b>							
<b>WG3227989-2</b>	<b>LCS</b>							
Silver (Ag)-Total			108.2		%		80-120	26-NOV-19
Sodium (Na)-Total			100.7		%		80-120	26-NOV-19
Strontium (Sr)-Total			107.1		%		80-120	26-NOV-19
Thallium (Tl)-Total			101.6		%		80-120	26-NOV-19
Tin (Sn)-Total			100.7		%		80-120	26-NOV-19
Vanadium (V)-Total			103.0		%		80-120	26-NOV-19
Zinc (Zn)-Total			98.8		%		80-120	26-NOV-19
<b>WG3227989-1</b>	<b>MB</b>							
Aluminum (Al)-Total			<0.0050		mg/L		0.005	26-NOV-19
Antimony (Sb)-Total			<0.00010		mg/L		0.0001	26-NOV-19
Arsenic (As)-Total			<0.00010		mg/L		0.0001	26-NOV-19
Barium (Ba)-Total			<0.00010		mg/L		0.0001	26-NOV-19
Beryllium (Be)-Total			<0.00010		mg/L		0.0001	26-NOV-19
Bismuth (Bi)-Total			<0.000050		mg/L		0.00005	26-NOV-19
Boron (B)-Total			<0.010		mg/L		0.01	26-NOV-19
Cadmium (Cd)-Total			<0.0000050		mg/L		0.000005	26-NOV-19
Calcium (Ca)-Total			<0.050		mg/L		0.05	26-NOV-19
Cobalt (Co)-Total			<0.00010		mg/L		0.0001	26-NOV-19
Copper (Cu)-Total			<0.0010		mg/L		0.001	26-NOV-19
Iron (Fe)-Total			<0.010		mg/L		0.01	26-NOV-19
Lead (Pb)-Total			<0.000050		mg/L		0.00005	26-NOV-19
Magnesium (Mg)-Total			<0.0050		mg/L		0.005	26-NOV-19
Manganese (Mn)-Total			<0.00050		mg/L		0.0005	26-NOV-19
Molybdenum (Mo)-Total			<0.000050		mg/L		0.00005	26-NOV-19
Nickel (Ni)-Total			<0.00050		mg/L		0.0005	26-NOV-19
Potassium (K)-Total			<0.050		mg/L		0.05	26-NOV-19
Selenium (Se)-Total			<0.000050		mg/L		0.00005	26-NOV-19
Silicon (Si)-Total			<0.10		mg/L		0.1	26-NOV-19
Silver (Ag)-Total			<0.000050		mg/L		0.00005	26-NOV-19
Sodium (Na)-Total			<0.050		mg/L		0.05	26-NOV-19
Strontium (Sr)-Total			<0.0010		mg/L		0.001	26-NOV-19
Thallium (Tl)-Total			<0.000010		mg/L		0.00001	26-NOV-19
Tin (Sn)-Total			<0.00010		mg/L		0.0001	26-NOV-19
Vanadium (V)-Total			<0.00050		mg/L		0.0005	26-NOV-19





## Quality Control Report

Workorder: L2387305

Report Date: 02-DEC-19

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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
<b>NH3-F-WT</b>		<b>Water</b>						
<b>Batch</b>	<b>R4927899</b>							
<b>WG3227431-22</b>	<b>LCS</b>							
Ammonia, Total (as N)			97.5		%		85-115	26-NOV-19
<b>WG3227431-21</b>	<b>MB</b>							
Ammonia, Total (as N)			<0.010		mg/L		0.01	26-NOV-19
<b>WG3227431-23</b>	<b>MS</b>	<b>L2387278-1</b>						
Ammonia, Total (as N)			N/A	MS-B	%		-	26-NOV-19
<b>NO2-IC-WT</b>		<b>Water</b>						
<b>Batch</b>	<b>R4926940</b>							
<b>WG3228469-19</b>	<b>DUP</b>	<b>WG3228469-20</b>						
Nitrite (as N)		<0.010	<0.010	RPD-NA	mg/L	N/A	20	26-NOV-19
<b>WG3228469-17</b>	<b>LCS</b>							
Nitrite (as N)			103.4		%		90-110	26-NOV-19
<b>WG3228469-16</b>	<b>MB</b>							
Nitrite (as N)			<0.010		mg/L		0.01	26-NOV-19
<b>WG3228469-18</b>	<b>MS</b>	<b>WG3228469-20</b>						
Nitrite (as N)			101.9		%		75-125	26-NOV-19
<b>NO3-IC-WT</b>		<b>Water</b>						
<b>Batch</b>	<b>R4926940</b>							
<b>WG3228469-19</b>	<b>DUP</b>	<b>WG3228469-20</b>						
Nitrate (as N)		5.66	5.66		mg/L	0.1	20	26-NOV-19
<b>WG3228469-17</b>	<b>LCS</b>							
Nitrate (as N)			102.5		%		90-110	26-NOV-19
<b>WG3228469-16</b>	<b>MB</b>							
Nitrate (as N)			<0.020		mg/L		0.02	26-NOV-19
<b>WG3228469-18</b>	<b>MS</b>	<b>WG3228469-20</b>						
Nitrate (as N)			N/A	MS-B	%		-	26-NOV-19
<b>P-T-COL-WT</b>		<b>Water</b>						
<b>Batch</b>	<b>R4928625</b>							
<b>WG3230976-3</b>	<b>DUP</b>	<b>L2387277-1</b>						
Phosphorus, Total		0.0181	0.0156		mg/L	14	20	29-NOV-19
<b>WG3230976-2</b>	<b>LCS</b>							
Phosphorus, Total			102.8		%		80-120	29-NOV-19
<b>WG3230976-1</b>	<b>MB</b>							
Phosphorus, Total			<0.0030		mg/L		0.003	29-NOV-19
<b>WG3230976-4</b>	<b>MS</b>	<b>L2387277-1</b>						
Phosphorus, Total			110.0		%		70-130	29-NOV-19
<b>PH-WT</b>		<b>Water</b>						





## Quality Control Report

Workorder: L2387305

Report Date: 02-DEC-19

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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
<b>PH-WT</b>		<b>Water</b>						
Batch	R4925947							
WG3228135-4	DUP	WG3228135-3						
pH		7.94	7.96	J	pH units	0.02	0.2	26-NOV-19
WG3228135-2	LCS							
pH			7.01		pH units		6.9-7.1	26-NOV-19
<b>PHENOLS-4AAP-WT</b>		<b>Water</b>						
Batch	R4926180							
WG3228222-3	DUP	L2387285-1						
Phenols (4AAP)		0.0026	0.0025	J	mg/L	0.0001	0.002	26-NOV-19
WG3228222-7	DUP	L2387615-1						
Phenols (4AAP)		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	26-NOV-19
WG3228222-2	LCS							
Phenols (4AAP)			101.3		%		85-115	26-NOV-19
WG3228222-6	LCS							
Phenols (4AAP)			99.9		%		85-115	26-NOV-19
WG3228222-1	MB							
Phenols (4AAP)			<0.0010		mg/L		0.001	26-NOV-19
WG3228222-5	MB							
Phenols (4AAP)			<0.0010		mg/L		0.001	26-NOV-19
WG3228222-4	MS	L2387285-1						
Phenols (4AAP)			106.4		%		75-125	26-NOV-19
WG3228222-8	MS	L2387615-1						
Phenols (4AAP)			96.6		%		75-125	26-NOV-19
<b>SO4-IC-N-WT</b>		<b>Water</b>						
Batch	R4926940							
WG3228469-19	DUP	WG3228469-20						
Sulfate (SO4)		22.9	22.9		mg/L	0.0	20	26-NOV-19
WG3228469-17	LCS							
Sulfate (SO4)			103.9		%		90-110	26-NOV-19
WG3228469-16	MB							
Sulfate (SO4)			<0.30		mg/L		0.3	26-NOV-19
WG3228469-18	MS	WG3228469-20						
Sulfate (SO4)			102.1		%		75-125	26-NOV-19
<b>SOLIDS-TDS-WT</b>		<b>Water</b>						
Batch	R4929657							
WG3232478-3	DUP	L2387305-1						
Total Dissolved Solids		556	549		mg/L	1.3	20	01-DEC-19
WG3232478-2	LCS							



## Quality Control Report

Workorder: L2387305

Report Date: 02-DEC-19

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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
<b>SOLIDS-TDS-WT</b>		<b>Water</b>						
<b>Batch</b>	<b>R4929657</b>							
<b>WG3232478-2</b>	<b>LCS</b>							
Total Dissolved Solids			100.4		%		85-115	01-DEC-19
<b>WG3232478-1</b>	<b>MB</b>							
Total Dissolved Solids			<10		mg/L		10	01-DEC-19
<b>SOLIDS-TSS-WT</b>		<b>Water</b>						
<b>Batch</b>	<b>R4927757</b>							
<b>WG3229759-3</b>	<b>DUP</b>	<b>WG3229759-4</b>						
Total Suspended Solids		3500	3740		mg/L	6.6	20	28-NOV-19
<b>WG3229759-2</b>	<b>LCS</b>							
Total Suspended Solids			101.2		%		85-115	28-NOV-19
<b>WG3229759-1</b>	<b>MB</b>							
Total Suspended Solids			<2.0		mg/L		2	28-NOV-19
<b>TKN-WT</b>		<b>Water</b>						
<b>Batch</b>	<b>R4927077</b>							
<b>WG3229270-3</b>	<b>DUP</b>	<b>L2387277-4</b>						
Total Kjeldahl Nitrogen		0.72	0.70		mg/L	2.0	20	27-NOV-19
<b>WG3229270-2</b>	<b>LCS</b>							
Total Kjeldahl Nitrogen			98.4		%		75-125	27-NOV-19
<b>WG3229270-1</b>	<b>MB</b>							
Total Kjeldahl Nitrogen			<0.15		mg/L		0.15	27-NOV-19
<b>WG3229270-4</b>	<b>MS</b>	<b>L2387277-4</b>						
Total Kjeldahl Nitrogen			93.6		%		70-130	27-NOV-19

# Quality Control Report

Workorder: L2387305

Report Date: 02-DEC-19

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

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## Legend:

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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:

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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.

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

Date Received: 10-DEC-19  
Report Date: 17-DEC-19 08:28 (MT)  
Version: FINAL

Client Phone: 519-884-0510

## Certificate of Analysis

Lab Work Order #: L2393996  
Project P.O. #: 73506479-1  
Job Reference: 44985-20-19  
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
L2393996-1 EQ POND DISCHARGE							
Sampled By: CLIENT on 09-DEC-19 @ 10:30							
Matrix: WATER							
<b>Field Tests</b>							
pH, Client Supplied	7.81		0.10	pH		10-DEC-19	R4939248
Temperature, Client	8.0		-50	Deg. C		10-DEC-19	R4939248
<b>Physical Tests</b>							
Conductivity	848		3.0	umhos/cm		10-DEC-19	R4940554
Hardness (as CaCO3)	284	HTC	1.3	mg/L		11-DEC-19	
pH	7.96		0.10	pH units		10-DEC-19	R4940554
Total Suspended Solids	4.7		2.0	mg/L	12-DEC-19	13-DEC-19	R4942454
Total Dissolved Solids	523	DLDS	20	mg/L		12-DEC-19	R4943794
<b>Anions and Nutrients</b>							
Alkalinity, Total (as CaCO3)	163		10	mg/L		11-DEC-19	R4941526
Unionized ammonia	0.00357		0.00012	mg/L		12-DEC-19	
Ammonia, Total (as N)	0.290		0.010	mg/L		11-DEC-19	R4941436
Bromide (Br)	2.85		0.10	mg/L		11-DEC-19	R4942092
Chloride (Cl)	82.2		0.50	mg/L		11-DEC-19	R4942092
Fluoride (F)	0.756		0.020	mg/L		11-DEC-19	R4942092
Nitrate (as N)	0.159		0.020	mg/L		11-DEC-19	R4942092
Nitrite (as N)	<0.010		0.010	mg/L		11-DEC-19	R4942092
Total Kjeldahl Nitrogen	0.97		0.15	mg/L	11-DEC-19	12-DEC-19	R4941686
Phosphorus, Total	0.0266		0.0030	mg/L	12-DEC-19	13-DEC-19	R4942729
Sulfate (SO4)	155		0.30	mg/L		11-DEC-19	R4942092
<b>Cyanides</b>							
Cyanide, Total	<0.0020		0.0020	mg/L		10-DEC-19	R4940750
<b>Organic / Inorganic Carbon</b>							
Dissolved Carbon Filtration Location	LAB					10-DEC-19	R4940257
Dissolved Organic Carbon	6.30		0.50	mg/L	10-DEC-19	13-DEC-19	R4943998
<b>Total Metals</b>							
Aluminum (Al)-Total	0.281		0.010	mg/L	11-DEC-19	11-DEC-19	R4940702
Antimony (Sb)-Total	0.00043		0.00010	mg/L	11-DEC-19	11-DEC-19	R4940702
Arsenic (As)-Total	0.00155		0.00010	mg/L	11-DEC-19	11-DEC-19	R4940702
Barium (Ba)-Total	0.0618		0.00020	mg/L	11-DEC-19	11-DEC-19	R4940702
Beryllium (Be)-Total	<0.00010		0.00010	mg/L	11-DEC-19	11-DEC-19	R4940702
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	11-DEC-19	11-DEC-19	R4940702
Boron (B)-Total	0.120		0.010	mg/L	11-DEC-19	11-DEC-19	R4940702
Cadmium (Cd)-Total	<0.00020	DLM	0.000020	mg/L	11-DEC-19	11-DEC-19	R4940702
Calcium (Ca)-Total	77.9		0.50	mg/L	11-DEC-19	11-DEC-19	R4940702
Cobalt (Co)-Total	0.00066		0.00010	mg/L	11-DEC-19	11-DEC-19	R4940702
Copper (Cu)-Total	0.0023		0.0010	mg/L	11-DEC-19	11-DEC-19	R4940702
Iron (Fe)-Total	0.235		0.050	mg/L	11-DEC-19	11-DEC-19	R4940702
Lead (Pb)-Total	0.00043		0.00010	mg/L	11-DEC-19	11-DEC-19	R4940702
Magnesium (Mg)-Total	21.7		0.050	mg/L	11-DEC-19	11-DEC-19	R4940702
Manganese (Mn)-Total	0.0266		0.00050	mg/L	11-DEC-19	11-DEC-19	R4940702
Mercury (Hg)-Total	0.0000054		0.0000050	mg/L		11-DEC-19	R4940638

\* 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
L2393996-1 EQ POND DISCHARGE							
Sampled By: CLIENT on 09-DEC-19 @ 10:30							
Matrix: WATER							
<b>Total Metals</b>							
Molybdenum (Mo)-Total	0.0734		0.000050	mg/L	11-DEC-19	11-DEC-19	R4940702
Nickel (Ni)-Total	0.00663		0.00050	mg/L	11-DEC-19	11-DEC-19	R4940702
Potassium (K)-Total	22.4		0.050	mg/L	11-DEC-19	11-DEC-19	R4940702
Selenium (Se)-Total	0.00144		0.000050	mg/L	11-DEC-19	11-DEC-19	R4940702
Silicon (Si)-Total	1.41		0.10	mg/L	11-DEC-19	11-DEC-19	R4940702
Silver (Ag)-Total	<0.000050		0.000050	mg/L	11-DEC-19	11-DEC-19	R4940702
Sodium (Na)-Total	64.2		0.50	mg/L	11-DEC-19	11-DEC-19	R4940702
Strontium (Sr)-Total	0.628		0.0010	mg/L	11-DEC-19	11-DEC-19	R4940702
Thallium (Tl)-Total	0.000163		0.000010	mg/L	11-DEC-19	11-DEC-19	R4940702
Tin (Sn)-Total	0.00017		0.00010	mg/L	11-DEC-19	11-DEC-19	R4940702
Vanadium (V)-Total	0.00072		0.00050	mg/L	11-DEC-19	11-DEC-19	R4940702
Zinc (Zn)-Total	0.0039		0.0030	mg/L	11-DEC-19	11-DEC-19	R4940702
<b>Speciated Metals</b>							
Chromium, Hexavalent	<0.00050		0.00050	mg/L		11-DEC-19	R4941370
<b>Aggregate Organics</b>							
COD	17		10	mg/L		16-DEC-19	R4944116
Phenols (4AAP)	0.0013		0.0010	mg/L		11-DEC-19	R4941403
<b>Volatile Organic Compounds</b>							
Acetone	<20		20	ug/L		16-DEC-19	R4943976
Benzene	<0.50		0.50	ug/L		16-DEC-19	R4943976
Bromodichloromethane	<1.0		1.0	ug/L		16-DEC-19	R4943976
Bromoform	<1.0		1.0	ug/L		16-DEC-19	R4943976
Bromomethane	<0.50		0.50	ug/L		16-DEC-19	R4943976
Carbon tetrachloride	<0.50		0.50	ug/L		16-DEC-19	R4943976
Chlorobenzene	<0.50		0.50	ug/L		16-DEC-19	R4943976
Dibromochloromethane	<1.0		1.0	ug/L		16-DEC-19	R4943976
Chloroethane	<1.0		1.0	ug/L		16-DEC-19	R4943976
Chloroform	<1.0		1.0	ug/L		16-DEC-19	R4943976
1,2-Dibromoethane	<0.20		0.20	ug/L		16-DEC-19	R4943976
1,2-Dichlorobenzene	<0.50		0.50	ug/L		16-DEC-19	R4943976
1,3-Dichlorobenzene	<0.50		0.50	ug/L		16-DEC-19	R4943976
1,4-Dichlorobenzene	<0.50		0.50	ug/L		16-DEC-19	R4943976
Dichlorodifluoromethane	<1.0		1.0	ug/L		16-DEC-19	R4943976
1,1-Dichloroethane	<0.50		0.50	ug/L		16-DEC-19	R4943976
1,2-Dichloroethane	<0.50		0.50	ug/L		16-DEC-19	R4943976
1,1-Dichloroethylene	<0.50		0.50	ug/L		16-DEC-19	R4943976
cis-1,2-Dichloroethylene	<0.50		0.50	ug/L		16-DEC-19	R4943976
trans-1,2-Dichloroethylene	<0.50		0.50	ug/L		16-DEC-19	R4943976
Dichloromethane	<2.0		2.0	ug/L		16-DEC-19	R4943976
1,2-Dichloropropane	<0.50		0.50	ug/L		16-DEC-19	R4943976
cis-1,3-Dichloropropene	<0.50		0.50	ug/L		16-DEC-19	R4943976
trans-1,3-Dichloropropene	<0.50		0.50	ug/L		16-DEC-19	R4943976

\* 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
L2393996-1 EQ POND DISCHARGE							
Sampled By: CLIENT on 09-DEC-19 @ 10:30							
Matrix: WATER							
<b>Volatile Organic Compounds</b>							
Ethylbenzene	<0.50		0.50	ug/L		16-DEC-19	R4943976
n-Hexane	<0.50		0.50	ug/L		16-DEC-19	R4943976
Methyl Ethyl Ketone	<20		20	ug/L		16-DEC-19	R4943976
Methyl Isobutyl Ketone	<20		20	ug/L		16-DEC-19	R4943976
MTBE	<0.50		0.50	ug/L		16-DEC-19	R4943976
Styrene	<0.50		0.50	ug/L		16-DEC-19	R4943976
1,1,1,2-Tetrachloroethane	<0.50		0.50	ug/L		16-DEC-19	R4943976
1,1,2,2-Tetrachloroethane	<0.50		0.50	ug/L		16-DEC-19	R4943976
Tetrachloroethylene	<0.50		0.50	ug/L		16-DEC-19	R4943976
Toluene	<0.50		0.50	ug/L		16-DEC-19	R4943976
1,1,1-Trichloroethane	<0.50		0.50	ug/L		16-DEC-19	R4943976
1,1,2-Trichloroethane	<0.50		0.50	ug/L		16-DEC-19	R4943976
Trichloroethylene	<0.50		0.50	ug/L		16-DEC-19	R4943976
Trichlorofluoromethane	<1.0		1.0	ug/L		16-DEC-19	R4943976
Vinyl chloride	<0.50		0.50	ug/L		16-DEC-19	R4943976
o-Xylene	<0.50		0.50	ug/L		16-DEC-19	R4943976
m+p-Xylenes	<1.0		1.0	ug/L		16-DEC-19	R4943976
Xylenes (Total)	<1.1		1.1	ug/L		16-DEC-19	
Surrogate: 4-Bromofluorobenzene	98.0		70-130	%		16-DEC-19	R4943976
Surrogate: 1,4-Difluorobenzene	101.6		70-130	%		16-DEC-19	R4943976
<b>Trihalomethanes</b>							
Total THMs	<2.0		2.0	ug/L		16-DEC-19	
<b>Acid Extractables</b>							
2,3,6-Trichlorophenol	<0.50		0.50	ug/L	10-DEC-19	12-DEC-19	R4941504
Surrogate: 2,4,6-Tribromophenol	105.2		40-150	%	10-DEC-19	12-DEC-19	R4941504
<b>Semi-Volatile Organics</b>							
Acenaphthene	<0.20		0.20	ug/L	10-DEC-19	12-DEC-19	R4941690
Acenaphthylene	<0.20		0.20	ug/L	10-DEC-19	12-DEC-19	R4941690
Anthracene	<0.20		0.20	ug/L	10-DEC-19	12-DEC-19	R4941690
Benzo(a)anthracene	<0.20		0.20	ug/L	10-DEC-19	12-DEC-19	R4941690
Benzo(a)pyrene	<0.050		0.050	ug/L	10-DEC-19	12-DEC-19	R4941690
Benzo(b)fluoranthene	<0.20		0.20	ug/L	10-DEC-19	12-DEC-19	R4941690
Benzo(ghi)perylene	<0.20		0.20	ug/L	10-DEC-19	12-DEC-19	R4941690
Benzo(k)fluoranthene	<0.20		0.20	ug/L	10-DEC-19	12-DEC-19	R4941690
4-Chloroaniline	<0.40		0.40	ug/L	10-DEC-19	12-DEC-19	R4941690
Bis(2-chloroethyl)ether	<0.40		0.40	ug/L	10-DEC-19	12-DEC-19	R4941690
2-Chlorophenol	<0.30		0.30	ug/L	10-DEC-19	12-DEC-19	R4941690
Chrysene	<0.20		0.20	ug/L	10-DEC-19	12-DEC-19	R4941690
Dibenzo(a,h)anthracene	<0.20		0.20	ug/L	10-DEC-19	12-DEC-19	R4941690
1,2-Dichlorobenzene	<0.40		0.40	ug/L	10-DEC-19	12-DEC-19	R4941690
1,3-Dichlorobenzene	<0.40		0.40	ug/L	10-DEC-19	12-DEC-19	R4941690
1,4-Dichlorobenzene	<0.40		0.40	ug/L	10-DEC-19	12-DEC-19	R4941690

\* 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
L2393996-1 EQ POND DISCHARGE Sampled By: CLIENT on 09-DEC-19 @ 10:30 Matrix: WATER							
<b>Semi-Volatile Organics</b>							
3,3'-Dichlorobenzidine	<0.40		0.40	ug/L	10-DEC-19	12-DEC-19	R4941690
2,4-Dichlorophenol	<0.30		0.30	ug/L	10-DEC-19	12-DEC-19	R4941690
Diethylphthalate	<0.20		0.20	ug/L	10-DEC-19	12-DEC-19	R4941690
Dimethylphthalate	<0.20		0.20	ug/L	10-DEC-19	12-DEC-19	R4941690
2,4-Dimethylphenol	<0.50		0.50	ug/L	10-DEC-19	12-DEC-19	R4941690
2,4-Dinitrophenol	<1.0		1.0	ug/L	10-DEC-19	12-DEC-19	R4941690
2,4-Dinitrotoluene	<0.40		0.40	ug/L	10-DEC-19	12-DEC-19	R4941690
2,6-Dinitrotoluene	<0.40		0.40	ug/L	10-DEC-19	12-DEC-19	R4941690
Bis(2-ethylhexyl)phthalate	<2.0		2.0	ug/L	10-DEC-19	12-DEC-19	R4941690
Fluoranthene	<0.20		0.20	ug/L	10-DEC-19	12-DEC-19	R4941690
Fluorene	<0.20		0.20	ug/L	10-DEC-19	12-DEC-19	R4941690
Hexachlorobenzene	<0.040		0.040	ug/L	10-DEC-19	12-DEC-19	R4941690
Hexachlorobutadiene	<0.20		0.20	ug/L	10-DEC-19	12-DEC-19	R4941690
Indeno(1,2,3-cd)pyrene	<0.20		0.20	ug/L	10-DEC-19	12-DEC-19	R4941690
1-Methylnaphthalene	<0.40		0.40	ug/L	10-DEC-19	12-DEC-19	R4941690
2-Methylnaphthalene	<0.40		0.40	ug/L	10-DEC-19	12-DEC-19	R4941690
Naphthalene	<0.20		0.20	ug/L	10-DEC-19	12-DEC-19	R4941690
Pentachlorophenol	<0.50		0.50	ug/L	10-DEC-19	12-DEC-19	R4941690
Perylene	<0.20		0.20	ug/L	10-DEC-19	12-DEC-19	R4941690
Phenanthrene	<0.20		0.20	ug/L	10-DEC-19	12-DEC-19	R4941690
Pyrene	<0.20		0.20	ug/L	10-DEC-19	12-DEC-19	R4941690
2,3,4,5-Tetrachlorophenol	<0.50		0.50	ug/L	10-DEC-19	12-DEC-19	R4941690
2,3,4,6-Tetrachlorophenol	<0.50		0.50	ug/L	10-DEC-19	12-DEC-19	R4941690
1,2,4-Trichlorobenzene	<0.40		0.40	ug/L	10-DEC-19	12-DEC-19	R4941690
2,4,5-Trichlorophenol	<0.50		0.50	ug/L	10-DEC-19	12-DEC-19	R4941690
2,4,6-Trichlorophenol	<0.50		0.50	ug/L	10-DEC-19	12-DEC-19	R4941690
Surrogate: 2-Fluorobiphenyl	87.6		40-130	%	10-DEC-19	12-DEC-19	R4941690
Surrogate: Nitrobenzene d5	90.1		40-130	%	10-DEC-19	12-DEC-19	R4941690
Surrogate: p-Terphenyl d14	94.5		40-130	%	10-DEC-19	12-DEC-19	R4941690
Report Remarks : raised Cd LOR to remove potential Mo interference							
L2393996-2 WEST STORM WATER POND Sampled By: CLIENT on 09-DEC-19 @ 10:45 Matrix: WATER							
<b>Field Tests</b>							
pH, Client Supplied	7.71		0.10	pH		10-DEC-19	R4939248
Temperature, Client	5.0		-50	Deg. C		10-DEC-19	R4939248
<b>Physical Tests</b>							
Conductivity	872		3.0	umhos/cm		11-DEC-19	R4942613
Hardness (as CaCO3)	294	HTC	1.3	mg/L		11-DEC-19	
pH	8.12		0.10	pH units		11-DEC-19	R4942613
Total Suspended Solids	7.4		2.0	mg/L	12-DEC-19	13-DEC-19	R4942454
Total Dissolved Solids	540	DLDS	20	mg/L		12-DEC-19	R4943794

\* 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
L2393996-2 WEST STORM WATER POND Sampled By: CLIENT on 09-DEC-19 @ 10:45 Matrix: WATER							
<b>Physical Tests</b>							
<b>Anions and Nutrients</b>							
Alkalinity, Total (as CaCO <sub>3</sub> )	169		10	mg/L		11-DEC-19	R4942613
Unionized ammonia	0.00656		0.00039	mg/L		13-DEC-19	
Ammonia, Total (as N)	0.849	DLHC	0.050	mg/L		11-DEC-19	R4941436
Bromide (Br)	2.66		0.10	mg/L		11-DEC-19	R4942092
Chloride (Cl)	82.6		0.50	mg/L		11-DEC-19	R4942092
Fluoride (F)	0.786		0.020	mg/L		11-DEC-19	R4942092
Nitrate (as N)	0.073		0.020	mg/L		11-DEC-19	R4942092
Nitrite (as N)	<0.010		0.010	mg/L		11-DEC-19	R4942092
Total Kjeldahl Nitrogen	1.37		0.15	mg/L	11-DEC-19	12-DEC-19	R4941686
Phosphorus, Total	0.0276		0.0030	mg/L	12-DEC-19	13-DEC-19	R4942729
Sulfate (SO <sub>4</sub> )	165		0.30	mg/L		11-DEC-19	R4942092
<b>Cyanides</b>							
Cyanide, Total	<0.0020		0.0020	mg/L		10-DEC-19	R4940750
<b>Organic / Inorganic Carbon</b>							
Dissolved Carbon Filtration Location	LAB					10-DEC-19	R4940257
Dissolved Organic Carbon	6.97		0.50	mg/L	10-DEC-19	13-DEC-19	R4943998
<b>Total Metals</b>							
Aluminum (Al)-Total	0.322		0.010	mg/L	11-DEC-19	11-DEC-19	R4940702
Antimony (Sb)-Total	0.00044		0.00010	mg/L	11-DEC-19	11-DEC-19	R4940702
Arsenic (As)-Total	0.00151		0.00010	mg/L	11-DEC-19	11-DEC-19	R4940702
Barium (Ba)-Total	0.0629		0.00020	mg/L	11-DEC-19	11-DEC-19	R4940702
Beryllium (Be)-Total	<0.00010		0.00010	mg/L	11-DEC-19	11-DEC-19	R4940702
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	11-DEC-19	11-DEC-19	R4940702
Boron (B)-Total	0.129		0.010	mg/L	11-DEC-19	11-DEC-19	R4940702
Cadmium (Cd)-Total	<0.00030	DLM	0.00030	mg/L	11-DEC-19	11-DEC-19	R4940702
Calcium (Ca)-Total	81.1		0.50	mg/L	11-DEC-19	11-DEC-19	R4940702
Cobalt (Co)-Total	0.00076		0.00010	mg/L	11-DEC-19	11-DEC-19	R4940702
Copper (Cu)-Total	0.0022		0.0010	mg/L	11-DEC-19	11-DEC-19	R4940702
Iron (Fe)-Total	0.271		0.050	mg/L	11-DEC-19	11-DEC-19	R4940702
Lead (Pb)-Total	0.00060		0.00010	mg/L	11-DEC-19	11-DEC-19	R4940702
Magnesium (Mg)-Total	22.3		0.050	mg/L	11-DEC-19	11-DEC-19	R4940702
Manganese (Mn)-Total	0.0556		0.00050	mg/L	11-DEC-19	11-DEC-19	R4940702
Mercury (Hg)-Total	0.000067		0.000050	mg/L		11-DEC-19	R4940638
Molybdenum (Mo)-Total	0.0744		0.00050	mg/L	11-DEC-19	11-DEC-19	R4940702
Nickel (Ni)-Total	0.00667		0.00050	mg/L	11-DEC-19	11-DEC-19	R4940702
Potassium (K)-Total	22.1		0.050	mg/L	11-DEC-19	11-DEC-19	R4940702
Selenium (Se)-Total	0.00150		0.00050	mg/L	11-DEC-19	11-DEC-19	R4940702
Silicon (Si)-Total	1.53		0.10	mg/L	11-DEC-19	11-DEC-19	R4940702
Silver (Ag)-Total	<0.000050		0.000050	mg/L	11-DEC-19	11-DEC-19	R4940702
Sodium (Na)-Total	61.8		0.50	mg/L	11-DEC-19	11-DEC-19	R4940702
Strontium (Sr)-Total	0.657		0.0010	mg/L	11-DEC-19	11-DEC-19	R4940702

\* 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
L2393996-2 WEST STORM WATER POND							
Sampled By: CLIENT on 09-DEC-19 @ 10:45							
Matrix: WATER							
<b>Total Metals</b>							
Thallium (Tl)-Total	0.000184		0.000010	mg/L	11-DEC-19	11-DEC-19	R4940702
Tin (Sn)-Total	<0.00010		0.00010	mg/L	11-DEC-19	11-DEC-19	R4940702
Vanadium (V)-Total	0.00083		0.00050	mg/L	11-DEC-19	11-DEC-19	R4940702
Zinc (Zn)-Total	0.0048		0.0030	mg/L	11-DEC-19	11-DEC-19	R4940702
<b>Speciated Metals</b>							
Chromium, Hexavalent	<0.00050		0.00050	mg/L		11-DEC-19	R4941370
<b>Aggregate Organics</b>							
COD	22		10	mg/L		16-DEC-19	R4944116
Phenols (4AAP)	0.0045		0.0010	mg/L		10-DEC-19	R4940476
<b>Volatile Organic Compounds</b>							
Acetone	<20		20	ug/L		16-DEC-19	R4943976
Benzene	<0.50		0.50	ug/L		16-DEC-19	R4943976
Bromodichloromethane	<1.0		1.0	ug/L		16-DEC-19	R4943976
Bromoform	<1.0		1.0	ug/L		16-DEC-19	R4943976
Bromomethane	<0.50		0.50	ug/L		16-DEC-19	R4943976
Carbon tetrachloride	<0.50		0.50	ug/L		16-DEC-19	R4943976
Chlorobenzene	<0.50		0.50	ug/L		16-DEC-19	R4943976
Dibromochloromethane	<1.0		1.0	ug/L		16-DEC-19	R4943976
Chloroethane	<1.0		1.0	ug/L		16-DEC-19	R4943976
Chloroform	<1.0		1.0	ug/L		16-DEC-19	R4943976
1,2-Dibromoethane	<0.20		0.20	ug/L		16-DEC-19	R4943976
1,2-Dichlorobenzene	<0.50		0.50	ug/L		16-DEC-19	R4943976
1,3-Dichlorobenzene	<0.50		0.50	ug/L		16-DEC-19	R4943976
1,4-Dichlorobenzene	<0.50		0.50	ug/L		16-DEC-19	R4943976
Dichlorodifluoromethane	<1.0		1.0	ug/L		16-DEC-19	R4943976
1,1-Dichloroethane	<0.50		0.50	ug/L		16-DEC-19	R4943976
1,2-Dichloroethane	<0.50		0.50	ug/L		16-DEC-19	R4943976
1,1-Dichloroethylene	<0.50		0.50	ug/L		16-DEC-19	R4943976
cis-1,2-Dichloroethylene	<0.50		0.50	ug/L		16-DEC-19	R4943976
trans-1,2-Dichloroethylene	<0.50		0.50	ug/L		16-DEC-19	R4943976
Dichloromethane	<2.0		2.0	ug/L		16-DEC-19	R4943976
1,2-Dichloropropane	<0.50		0.50	ug/L		16-DEC-19	R4943976
cis-1,3-Dichloropropene	<0.50		0.50	ug/L		16-DEC-19	R4943976
trans-1,3-Dichloropropene	<0.50		0.50	ug/L		16-DEC-19	R4943976
Ethylbenzene	<0.50		0.50	ug/L		16-DEC-19	R4943976
n-Hexane	<0.50		0.50	ug/L		16-DEC-19	R4943976
Methyl Ethyl Ketone	<20		20	ug/L		16-DEC-19	R4943976
Methyl Isobutyl Ketone	<20		20	ug/L		16-DEC-19	R4943976
MTBE	<0.50		0.50	ug/L		16-DEC-19	R4943976
Styrene	<0.50		0.50	ug/L		16-DEC-19	R4943976
1,1,1,2-Tetrachloroethane	<0.50		0.50	ug/L		16-DEC-19	R4943976
1,1,2,2-Tetrachloroethane	<0.50		0.50	ug/L		16-DEC-19	R4943976

\* 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
L2393996-2 WEST STORM WATER POND Sampled By: CLIENT on 09-DEC-19 @ 10:45 Matrix: WATER							
<b>Volatile Organic Compounds</b>							
Tetrachloroethylene	<0.50		0.50	ug/L		16-DEC-19	R4943976
Toluene	<0.50		0.50	ug/L		16-DEC-19	R4943976
1,1,1-Trichloroethane	<0.50		0.50	ug/L		16-DEC-19	R4943976
1,1,2-Trichloroethane	<0.50		0.50	ug/L		16-DEC-19	R4943976
Trichloroethylene	<0.50		0.50	ug/L		16-DEC-19	R4943976
Trichlorofluoromethane	<1.0		1.0	ug/L		16-DEC-19	R4943976
Vinyl chloride	<0.50		0.50	ug/L		16-DEC-19	R4943976
o-Xylene	<0.50		0.50	ug/L		16-DEC-19	R4943976
m+p-Xylenes	<1.0		1.0	ug/L		16-DEC-19	R4943976
Xylenes (Total)	<1.1		1.1	ug/L		16-DEC-19	
Surrogate: 4-Bromofluorobenzene	97.7		70-130	%		16-DEC-19	R4943976
Surrogate: 1,4-Difluorobenzene	101.4		70-130	%		16-DEC-19	R4943976
<b>Trihalomethanes</b>							
Total THMs	<2.0		2.0	ug/L		16-DEC-19	
<b>Acid Extractables</b>							
2,3,6-Trichlorophenol	<0.50		0.50	ug/L	10-DEC-19	12-DEC-19	R4941504
Surrogate: 2,4,6-Tribromophenol	104.6		40-150	%	10-DEC-19	12-DEC-19	R4941504
<b>Semi-Volatile Organics</b>							
Acenaphthene	<0.20		0.20	ug/L	10-DEC-19	12-DEC-19	R4941690
Acenaphthylene	<0.20		0.20	ug/L	10-DEC-19	12-DEC-19	R4941690
Anthracene	<0.20		0.20	ug/L	10-DEC-19	12-DEC-19	R4941690
Benzo(a)anthracene	<0.20		0.20	ug/L	10-DEC-19	12-DEC-19	R4941690
Benzo(a)pyrene	<0.050		0.050	ug/L	10-DEC-19	12-DEC-19	R4941690
Benzo(b)fluoranthene	<0.20		0.20	ug/L	10-DEC-19	12-DEC-19	R4941690
Benzo(ghi)perylene	<0.20		0.20	ug/L	10-DEC-19	12-DEC-19	R4941690
Benzo(k)fluoranthene	<0.20		0.20	ug/L	10-DEC-19	12-DEC-19	R4941690
4-Chloroaniline	<0.40		0.40	ug/L	10-DEC-19	12-DEC-19	R4941690
Bis(2-chloroethyl)ether	<0.40		0.40	ug/L	10-DEC-19	12-DEC-19	R4941690
2-Chlorophenol	<0.30		0.30	ug/L	10-DEC-19	12-DEC-19	R4941690
Chrysene	<0.20		0.20	ug/L	10-DEC-19	12-DEC-19	R4941690
Dibenzo(a,h)anthracene	<0.20		0.20	ug/L	10-DEC-19	12-DEC-19	R4941690
1,2-Dichlorobenzene	<0.40		0.40	ug/L	10-DEC-19	12-DEC-19	R4941690
1,3-Dichlorobenzene	<0.40		0.40	ug/L	10-DEC-19	12-DEC-19	R4941690
1,4-Dichlorobenzene	<0.40		0.40	ug/L	10-DEC-19	12-DEC-19	R4941690
3,3'-Dichlorobenzidine	<0.40		0.40	ug/L	10-DEC-19	12-DEC-19	R4941690
2,4-Dichlorophenol	<0.30		0.30	ug/L	10-DEC-19	12-DEC-19	R4941690
Diethylphthalate	<0.20		0.20	ug/L	10-DEC-19	12-DEC-19	R4941690
Dimethylphthalate	<0.20		0.20	ug/L	10-DEC-19	12-DEC-19	R4941690
2,4-Dimethylphenol	<0.50		0.50	ug/L	10-DEC-19	12-DEC-19	R4941690
2,4-Dinitrophenol	<1.0		1.0	ug/L	10-DEC-19	12-DEC-19	R4941690
2,4-Dinitrotoluene	<0.40		0.40	ug/L	10-DEC-19	12-DEC-19	R4941690
2,6-Dinitrotoluene	<0.40		0.40	ug/L	10-DEC-19	12-DEC-19	R4941690

\* 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
L2393996-2 WEST STORM WATER POND Sampled By: CLIENT on 09-DEC-19 @ 10:45 Matrix: WATER							
<b>Semi-Volatile Organics</b>							
Bis(2-ethylhexyl)phthalate	<2.0		2.0	ug/L	10-DEC-19	12-DEC-19	R4941690
Fluoranthene	<0.20		0.20	ug/L	10-DEC-19	12-DEC-19	R4941690
Fluorene	<0.20		0.20	ug/L	10-DEC-19	12-DEC-19	R4941690
Hexachlorobenzene	<0.040		0.040	ug/L	10-DEC-19	12-DEC-19	R4941690
Hexachlorobutadiene	<0.20		0.20	ug/L	10-DEC-19	12-DEC-19	R4941690
Indeno(1,2,3-cd)pyrene	<0.20		0.20	ug/L	10-DEC-19	12-DEC-19	R4941690
1-Methylnaphthalene	<0.40		0.40	ug/L	10-DEC-19	12-DEC-19	R4941690
2-Methylnaphthalene	<0.40		0.40	ug/L	10-DEC-19	12-DEC-19	R4941690
Naphthalene	<0.20		0.20	ug/L	10-DEC-19	12-DEC-19	R4941690
Pentachlorophenol	<0.50		0.50	ug/L	10-DEC-19	12-DEC-19	R4941690
Perylene	<0.20		0.20	ug/L	10-DEC-19	12-DEC-19	R4941690
Phenanthrene	<0.20		0.20	ug/L	10-DEC-19	12-DEC-19	R4941690
Pyrene	<0.20		0.20	ug/L	10-DEC-19	12-DEC-19	R4941690
2,3,4,5-Tetrachlorophenol	<0.50		0.50	ug/L	10-DEC-19	12-DEC-19	R4941690
2,3,4,6-Tetrachlorophenol	<0.50		0.50	ug/L	10-DEC-19	12-DEC-19	R4941690
1,2,4-Trichlorobenzene	<0.40		0.40	ug/L	10-DEC-19	12-DEC-19	R4941690
2,4,5-Trichlorophenol	<0.50		0.50	ug/L	10-DEC-19	12-DEC-19	R4941690
2,4,6-Trichlorophenol	<0.50		0.50	ug/L	10-DEC-19	12-DEC-19	R4941690
Surrogate: 2-Fluorobiphenyl	85.5		40-130	%	10-DEC-19	12-DEC-19	R4941690
Surrogate: Nitrobenzene d5	85.3		40-130	%	10-DEC-19	12-DEC-19	R4941690
Surrogate: p-Terphenyl d14	89.4		40-130	%	10-DEC-19	12-DEC-19	R4941690
Report Remarks : raised Cd LOR to remove potential	Mo interference						
L2393996-3 EAST STORM WATER POND Sampled By: CLIENT on 09-DEC-19 @ 11:00 Matrix: WATER							
<b>Field Tests</b>							
pH, Client Supplied	7.89		0.10	pH		10-DEC-19	R4939248
Temperature, Client	5.0		-50	Deg. C		10-DEC-19	R4939248
<b>Physical Tests</b>							
Conductivity	971		3.0	umhos/cm		11-DEC-19	R4942613
Hardness (as CaCO3)	357	HTC	1.3	mg/L		11-DEC-19	
pH	8.14		0.10	pH units		11-DEC-19	R4942613
Total Suspended Solids	13.0		2.0	mg/L	12-DEC-19	13-DEC-19	R4942454
Total Dissolved Solids	609	DLDS	20	mg/L		12-DEC-19	R4943794
<b>Anions and Nutrients</b>							
Alkalinity, Total (as CaCO3)	186		10	mg/L		11-DEC-19	R4942613
Unionized ammonia	0.00370		0.00012	mg/L		13-DEC-19	
Ammonia, Total (as N)	0.318		0.010	mg/L		11-DEC-19	R4941436
Bromide (Br)	2.02		0.10	mg/L		11-DEC-19	R4942092
Chloride (Cl)	86.4		0.50	mg/L		11-DEC-19	R4942092
Fluoride (F)	0.783		0.020	mg/L		11-DEC-19	R4942092
Nitrate (as N)	0.089		0.020	mg/L		11-DEC-19	R4942092

\* 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
L2393996-3 EAST STORM WATER POND Sampled By: CLIENT on 09-DEC-19 @ 11:00 Matrix: WATER							
<b>Anions and Nutrients</b>							
Nitrite (as N)	<0.010		0.010	mg/L		11-DEC-19	R4942092
Total Kjeldahl Nitrogen	1.12		0.15	mg/L	11-DEC-19	12-DEC-19	R4941686
Phosphorus, Total	0.0511		0.0030	mg/L	12-DEC-19	13-DEC-19	R4942729
Sulfate (SO4)	204		0.30	mg/L		11-DEC-19	R4942092
<b>Cyanides</b>							
Cyanide, Total	<0.0020		0.0020	mg/L		10-DEC-19	R4940750
<b>Organic / Inorganic Carbon</b>							
Dissolved Carbon Filtration Location	LAB					10-DEC-19	R4940257
Dissolved Organic Carbon	7.10		0.50	mg/L	10-DEC-19	13-DEC-19	R4943998
<b>Total Metals</b>							
Aluminum (Al)-Total	0.538		0.010	mg/L	11-DEC-19	11-DEC-19	R4940702
Antimony (Sb)-Total	0.00049		0.00010	mg/L	11-DEC-19	11-DEC-19	R4940702
Arsenic (As)-Total	0.00160		0.00010	mg/L	11-DEC-19	11-DEC-19	R4940702
Barium (Ba)-Total	0.0704		0.00020	mg/L	11-DEC-19	11-DEC-19	R4940702
Beryllium (Be)-Total	<0.00010		0.00010	mg/L	11-DEC-19	11-DEC-19	R4940702
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	11-DEC-19	11-DEC-19	R4940702
Boron (B)-Total	0.127		0.010	mg/L	11-DEC-19	11-DEC-19	R4940702
Cadmium (Cd)-Total	<0.00030	DLM	0.00030	mg/L	11-DEC-19	11-DEC-19	R4940702
Calcium (Ca)-Total	97.4		0.50	mg/L	11-DEC-19	11-DEC-19	R4940702
Cobalt (Co)-Total	0.00102		0.00010	mg/L	11-DEC-19	11-DEC-19	R4940702
Copper (Cu)-Total	0.0024		0.0010	mg/L	11-DEC-19	11-DEC-19	R4940702
Iron (Fe)-Total	0.551		0.050	mg/L	11-DEC-19	11-DEC-19	R4940702
Lead (Pb)-Total	0.00124		0.00010	mg/L	11-DEC-19	11-DEC-19	R4940702
Magnesium (Mg)-Total	27.7		0.050	mg/L	11-DEC-19	11-DEC-19	R4940702
Manganese (Mn)-Total	0.0975		0.00050	mg/L	11-DEC-19	11-DEC-19	R4940702
Mercury (Hg)-Total	0.0000128		0.000050	mg/L		11-DEC-19	R4940638
Molybdenum (Mo)-Total	0.0796		0.000050	mg/L	11-DEC-19	11-DEC-19	R4940702
Nickel (Ni)-Total	0.00675		0.00050	mg/L	11-DEC-19	11-DEC-19	R4940702
Potassium (K)-Total	24.7		0.050	mg/L	11-DEC-19	11-DEC-19	R4940702
Selenium (Se)-Total	0.00160		0.000050	mg/L	11-DEC-19	11-DEC-19	R4940702
Silicon (Si)-Total	2.34		0.10	mg/L	11-DEC-19	11-DEC-19	R4940702
Silver (Ag)-Total	<0.000050		0.000050	mg/L	11-DEC-19	11-DEC-19	R4940702
Sodium (Na)-Total	63.7		0.50	mg/L	11-DEC-19	11-DEC-19	R4940702
Strontium (Sr)-Total	0.778		0.0010	mg/L	11-DEC-19	11-DEC-19	R4940702
Thallium (Tl)-Total	0.000168		0.000010	mg/L	11-DEC-19	11-DEC-19	R4940702
Tin (Sn)-Total	<0.00010		0.00010	mg/L	11-DEC-19	11-DEC-19	R4940702
Vanadium (V)-Total	0.00133		0.00050	mg/L	11-DEC-19	11-DEC-19	R4940702
Zinc (Zn)-Total	0.0074		0.0030	mg/L	11-DEC-19	11-DEC-19	R4940702
<b>Speciated Metals</b>							
Chromium, Hexavalent	<0.00050		0.00050	mg/L		11-DEC-19	R4941370
<b>Aggregate Organics</b>							
COD	31		10	mg/L		16-DEC-19	R4944116

\* 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
L2393996-3 EAST STORM WATER POND Sampled By: CLIENT on 09-DEC-19 @ 11:00 Matrix: WATER							
<b>Aggregate Organics</b>							
Phenols (4AAP)	0.0023		0.0010	mg/L		10-DEC-19	R4940476
<b>Volatile Organic Compounds</b>							
Acetone	<20		20	ug/L		16-DEC-19	R4943976
Benzene	<0.50		0.50	ug/L		16-DEC-19	R4943976
Bromodichloromethane	<1.0		1.0	ug/L		16-DEC-19	R4943976
Bromoform	<1.0		1.0	ug/L		16-DEC-19	R4943976
Bromomethane	<0.50		0.50	ug/L		16-DEC-19	R4943976
Carbon tetrachloride	<0.50		0.50	ug/L		16-DEC-19	R4943976
Chlorobenzene	<0.50		0.50	ug/L		16-DEC-19	R4943976
Dibromochloromethane	<1.0		1.0	ug/L		16-DEC-19	R4943976
Chloroethane	<1.0		1.0	ug/L		16-DEC-19	R4943976
Chloroform	<1.0		1.0	ug/L		16-DEC-19	R4943976
1,2-Dibromoethane	<0.20		0.20	ug/L		16-DEC-19	R4943976
1,2-Dichlorobenzene	<0.50		0.50	ug/L		16-DEC-19	R4943976
1,3-Dichlorobenzene	<0.50		0.50	ug/L		16-DEC-19	R4943976
1,4-Dichlorobenzene	<0.50		0.50	ug/L		16-DEC-19	R4943976
Dichlorodifluoromethane	<1.0		1.0	ug/L		16-DEC-19	R4943976
1,1-Dichloroethane	<0.50		0.50	ug/L		16-DEC-19	R4943976
1,2-Dichloroethane	<0.50		0.50	ug/L		16-DEC-19	R4943976
1,1-Dichloroethylene	<0.50		0.50	ug/L		16-DEC-19	R4943976
cis-1,2-Dichloroethylene	<0.50		0.50	ug/L		16-DEC-19	R4943976
trans-1,2-Dichloroethylene	<0.50		0.50	ug/L		16-DEC-19	R4943976
Dichloromethane	<2.0		2.0	ug/L		16-DEC-19	R4943976
1,2-Dichloropropane	<0.50		0.50	ug/L		16-DEC-19	R4943976
cis-1,3-Dichloropropene	<0.50		0.50	ug/L		16-DEC-19	R4943976
trans-1,3-Dichloropropene	<0.50		0.50	ug/L		16-DEC-19	R4943976
Ethylbenzene	<0.50		0.50	ug/L		16-DEC-19	R4943976
n-Hexane	<0.50		0.50	ug/L		16-DEC-19	R4943976
Methyl Ethyl Ketone	<20		20	ug/L		16-DEC-19	R4943976
Methyl Isobutyl Ketone	<20		20	ug/L		16-DEC-19	R4943976
MTBE	<0.50		0.50	ug/L		16-DEC-19	R4943976
Styrene	<0.50		0.50	ug/L		16-DEC-19	R4943976
1,1,1,2-Tetrachloroethane	<0.50		0.50	ug/L		16-DEC-19	R4943976
1,1,2,2-Tetrachloroethane	<0.50		0.50	ug/L		16-DEC-19	R4943976
Tetrachloroethylene	<0.50		0.50	ug/L		16-DEC-19	R4943976
Toluene	<0.50		0.50	ug/L		16-DEC-19	R4943976
1,1,1-Trichloroethane	<0.50		0.50	ug/L		16-DEC-19	R4943976
1,1,2-Trichloroethane	<0.50		0.50	ug/L		16-DEC-19	R4943976
Trichloroethylene	<0.50		0.50	ug/L		16-DEC-19	R4943976
Trichlorofluoromethane	<1.0		1.0	ug/L		16-DEC-19	R4943976
Vinyl chloride	<0.50		0.50	ug/L		16-DEC-19	R4943976

\* 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
L2393996-3 EAST STORM WATER POND							
Sampled By: CLIENT on 09-DEC-19 @ 11:00							
Matrix: WATER							
<b>Volatile Organic Compounds</b>							
o-Xylene	<0.50		0.50	ug/L		16-DEC-19	R4943976
m+p-Xylenes	<1.0		1.0	ug/L		16-DEC-19	R4943976
Xylenes (Total)	<1.1		1.1	ug/L		16-DEC-19	
Surrogate: 4-Bromofluorobenzene	96.9		70-130	%		16-DEC-19	R4943976
Surrogate: 1,4-Difluorobenzene	101.5		70-130	%		16-DEC-19	R4943976
<b>Trihalomethanes</b>							
Total THMs	<2.0		2.0	ug/L		16-DEC-19	
<b>Acid Extractables</b>							
2,3,6-Trichlorophenol	<0.50		0.50	ug/L	10-DEC-19	12-DEC-19	R4941504
Surrogate: 2,4,6-Tribromophenol	111.7		40-150	%	10-DEC-19	12-DEC-19	R4941504
<b>Semi-Volatile Organics</b>							
Acenaphthene	<0.20		0.20	ug/L	10-DEC-19	12-DEC-19	R4941690
Acenaphthylene	<0.20		0.20	ug/L	10-DEC-19	12-DEC-19	R4941690
Anthracene	<0.20		0.20	ug/L	10-DEC-19	12-DEC-19	R4941690
Benzo(a)anthracene	<0.20		0.20	ug/L	10-DEC-19	12-DEC-19	R4941690
Benzo(a)pyrene	<0.050		0.050	ug/L	10-DEC-19	12-DEC-19	R4941690
Benzo(b)fluoranthene	<0.20		0.20	ug/L	10-DEC-19	12-DEC-19	R4941690
Benzo(ghi)perylene	<0.20		0.20	ug/L	10-DEC-19	12-DEC-19	R4941690
Benzo(k)fluoranthene	<0.20		0.20	ug/L	10-DEC-19	12-DEC-19	R4941690
4-Chloroaniline	<0.40		0.40	ug/L	10-DEC-19	12-DEC-19	R4941690
Bis(2-chloroethyl)ether	<0.40		0.40	ug/L	10-DEC-19	12-DEC-19	R4941690
2-Chlorophenol	<0.30		0.30	ug/L	10-DEC-19	12-DEC-19	R4941690
Chrysene	<0.20		0.20	ug/L	10-DEC-19	12-DEC-19	R4941690
Dibenzo(a,h)anthracene	<0.20		0.20	ug/L	10-DEC-19	12-DEC-19	R4941690
1,2-Dichlorobenzene	<0.40		0.40	ug/L	10-DEC-19	12-DEC-19	R4941690
1,3-Dichlorobenzene	<0.40		0.40	ug/L	10-DEC-19	12-DEC-19	R4941690
1,4-Dichlorobenzene	<0.40		0.40	ug/L	10-DEC-19	12-DEC-19	R4941690
3,3'-Dichlorobenzidine	<0.40		0.40	ug/L	10-DEC-19	12-DEC-19	R4941690
2,4-Dichlorophenol	<0.30		0.30	ug/L	10-DEC-19	12-DEC-19	R4941690
Diethylphthalate	<0.20		0.20	ug/L	10-DEC-19	12-DEC-19	R4941690
Dimethylphthalate	<0.20		0.20	ug/L	10-DEC-19	12-DEC-19	R4941690
2,4-Dimethylphenol	<0.50		0.50	ug/L	10-DEC-19	12-DEC-19	R4941690
2,4-Dinitrophenol	<1.0		1.0	ug/L	10-DEC-19	12-DEC-19	R4941690
2,4-Dinitrotoluene	<0.40		0.40	ug/L	10-DEC-19	12-DEC-19	R4941690
2,6-Dinitrotoluene	<0.40		0.40	ug/L	10-DEC-19	12-DEC-19	R4941690
Bis(2-ethylhexyl)phthalate	<2.0		2.0	ug/L	10-DEC-19	12-DEC-19	R4941690
Fluoranthene	<0.20		0.20	ug/L	10-DEC-19	12-DEC-19	R4941690
Fluorene	<0.20		0.20	ug/L	10-DEC-19	12-DEC-19	R4941690
Hexachlorobenzene	<0.040		0.040	ug/L	10-DEC-19	12-DEC-19	R4941690
Hexachlorobutadiene	<0.20		0.20	ug/L	10-DEC-19	12-DEC-19	R4941690
Indeno(1,2,3-cd)pyrene	<0.20		0.20	ug/L	10-DEC-19	12-DEC-19	R4941690
1-Methylnaphthalene	<0.40		0.40	ug/L	10-DEC-19	12-DEC-19	R4941690

\* 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	LCS-H	L2393996-1, -2, -3
<b>Comments:</b> RRQC: Recoveries are outside ALS control limits. Associated non-detect sample results have not been affected.			
Matrix Spike	Bromide (Br)	MS-B	L2393996-1, -2, -3
Matrix Spike	Aluminum (Al)-Total	MS-B	L2393996-1, -2, -3
Matrix Spike	Barium (Ba)-Total	MS-B	L2393996-1, -2, -3
Matrix Spike	Boron (B)-Total	MS-B	L2393996-1, -2, -3
Matrix Spike	Calcium (Ca)-Total	MS-B	L2393996-1, -2, -3
Matrix Spike	Iron (Fe)-Total	MS-B	L2393996-1, -2, -3
Matrix Spike	Magnesium (Mg)-Total	MS-B	L2393996-1, -2, -3
Matrix Spike	Manganese (Mn)-Total	MS-B	L2393996-1, -2, -3
Matrix Spike	Molybdenum (Mo)-Total	MS-B	L2393996-1, -2, -3
Matrix Spike	Potassium (K)-Total	MS-B	L2393996-1, -2, -3
Matrix Spike	Silicon (Si)-Total	MS-B	L2393996-1, -2, -3
Matrix Spike	Sodium (Na)-Total	MS-B	L2393996-1, -2, -3
Matrix Spike	Strontium (Sr)-Total	MS-B	L2393996-1, -2, -3
Matrix Spike	Ammonia, Total (as N)	MS-B	L2393996-1, -2, -3
Matrix Spike	Sulfate (SO4)	MS-B	L2393996-1, -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).
LCS-H	Lab Control Sample recovery was above ALS DQO. Non-detected sample results are considered reliable. Other results, if reported, have been qualified.
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	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 CaCO3)	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

## Reference Information

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-SCREEN-WT      Water      Conductivity Screen (Internal Use Only)      APHA 2510

Qualitative analysis of conductivity where required during preparation of other tests - e.g. TDS, metals, etc.

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<sub>3</sub> 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 ICPMS      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-F-WT      Water      Ammonia in Water by Fluorescence      J. ENVIRON. MONIT., 2005, 7, 37-42, RSC

This analysis is carried out, on sulfuric acid preserved samples, using procedures modified from J. Environ. Monit., 2005, 7, 37 - 42, The Royal Society of Chemistry, "Flow-injection analysis with fluorescence detection for the determination of trace levels of ammonium in seawater", Roslyn J. Weston et al.

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.

## 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). Holdtime for samples under this regulation is 28 days

PHENOLS-4AAP-WT	Water	Phenol (4AAP)	EPA 9066
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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)
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Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

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

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

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*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: L2393996

Report Date: 17-DEC-19

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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
<b>625-ACID-EXTRA-WT</b>	<b>Water</b>							
<b>Batch</b>	<b>R4941504</b>							
<b>WG3238799-2 LCS</b>								
2,3,6-Trichlorophenol			94.9		%		50-130	12-DEC-19
<b>WG3238799-1 MB</b>								
2,3,6-Trichlorophenol			<0.50		ug/L		0.5	12-DEC-19
Surrogate: 2,4,6-Tribromophenol			96.9		%		40-150	12-DEC-19
<b>625-WT</b>	<b>Water</b>							
<b>Batch</b>	<b>R4941690</b>							
<b>WG3238799-2 LCS</b>								
1-Methylnaphthalene			76.2		%		50-140	12-DEC-19
1,2-Dichlorobenzene			67.5		%		40-130	12-DEC-19
1,2,4-Trichlorobenzene			63.0		%		50-130	12-DEC-19
1,3-Dichlorobenzene			62.7		%		50-140	12-DEC-19
1,4-Dichlorobenzene			69.4		%		40-130	12-DEC-19
2-Chlorophenol			92.0		%		65-130	12-DEC-19
2-Methylnaphthalene			76.0		%		50-140	12-DEC-19
2,3,4,5-Tetrachlorophenol			118.3		%		50-130	12-DEC-19
2,3,4,6-Tetrachlorophenol			113.2		%		65-130	12-DEC-19
2,4-Dichlorophenol			106.0		%		65-130	12-DEC-19
2,4-Dimethylphenol			95.7		%		30-130	12-DEC-19
2,4-Dinitrophenol			138.5		%		40-140	12-DEC-19
2,4-Dinitrotoluene			117.9		%		50-140	12-DEC-19
2,4,5-Trichlorophenol			111.0		%		65-130	12-DEC-19
2,4,6-Trichlorophenol			108.5		%		65-130	12-DEC-19
2,6-Dinitrotoluene			110.7		%		50-140	12-DEC-19
3,3'-Dichlorobenzidine			81.5		%		50-140	12-DEC-19
4-Chloroaniline			51.5		%		30-140	12-DEC-19
Acenaphthene			88.9		%		50-140	12-DEC-19
Acenaphthylene			84.7		%		50-140	12-DEC-19
Anthracene			106.0		%		50-140	12-DEC-19
Benzo(a)anthracene			114.6		%		50-140	12-DEC-19
Benzo(a)pyrene			109.1		%		60-130	12-DEC-19
Benzo(b)fluoranthene			110.6		%		50-140	12-DEC-19
Benzo(ghi)perylene			115.1		%		50-140	12-DEC-19
Benzo(k)fluoranthene			111.1		%		50-140	12-DEC-19
Bis(2-chloroethyl)ether			108.5		%		50-140	12-DEC-19



### Quality Control Report

Workorder: L2393996

Report Date: 17-DEC-19

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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
<b>625-WT</b>	<b>Water</b>							
<b>Batch</b>	<b>R4941690</b>							
<b>WG3238799-2</b>	<b>LCS</b>							
Bis(2-ethylhexyl)phthalate			118.4		%		50-140	12-DEC-19
Chrysene			108.9		%		50-140	12-DEC-19
Dibenzo(a,h)anthracene			113.9		%		50-140	12-DEC-19
Diethylphthalate			107.6		%		50-140	12-DEC-19
Dimethylphthalate			108.1		%		50-140	12-DEC-19
Fluoranthene			115.5		%		50-140	12-DEC-19
Fluorene			94.9		%		50-140	12-DEC-19
Hexachlorobenzene			95.9		%		40-130	12-DEC-19
Hexachlorobutadiene			58.8		%		40-130	12-DEC-19
Indeno(1,2,3-cd)pyrene			114.5		%		50-140	12-DEC-19
Naphthalene			77.2		%		50-140	12-DEC-19
Pentachlorophenol			135.2	LCS-H	%		60-130	12-DEC-19
Perylene			86.9		%		50-140	12-DEC-19
Phenanthrene			105.6		%		50-140	12-DEC-19
Pyrene			111.1		%		50-140	12-DEC-19
COMMENTS: RRQC: Recoveries are outside ALS control limits. Associated non-detect sample results have not been affected.								
<b>WG3238799-1</b>	<b>MB</b>							
1-Methylnaphthalene			<0.40		ug/L		0.4	12-DEC-19
1,2-Dichlorobenzene			<0.40		ug/L		0.4	12-DEC-19
1,2,4-Trichlorobenzene			<0.40		ug/L		0.4	12-DEC-19
1,3-Dichlorobenzene			<0.40		ug/L		0.4	12-DEC-19
1,4-Dichlorobenzene			<0.40		ug/L		0.4	12-DEC-19
2-Chlorophenol			<0.30		ug/L		0.3	12-DEC-19
2-Methylnaphthalene			<0.40		ug/L		0.4	12-DEC-19
2,3,4,5-Tetrachlorophenol			<0.50		ug/L		0.5	12-DEC-19
2,3,4,6-Tetrachlorophenol			<0.50		ug/L		0.5	12-DEC-19
2,4-Dichlorophenol			<0.30		ug/L		0.3	12-DEC-19
2,4-Dimethylphenol			<0.50		ug/L		0.5	12-DEC-19
2,4-Dinitrophenol			<1.0		ug/L		1	12-DEC-19
2,4-Dinitrotoluene			<0.40		ug/L		0.4	12-DEC-19
2,4,5-Trichlorophenol			<0.50		ug/L		0.5	12-DEC-19
2,4,6-Trichlorophenol			<0.50		ug/L		0.5	12-DEC-19
2,6-Dinitrotoluene			<0.40		ug/L		0.4	12-DEC-19
3,3'-Dichlorobenzidine			<0.40		ug/L		0.4	12-DEC-19



### Quality Control Report

Workorder: L2393996

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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
<b>625-WT</b>	<b>Water</b>							
<b>Batch</b>	<b>R4941690</b>							
<b>WG3238799-1</b>	<b>MB</b>							
4-Chloroaniline			<0.40		ug/L		0.4	12-DEC-19
Acenaphthene			<0.20		ug/L		0.2	12-DEC-19
Acenaphthylene			<0.20		ug/L		0.2	12-DEC-19
Anthracene			<0.20		ug/L		0.2	12-DEC-19
Benzo(a)anthracene			<0.20		ug/L		0.2	12-DEC-19
Benzo(a)pyrene			<0.050		ug/L		0.05	12-DEC-19
Benzo(b)fluoranthene			<0.20		ug/L		0.2	12-DEC-19
Benzo(ghi)perylene			<0.20		ug/L		0.2	12-DEC-19
Benzo(k)fluoranthene			<0.20		ug/L		0.2	12-DEC-19
Bis(2-chloroethyl)ether			<0.40		ug/L		0.4	12-DEC-19
Bis(2-ethylhexyl)phthalate			<1.0		ug/L		1	12-DEC-19
Chrysene			<0.20		ug/L		0.2	12-DEC-19
Dibenzo(a,h)anthracene			<0.20		ug/L		0.2	12-DEC-19
Diethylphthalate			<0.20		ug/L		0.2	12-DEC-19
Dimethylphthalate			<0.20		ug/L		0.2	12-DEC-19
Fluoranthene			<0.20		ug/L		0.2	12-DEC-19
Fluorene			<0.20		ug/L		0.2	12-DEC-19
Hexachlorobenzene			<0.040		ug/L		0.04	12-DEC-19
Hexachlorobutadiene			<0.20		ug/L		0.2	12-DEC-19
Indeno(1,2,3-cd)pyrene			<0.20		ug/L		0.2	12-DEC-19
Naphthalene			<0.20		ug/L		0.2	12-DEC-19
Pentachlorophenol			<0.50		ug/L		0.5	12-DEC-19
Perylene			<0.20		ug/L		0.2	12-DEC-19
Phenanthrene			<0.20		ug/L		0.2	12-DEC-19
Pyrene			<0.20		ug/L		0.2	12-DEC-19
Surrogate: 2-Fluorobiphenyl			87.5		%		40-130	12-DEC-19
Surrogate: Nitrobenzene d5			95.4		%		40-130	12-DEC-19
Surrogate: p-Terphenyl d14			105.8		%		40-130	12-DEC-19
<b>ALK-WT</b>	<b>Water</b>							
<b>Batch</b>	<b>R4941526</b>							
<b>WG3240206-4</b>	<b>DUP</b>	<b>WG3240206-3</b>						
Alkalinity, Total (as CaCO3)		<10	<10	RPD-NA	mg/L	N/A	20	11-DEC-19
<b>WG3240206-2</b>	<b>LCS</b>							
Alkalinity, Total (as CaCO3)			101.9		%		85-115	11-DEC-19



### Quality Control Report

Workorder: L2393996

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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
<b>ALK-WT</b>		<b>Water</b>						
<b>Batch</b>	<b>R4941526</b>							
<b>WG3240206-1</b>	<b>MB</b>							
Alkalinity, Total (as CaCO3)			<10		mg/L		10	11-DEC-19
<b>Batch</b>	<b>R4942613</b>							
<b>WG3239921-4</b>	<b>DUP</b>	<b>WG3239921-3</b>						
Alkalinity, Total (as CaCO3)		114	115		mg/L	0.6	20	11-DEC-19
<b>WG3239921-2</b>	<b>LCS</b>							
Alkalinity, Total (as CaCO3)			102.6		%		85-115	11-DEC-19
<b>WG3239921-1</b>	<b>MB</b>							
Alkalinity, Total (as CaCO3)			<10		mg/L		10	11-DEC-19
<b>BR-IC-N-WT</b>		<b>Water</b>						
<b>Batch</b>	<b>R4942092</b>							
<b>WG3239890-9</b>	<b>DUP</b>	<b>L2393996-3</b>						
Bromide (Br)		2.02	2.02		mg/L	0.2	20	11-DEC-19
<b>WG3239890-7</b>	<b>LCS</b>							
Bromide (Br)			99.97		%		85-115	11-DEC-19
<b>WG3239890-6</b>	<b>MB</b>							
Bromide (Br)			<0.10		mg/L		0.1	11-DEC-19
<b>WG3239890-8</b>	<b>MS</b>	<b>L2393996-3</b>						
Bromide (Br)			N/A	MS-B	%		-	11-DEC-19
<b>CL-IC-N-WT</b>		<b>Water</b>						
<b>Batch</b>	<b>R4942092</b>							
<b>WG3239890-9</b>	<b>DUP</b>	<b>L2393996-3</b>						
Chloride (Cl)		86.4	86.4		mg/L	0.0	20	11-DEC-19
<b>WG3239890-7</b>	<b>LCS</b>							
Chloride (Cl)			102.3		%		90-110	11-DEC-19
<b>WG3239890-6</b>	<b>MB</b>							
Chloride (Cl)			<0.50		mg/L		0.5	11-DEC-19
<b>WG3239890-8</b>	<b>MS</b>	<b>L2393996-3</b>						
Chloride (Cl)			103.1		%		75-125	11-DEC-19
<b>CN-TOT-WT</b>		<b>Water</b>						
<b>Batch</b>	<b>R4940750</b>							
<b>WG3239325-3</b>	<b>DUP</b>	<b>L2393996-1</b>						
Cyanide, Total		<0.0020	<0.0020	RPD-NA	mg/L	N/A	20	10-DEC-19
<b>WG3239325-2</b>	<b>LCS</b>							
Cyanide, Total			89.0		%		80-120	10-DEC-19
<b>WG3239325-1</b>	<b>MB</b>							





## Quality Control Report

Workorder: L2393996

Report Date: 17-DEC-19

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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
<b>CN-TOT-WT</b>								
	<b>Water</b>							
<b>Batch</b>	<b>R4940750</b>							
<b>WG3239325-1</b>	<b>MB</b>							
Cyanide, Total			<0.0020		mg/L		0.002	10-DEC-19
<b>WG3239325-4</b>	<b>MS</b>	<b>L2393996-1</b>						
Cyanide, Total			86.8		%		70-130	10-DEC-19
<b>COD-T-WT</b>								
	<b>Water</b>							
<b>Batch</b>	<b>R4944116</b>							
<b>WG3243045-3</b>	<b>DUP</b>	<b>L2393996-1</b>						
COD		17	19		mg/L	7.7	20	16-DEC-19
<b>WG3243045-2</b>	<b>LCS</b>							
COD			92.6		%		85-115	16-DEC-19
<b>WG3243045-1</b>	<b>MB</b>							
COD			<10		mg/L		10	16-DEC-19
<b>WG3243045-4</b>	<b>MS</b>	<b>L2393996-1</b>						
COD			102.8		%		75-125	16-DEC-19
<b>CR-CR6-IC-WT</b>								
	<b>Water</b>							
<b>Batch</b>	<b>R4941370</b>							
<b>WG3240674-4</b>	<b>DUP</b>	<b>WG3240674-3</b>						
Chromium, Hexavalent		<0.010	<0.010	RPD-NA	mg/L	N/A	20	11-DEC-19
<b>WG3240674-2</b>	<b>LCS</b>							
Chromium, Hexavalent			99.0		%		80-120	11-DEC-19
<b>WG3240674-1</b>	<b>MB</b>							
Chromium, Hexavalent			<0.00050		mg/L		0.0005	11-DEC-19
<b>WG3240674-5</b>	<b>MS</b>	<b>WG3240674-3</b>						
Chromium, Hexavalent			93.6		%		70-130	11-DEC-19
<b>DOC-WT</b>								
	<b>Water</b>							
<b>Batch</b>	<b>R4943998</b>							
<b>WG3239572-3</b>	<b>DUP</b>	<b>L2393816-1</b>						
Dissolved Organic Carbon		4.17	4.31		mg/L	3.5	20	13-DEC-19
<b>WG3239572-2</b>	<b>LCS</b>							
Dissolved Organic Carbon			102.0		%		80-120	13-DEC-19
<b>WG3239572-1</b>	<b>MB</b>							
Dissolved Organic Carbon			<0.50		mg/L		0.5	13-DEC-19
<b>WG3239572-4</b>	<b>MS</b>	<b>L2393816-1</b>						
Dissolved Organic Carbon			106.2		%		70-130	13-DEC-19
<b>EC-WT</b>								
	<b>Water</b>							



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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
<b>EC-WT</b>		<b>Water</b>						
<b>Batch</b>	<b>R4940554</b>							
<b>WG3239557-4</b>	<b>DUP</b>	<b>WG3239557-3</b>						
Conductivity		848	845		umhos/cm	0.4	10	10-DEC-19
<b>WG3239557-2</b>	<b>LCS</b>		99.4		%		90-110	10-DEC-19
Conductivity								
<b>WG3239557-1</b>	<b>MB</b>		<3.0		umhos/cm		3	10-DEC-19
Conductivity								
<b>Batch</b>	<b>R4942613</b>							
<b>WG3239921-4</b>	<b>DUP</b>	<b>WG3239921-3</b>						
Conductivity		470	465		umhos/cm	1.1	10	11-DEC-19
<b>WG3239921-2</b>	<b>LCS</b>		99.1		%		90-110	11-DEC-19
Conductivity								
<b>WG3239921-1</b>	<b>MB</b>		<3.0		umhos/cm		3	11-DEC-19
Conductivity								
<b>F-IC-N-WT</b>		<b>Water</b>						
<b>Batch</b>	<b>R4942092</b>							
<b>WG3239890-9</b>	<b>DUP</b>	<b>L2393996-3</b>						
Fluoride (F)		0.783	0.781		mg/L	0.1	20	11-DEC-19
<b>WG3239890-7</b>	<b>LCS</b>		103.2		%		90-110	11-DEC-19
Fluoride (F)								
<b>WG3239890-6</b>	<b>MB</b>		<0.020		mg/L		0.02	11-DEC-19
Fluoride (F)								
<b>WG3239890-8</b>	<b>MS</b>	<b>L2393996-3</b>						
Fluoride (F)			97.5		%		75-125	11-DEC-19
<b>HG-T-CVAA-WT</b>		<b>Water</b>						
<b>Batch</b>	<b>R4940638</b>							
<b>WG3239960-3</b>	<b>DUP</b>	<b>L2393996-1</b>						
Mercury (Hg)-Total		0.0000054	0.0000058		mg/L	7.1	20	11-DEC-19
<b>WG3239960-2</b>	<b>LCS</b>		113.0		%		80-120	11-DEC-19
Mercury (Hg)-Total								
<b>WG3239960-1</b>	<b>MB</b>		<0.0000050		mg/L		0.000005	11-DEC-19
Mercury (Hg)-Total								
<b>WG3239960-4</b>	<b>MS</b>	<b>L2393996-2</b>						
Mercury (Hg)-Total			110.3		%		70-130	11-DEC-19
<b>MET-T-CCMS-WT</b>		<b>Water</b>						



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 455 PHILLIP STREET  
 WATERLOO ON N2L 3X2

Contact: LAURA ERMETA

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>MET-T-CCMS-WT</b>								
	<b>Water</b>							
<b>Batch</b>	<b>R4940702</b>							
<b>WG3239658-4</b>	<b>DUP</b>	<b>WG3239658-3</b>						
Aluminum (Al)-Total		0.281	0.271		mg/L	3.6	20	11-DEC-19
Antimony (Sb)-Total		0.00043	0.00041		mg/L	3.9	20	11-DEC-19
Arsenic (As)-Total		0.00155	0.00151		mg/L	2.5	20	11-DEC-19
Barium (Ba)-Total		0.0618	0.0603		mg/L	2.5	20	11-DEC-19
Beryllium (Be)-Total		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	11-DEC-19
Bismuth (Bi)-Total		<0.000050	<0.000050	RPD-NA	mg/L	N/A	20	11-DEC-19
Boron (B)-Total		0.120	0.119		mg/L	1.0	20	11-DEC-19
Cadmium (Cd)-Total		0.000159	0.000163		mg/L	2.1	20	11-DEC-19
Calcium (Ca)-Total		77.9	75.8		mg/L	2.8	20	11-DEC-19
Cobalt (Co)-Total		0.00066	0.00065		mg/L	1.1	20	11-DEC-19
Copper (Cu)-Total		0.0023	0.0022		mg/L	4.7	20	11-DEC-19
Iron (Fe)-Total		0.235	0.229		mg/L	2.9	20	11-DEC-19
Lead (Pb)-Total		0.000434	0.000426		mg/L	1.9	20	11-DEC-19
Magnesium (Mg)-Total		21.7	21.1		mg/L	2.7	20	11-DEC-19
Manganese (Mn)-Total		0.0266	0.0258		mg/L	2.9	20	11-DEC-19
Molybdenum (Mo)-Total		0.0734	0.0710		mg/L	3.3	20	11-DEC-19
Nickel (Ni)-Total		0.00663	0.00652		mg/L	1.6	20	11-DEC-19
Potassium (K)-Total		22.4	21.8		mg/L	2.4	20	11-DEC-19
Selenium (Se)-Total		0.00144	0.00145		mg/L	0.5	20	11-DEC-19
Silicon (Si)-Total		1.41	1.37		mg/L	2.3	20	11-DEC-19
Silver (Ag)-Total		<0.000050	<0.000050	RPD-NA	mg/L	N/A	20	11-DEC-19
Sodium (Na)-Total		64.2	62.4		mg/L	2.8	20	11-DEC-19
Strontium (Sr)-Total		0.628	0.606		mg/L	3.6	20	11-DEC-19
Thallium (Tl)-Total		0.000163	0.000166		mg/L	2.0	20	11-DEC-19
Tin (Sn)-Total		0.00017	0.00016		mg/L	5.7	20	11-DEC-19
Vanadium (V)-Total		0.00072	0.00075		mg/L	3.4	20	11-DEC-19
Zinc (Zn)-Total		0.0039	0.0039		mg/L	0.5	20	11-DEC-19
<b>WG3239658-2</b>	<b>LCS</b>							
Aluminum (Al)-Total			101.3		%		80-120	11-DEC-19
Antimony (Sb)-Total			100.4		%		80-120	11-DEC-19
Arsenic (As)-Total			98.3		%		80-120	11-DEC-19
Barium (Ba)-Total			98.9		%		80-120	11-DEC-19
Beryllium (Be)-Total			97.0		%		80-120	11-DEC-19



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 455 PHILLIP STREET  
 WATERLOO ON N2L 3X2

Contact: LAURA ERMETA

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>MET-T-CCMS-WT</b>		<b>Water</b>						
<b>Batch</b>	<b>R4940702</b>							
<b>WG3239658-2</b>	<b>LCS</b>							
Bismuth (Bi)-Total			97.3		%		80-120	11-DEC-19
Boron (B)-Total			95.3		%		80-120	11-DEC-19
Cadmium (Cd)-Total			98.8		%		80-120	11-DEC-19
Calcium (Ca)-Total			98.3		%		80-120	11-DEC-19
Cobalt (Co)-Total			97.1		%		80-120	11-DEC-19
Copper (Cu)-Total			96.8		%		80-120	11-DEC-19
Iron (Fe)-Total			99.5		%		80-120	11-DEC-19
Lead (Pb)-Total			97.5		%		80-120	11-DEC-19
Magnesium (Mg)-Total			99.0		%		80-120	11-DEC-19
Manganese (Mn)-Total			97.0		%		80-120	11-DEC-19
Molybdenum (Mo)-Total			96.2		%		80-120	11-DEC-19
Nickel (Ni)-Total			97.0		%		80-120	11-DEC-19
Potassium (K)-Total			97.9		%		80-120	11-DEC-19
Selenium (Se)-Total			98.3		%		80-120	11-DEC-19
Silicon (Si)-Total			103.4		%		60-140	11-DEC-19
Silver (Ag)-Total			96.6		%		80-120	11-DEC-19
Sodium (Na)-Total			98.8		%		80-120	11-DEC-19
Strontium (Sr)-Total			99.0		%		80-120	11-DEC-19
Thallium (Tl)-Total			98.2		%		80-120	11-DEC-19
Tin (Sn)-Total			97.9		%		80-120	11-DEC-19
Vanadium (V)-Total			98.5		%		80-120	11-DEC-19
Zinc (Zn)-Total			97.7		%		80-120	11-DEC-19
<b>WG3239658-1</b>	<b>MB</b>							
Aluminum (Al)-Total			<0.0050		mg/L		0.005	11-DEC-19
Antimony (Sb)-Total			<0.00010		mg/L		0.0001	11-DEC-19
Arsenic (As)-Total			<0.00010		mg/L		0.0001	11-DEC-19
Barium (Ba)-Total			<0.00010		mg/L		0.0001	11-DEC-19
Beryllium (Be)-Total			<0.00010		mg/L		0.0001	11-DEC-19
Bismuth (Bi)-Total			<0.000050		mg/L		0.00005	11-DEC-19
Boron (B)-Total			<0.010		mg/L		0.01	11-DEC-19
Cadmium (Cd)-Total			<0.0000050		mg/L		0.000005	11-DEC-19
Calcium (Ca)-Total			<0.050		mg/L		0.05	11-DEC-19
Cobalt (Co)-Total			<0.00010		mg/L		0.0001	11-DEC-19
Copper (Cu)-Total			<0.0010		mg/L		0.001	11-DEC-19



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 455 PHILLIP STREET  
 WATERLOO ON N2L 3X2

Contact: LAURA ERMETA

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>MET-T-CCMS-WT</b>								
	<b>Water</b>							
<b>Batch</b>	<b>R4940702</b>							
<b>WG3239658-1 MB</b>								
Iron (Fe)-Total			<0.010		mg/L		0.01	11-DEC-19
Lead (Pb)-Total			<0.000050		mg/L		0.00005	11-DEC-19
Magnesium (Mg)-Total			<0.0050		mg/L		0.005	11-DEC-19
Manganese (Mn)-Total			<0.00050		mg/L		0.0005	11-DEC-19
Molybdenum (Mo)-Total			<0.000050		mg/L		0.00005	11-DEC-19
Nickel (Ni)-Total			<0.00050		mg/L		0.0005	11-DEC-19
Potassium (K)-Total			<0.050		mg/L		0.05	11-DEC-19
Selenium (Se)-Total			<0.000050		mg/L		0.00005	11-DEC-19
Silicon (Si)-Total			<0.10		mg/L		0.1	11-DEC-19
Silver (Ag)-Total			<0.000050		mg/L		0.00005	11-DEC-19
Sodium (Na)-Total			<0.050		mg/L		0.05	11-DEC-19
Strontium (Sr)-Total			<0.0010		mg/L		0.001	11-DEC-19
Thallium (Tl)-Total			<0.000010		mg/L		0.00001	11-DEC-19
Tin (Sn)-Total			<0.00010		mg/L		0.0001	11-DEC-19
Vanadium (V)-Total			<0.00050		mg/L		0.0005	11-DEC-19
Zinc (Zn)-Total			<0.0030		mg/L		0.003	11-DEC-19
<b>WG3239658-5 MS</b>		<b>WG3239658-3</b>						
Aluminum (Al)-Total			N/A	MS-B	%		-	11-DEC-19
Antimony (Sb)-Total			100.9		%		70-130	11-DEC-19
Arsenic (As)-Total			99.8		%		70-130	11-DEC-19
Barium (Ba)-Total			N/A	MS-B	%		-	11-DEC-19
Beryllium (Be)-Total			97.4		%		70-130	11-DEC-19
Bismuth (Bi)-Total			87.8		%		70-130	11-DEC-19
Boron (B)-Total			N/A	MS-B	%		-	11-DEC-19
Cadmium (Cd)-Total			94.2		%		70-130	11-DEC-19
Calcium (Ca)-Total			N/A	MS-B	%		-	11-DEC-19
Cobalt (Co)-Total			96.7		%		70-130	11-DEC-19
Copper (Cu)-Total			90.0		%		70-130	11-DEC-19
Iron (Fe)-Total			N/A	MS-B	%		-	11-DEC-19
Lead (Pb)-Total			90.8		%		70-130	11-DEC-19
Magnesium (Mg)-Total			N/A	MS-B	%		-	11-DEC-19
Manganese (Mn)-Total			N/A	MS-B	%		-	11-DEC-19
Molybdenum (Mo)-Total			N/A	MS-B	%		-	11-DEC-19
Nickel (Ni)-Total			92.2		%		70-130	11-DEC-19





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455 PHILLIP STREET  
WATERLOO ON N2L 3X2

Contact: LAURA ERMETA

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>NO3-IC-WT</b>								
	<b>Water</b>							
<b>Batch</b>	<b>R4942092</b>							
<b>WG3239890-7</b>	<b>LCS</b>							
Nitrate (as N)			101.6		%		90-110	11-DEC-19
<b>WG3239890-6</b>	<b>MB</b>							
Nitrate (as N)			<0.020		mg/L		0.02	11-DEC-19
<b>WG3239890-8</b>	<b>MS</b>	<b>L2393996-3</b>						
Nitrate (as N)			102.0		%		75-125	11-DEC-19
<b>P-T-COL-WT</b>								
	<b>Water</b>							
<b>Batch</b>	<b>R4942729</b>							
<b>WG3239196-3</b>	<b>DUP</b>	<b>L2393787-4</b>						
Phosphorus, Total		<0.0030	<0.0030	RPD-NA	mg/L	N/A	20	13-DEC-19
<b>WG3239196-2</b>	<b>LCS</b>							
Phosphorus, Total			102.0		%		80-120	13-DEC-19
<b>WG3239196-1</b>	<b>MB</b>							
Phosphorus, Total			<0.0030		mg/L		0.003	13-DEC-19
<b>WG3239196-4</b>	<b>MS</b>	<b>L2393787-4</b>						
Phosphorus, Total			90.5		%		70-130	13-DEC-19
<b>PH-WT</b>								
	<b>Water</b>							
<b>Batch</b>	<b>R4940554</b>							
<b>WG3239557-4</b>	<b>DUP</b>	<b>WG3239557-3</b>						
pH		7.96	7.98	J	pH units	0.02	0.2	10-DEC-19
<b>WG3239557-2</b>	<b>LCS</b>							
pH			7.01		pH units		6.9-7.1	10-DEC-19
<b>Batch</b>	<b>R4942613</b>							
<b>WG3239921-4</b>	<b>DUP</b>	<b>WG3239921-3</b>						
pH		8.02	7.97	J	pH units	0.05	0.2	11-DEC-19
<b>WG3239921-2</b>	<b>LCS</b>							
pH			7.00		pH units		6.9-7.1	11-DEC-19
<b>PHENOLS-4AAP-WT</b>								
	<b>Water</b>							
<b>Batch</b>	<b>R4940476</b>							
<b>WG3239134-3</b>	<b>DUP</b>	<b>L2393222-2</b>						
Phenols (4AAP)		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	10-DEC-19
<b>WG3239134-2</b>	<b>LCS</b>							
Phenols (4AAP)			110.7		%		85-115	10-DEC-19
<b>WG3239134-1</b>	<b>MB</b>							
Phenols (4AAP)			<0.0010		mg/L		0.001	10-DEC-19
<b>WG3239134-4</b>	<b>MS</b>	<b>L2393222-2</b>						
Phenols (4AAP)			114.1		%		75-125	10-DEC-19



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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
<b>PHENOLS-4AAP-WT</b>								
	Water							
<b>Batch</b>	<b>R4941403</b>							
<b>WG3239949-3</b>	<b>DUP</b>	<b>L2393996-1</b>						
Phenols (4AAP)		0.0013	0.0012		mg/L	13	20	11-DEC-19
<b>WG3239949-2</b>	<b>LCS</b>							
Phenols (4AAP)			108.8		%		85-115	11-DEC-19
<b>WG3239949-1</b>	<b>MB</b>							
Phenols (4AAP)			<0.0010		mg/L		0.001	11-DEC-19
<b>WG3239949-4</b>	<b>MS</b>	<b>L2393996-1</b>						
Phenols (4AAP)			106.3		%		75-125	11-DEC-19
<b>SO4-IC-N-WT</b>								
	Water							
<b>Batch</b>	<b>R4942092</b>							
<b>WG3239890-9</b>	<b>DUP</b>	<b>L2393996-3</b>						
Sulfate (SO4)		204	204		mg/L	0.0	20	11-DEC-19
<b>WG3239890-7</b>	<b>LCS</b>							
Sulfate (SO4)			102.8		%		90-110	11-DEC-19
<b>WG3239890-6</b>	<b>MB</b>							
Sulfate (SO4)			<0.30		mg/L		0.3	11-DEC-19
<b>WG3239890-8</b>	<b>MS</b>	<b>L2393996-3</b>						
Sulfate (SO4)			N/A	MS-B	%		-	11-DEC-19
<b>SOLIDS-TDS-WT</b>								
	Water							
<b>Batch</b>	<b>R4943794</b>							
<b>WG3240845-3</b>	<b>DUP</b>	<b>L2393816-7</b>						
Total Dissolved Solids		514	518		mg/L	0.7	20	12-DEC-19
<b>WG3240845-2</b>	<b>LCS</b>							
Total Dissolved Solids			100.6		%		85-115	12-DEC-19
<b>WG3240845-1</b>	<b>MB</b>							
Total Dissolved Solids			<10		mg/L		10	12-DEC-19
<b>SOLIDS-TSS-WT</b>								
	Water							
<b>Batch</b>	<b>R4942454</b>							
<b>WG3240741-3</b>	<b>DUP</b>	<b>L2394378-1</b>						
Total Suspended Solids		513	516		mg/L	0.6	20	13-DEC-19
<b>WG3240741-2</b>	<b>LCS</b>							
Total Suspended Solids			100.1		%		85-115	13-DEC-19
<b>WG3240741-1</b>	<b>MB</b>							
Total Suspended Solids			<2.0		mg/L		2	13-DEC-19
<b>TKN-WT</b>	<b>Water</b>							





### Quality Control Report

Workorder: L2393996

Report Date: 17-DEC-19

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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
<b>TKN-WT</b>								
	<b>Water</b>							
<b>Batch</b>	<b>R4941686</b>							
<b>WG3239162-3</b>	<b>DUP</b>	<b>L2393996-3</b>						
Total Kjeldahl Nitrogen		1.12	1.22		mg/L	8.6	20	12-DEC-19
<b>WG3239162-2</b>	<b>LCS</b>							
Total Kjeldahl Nitrogen			102.5		%		75-125	12-DEC-19
<b>WG3239162-1</b>	<b>MB</b>							
Total Kjeldahl Nitrogen			<0.15		mg/L		0.15	12-DEC-19
<b>WG3239162-4</b>	<b>MS</b>	<b>L2393996-3</b>						
Total Kjeldahl Nitrogen			103.7		%		70-130	12-DEC-19
<b>VOC-ROU-HS-WT</b>								
	<b>Water</b>							
<b>Batch</b>	<b>R4943976</b>							
<b>WG3239182-4</b>	<b>DUP</b>	<b>WG3239182-3</b>						
1,1,1,2-Tetrachloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	16-DEC-19
1,1,2,2-Tetrachloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	16-DEC-19
1,1,1-Trichloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	16-DEC-19
1,1,2-Trichloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	16-DEC-19
1,2-Dibromoethane		<0.20	<0.20	RPD-NA	ug/L	N/A	30	16-DEC-19
1,1-Dichloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	16-DEC-19
1,1-Dichloroethylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	16-DEC-19
1,2-Dichlorobenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	16-DEC-19
1,2-Dichloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	16-DEC-19
1,2-Dichloropropane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	16-DEC-19
1,3-Dichlorobenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	16-DEC-19
1,4-Dichlorobenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	16-DEC-19
Acetone		<20	<20	RPD-NA	ug/L	N/A	30	16-DEC-19
Benzene		0.80	0.80		ug/L	0.0	30	16-DEC-19
Bromodichloromethane		<1.0	<1.0	RPD-NA	ug/L	N/A	30	16-DEC-19
Bromoform		<1.0	<1.0	RPD-NA	ug/L	N/A	30	16-DEC-19
Bromomethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	16-DEC-19
Carbon tetrachloride		<0.50	<0.50	RPD-NA	ug/L	N/A	30	16-DEC-19
Chlorobenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	16-DEC-19
Chloroethane		<1.0	<1.0	RPD-NA	ug/L	N/A	30	16-DEC-19
Chloroform		<1.0	<1.0	RPD-NA	ug/L	N/A	30	16-DEC-19
cis-1,2-Dichloroethylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	16-DEC-19
cis-1,3-Dichloropropene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	16-DEC-19
Dibromochloromethane		<1.0	<1.0	RPD-NA	ug/L	N/A	30	16-DEC-19



## Quality Control Report

Workorder: L2393996

Report Date: 17-DEC-19

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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
<b>VOC-ROU-HS-WT</b>		<b>Water</b>						
<b>Batch</b>	<b>R4943976</b>							
<b>WG3239182-4 DUP</b>		<b>WG3239182-3</b>						
Dichlorodifluoromethane		<1.0	<1.0	RPD-NA	ug/L	N/A	30	16-DEC-19
Dichloromethane		<2.0	<2.0	RPD-NA	ug/L	N/A	30	16-DEC-19
Ethylbenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	16-DEC-19
m+p-Xylenes		<1.0	<1.0	RPD-NA	ug/L	N/A	30	16-DEC-19
Methyl Ethyl Ketone		<20	<20	RPD-NA	ug/L	N/A	30	16-DEC-19
Methyl Isobutyl Ketone		<20	<20	RPD-NA	ug/L	N/A	30	16-DEC-19
n-Hexane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	16-DEC-19
MTBE		<0.50	<0.50	RPD-NA	ug/L	N/A	30	16-DEC-19
o-Xylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	16-DEC-19
Styrene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	16-DEC-19
Tetrachloroethylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	16-DEC-19
Toluene		0.65	0.64		ug/L	1.6	30	16-DEC-19
trans-1,2-Dichloroethylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	16-DEC-19
trans-1,3-Dichloropropene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	16-DEC-19
Trichloroethylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	16-DEC-19
Trichlorofluoromethane		<1.0	<1.0	RPD-NA	ug/L	N/A	30	16-DEC-19
Vinyl chloride		<0.50	<0.50	RPD-NA	ug/L	N/A	30	16-DEC-19
<b>WG3239182-1 LCS</b>								
1,1,1,2-Tetrachloroethane			87.3		%		70-130	16-DEC-19
1,1,1,2,2-Tetrachloroethane			99.6		%		70-130	16-DEC-19
1,1,1-Trichloroethane			88.6		%		70-130	16-DEC-19
1,1,2-Trichloroethane			88.3		%		70-130	16-DEC-19
1,2-Dibromoethane			93.0		%		70-130	16-DEC-19
1,1-Dichloroethane			86.3		%		70-130	16-DEC-19
1,1-Dichloroethylene			83.1		%		70-130	16-DEC-19
1,2-Dichlorobenzene			88.2		%		70-130	16-DEC-19
1,2-Dichloroethane			94.3		%		70-130	16-DEC-19
1,2-Dichloropropane			88.3		%		70-130	16-DEC-19
1,3-Dichlorobenzene			84.7		%		70-130	16-DEC-19
1,4-Dichlorobenzene			85.7		%		70-130	16-DEC-19
Acetone			107.1		%		60-140	16-DEC-19
Benzene			93.5		%		70-130	16-DEC-19
Bromodichloromethane			91.7		%		70-130	16-DEC-19



## Quality Control Report

Workorder: L2393996

Report Date: 17-DEC-19

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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
<b>VOC-ROU-HS-WT</b>		<b>Water</b>						
<b>Batch</b>	<b>R4943976</b>							
<b>WG3239182-1</b>	<b>LCS</b>							
Bromoform			101.3		%		70-130	16-DEC-19
Bromomethane			88.8		%		60-140	16-DEC-19
Carbon tetrachloride			94.5		%		70-130	16-DEC-19
Chlorobenzene			84.0		%		70-130	16-DEC-19
Chloroethane			98.7		%		70-130	16-DEC-19
Chloroform			90.6		%		70-130	16-DEC-19
cis-1,2-Dichloroethylene			87.6		%		70-130	16-DEC-19
cis-1,3-Dichloropropene			94.5		%		70-130	16-DEC-19
Dibromochloromethane			95.9		%		70-130	16-DEC-19
Dichlorodifluoromethane			111.3		%		50-140	16-DEC-19
Dichloromethane			91.1		%		70-130	16-DEC-19
Ethylbenzene			85.7		%		70-130	16-DEC-19
m+p-Xylenes			87.5		%		70-130	16-DEC-19
Methyl Ethyl Ketone			111.2		%		60-140	16-DEC-19
Methyl Isobutyl Ketone			98.8		%		50-150	16-DEC-19
n-Hexane			84.0		%		70-130	16-DEC-19
MTBE			87.4		%		70-130	16-DEC-19
o-Xylene			85.1		%		70-130	16-DEC-19
Styrene			86.2		%		70-130	16-DEC-19
Tetrachloroethylene			91.0		%		70-130	16-DEC-19
Toluene			88.1		%		70-130	16-DEC-19
trans-1,2-Dichloroethylene			83.4		%		70-130	16-DEC-19
trans-1,3-Dichloropropene			91.5		%		70-130	16-DEC-19
Trichloroethylene			90.0		%		70-130	16-DEC-19
Trichlorofluoromethane			91.9		%		60-140	16-DEC-19
Vinyl chloride			100.7		%		60-140	16-DEC-19
<b>WG3239182-2</b>	<b>MB</b>							
1,1,1,2-Tetrachloroethane			<0.50		ug/L		0.5	16-DEC-19
1,1,2,2-Tetrachloroethane			<0.50		ug/L		0.5	16-DEC-19
1,1,1-Trichloroethane			<0.50		ug/L		0.5	16-DEC-19
1,1,2-Trichloroethane			<0.50		ug/L		0.5	16-DEC-19
1,2-Dibromoethane			<0.20		ug/L		0.2	16-DEC-19
1,1-Dichloroethane			<0.50		ug/L		0.5	16-DEC-19
1,1-Dichloroethylene			<0.50		ug/L		0.5	16-DEC-19



### Quality Control Report

Workorder: L2393996

Report Date: 17-DEC-19

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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
<b>VOC-ROU-HS-WT</b>								
	<b>Water</b>							
<b>Batch</b>	<b>R4943976</b>							
<b>WG3239182-2 MB</b>								
1,2-Dichlorobenzene			<0.50		ug/L		0.5	16-DEC-19
1,2-Dichloroethane			<0.50		ug/L		0.5	16-DEC-19
1,2-Dichloropropane			<0.50		ug/L		0.5	16-DEC-19
1,3-Dichlorobenzene			<0.50		ug/L		0.5	16-DEC-19
1,4-Dichlorobenzene			<0.50		ug/L		0.5	16-DEC-19
Acetone			<20		ug/L		20	16-DEC-19
Benzene			<0.50		ug/L		0.5	16-DEC-19
Bromodichloromethane			<1.0		ug/L		1	16-DEC-19
Bromoform			<1.0		ug/L		1	16-DEC-19
Bromomethane			<0.50		ug/L		0.5	16-DEC-19
Carbon tetrachloride			<0.50		ug/L		0.5	16-DEC-19
Chlorobenzene			<0.50		ug/L		0.5	16-DEC-19
Chloroethane			<1.0		ug/L		1	16-DEC-19
Chloroform			<1.0		ug/L		1	16-DEC-19
cis-1,2-Dichloroethylene			<0.50		ug/L		0.5	16-DEC-19
cis-1,3-Dichloropropene			<0.50		ug/L		0.5	16-DEC-19
Dibromochloromethane			<1.0		ug/L		1	16-DEC-19
Dichlorodifluoromethane			<1.0		ug/L		1	16-DEC-19
Dichloromethane			<2.0		ug/L		2	16-DEC-19
Ethylbenzene			<0.50		ug/L		0.5	16-DEC-19
m+p-Xylenes			<1.0		ug/L		1	16-DEC-19
Methyl Ethyl Ketone			<20		ug/L		20	16-DEC-19
Methyl Isobutyl Ketone			<20		ug/L		20	16-DEC-19
n-Hexane			<0.50		ug/L		0.5	16-DEC-19
MTBE			<0.50		ug/L		0.5	16-DEC-19
o-Xylene			<0.50		ug/L		0.5	16-DEC-19
Styrene			<0.50		ug/L		0.5	16-DEC-19
Tetrachloroethylene			<0.50		ug/L		0.5	16-DEC-19
Toluene			<0.50		ug/L		0.5	16-DEC-19
trans-1,2-Dichloroethylene			<0.50		ug/L		0.5	16-DEC-19
trans-1,3-Dichloropropene			<0.50		ug/L		0.5	16-DEC-19
Trichloroethylene			<0.50		ug/L		0.5	16-DEC-19
Trichlorofluoromethane			<1.0		ug/L		1	16-DEC-19



### Quality Control Report

Workorder: L2393996

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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
<b>VOC-ROU-HS-WT</b>								
	Water							
<b>Batch</b>	<b>R4943976</b>							
<b>WG3239182-2</b>	<b>MB</b>							
Vinyl chloride			<0.50		ug/L		0.5	16-DEC-19
Surrogate: 1,4-Difluorobenzene			100.2		%		70-130	16-DEC-19
Surrogate: 4-Bromofluorobenzene			95.5		%		70-130	16-DEC-19
<b>WG3239182-5</b>	<b>MS</b>	<b>WG3239182-3</b>						
1,1,1,2-Tetrachloroethane			83.6		%		50-150	16-DEC-19
1,1,1,2-Tetrachloroethane			89.0		%		50-150	16-DEC-19
1,1,1-Trichloroethane			86.1		%		50-150	16-DEC-19
1,1,2-Trichloroethane			80.3		%		50-150	16-DEC-19
1,2-Dibromoethane			82.8		%		50-150	16-DEC-19
1,1-Dichloroethane			82.2		%		50-150	16-DEC-19
1,1-Dichloroethylene			82.5		%		50-150	16-DEC-19
1,2-Dichlorobenzene			87.8		%		50-150	16-DEC-19
1,2-Dichloroethane			83.8		%		50-150	16-DEC-19
1,2-Dichloropropane			85.4		%		50-150	16-DEC-19
1,3-Dichlorobenzene			87.4		%		50-150	16-DEC-19
1,4-Dichlorobenzene			88.2		%		50-150	16-DEC-19
Acetone			85.3		%		50-150	16-DEC-19
Benzene			93.7		%		50-150	16-DEC-19
Bromodichloromethane			85.7		%		50-150	16-DEC-19
Bromoform			91.2		%		50-150	16-DEC-19
Bromomethane			87.3		%		50-150	16-DEC-19
Carbon tetrachloride			93.3		%		50-150	16-DEC-19
Chlorobenzene			83.0		%		50-150	16-DEC-19
Chloroethane			97.6		%		50-150	16-DEC-19
Chloroform			86.7		%		50-150	16-DEC-19
cis-1,2-Dichloroethylene			84.7		%		50-150	16-DEC-19
cis-1,3-Dichloropropene			96.4		%		50-150	16-DEC-19
Dibromochloromethane			88.3		%		50-150	16-DEC-19
Dichlorodifluoromethane			97.5		%		50-150	16-DEC-19
Dichloromethane			84.7		%		50-150	16-DEC-19
Ethylbenzene			87.3		%		50-150	16-DEC-19
m+p-Xylenes			89.7		%		50-150	16-DEC-19
Methyl Ethyl Ketone			85.6		%		50-150	16-DEC-19
Methyl Isobutyl Ketone			82.3		%		50-150	16-DEC-19



### Quality Control Report

Workorder: L2393996

Report Date: 17-DEC-19

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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
<b>VOC-ROU-HS-WT</b>								
	<b>Water</b>							
<b>Batch</b>	<b>R4943976</b>							
<b>WG3239182-5 MS</b>		<b>WG3239182-3</b>						
n-Hexane			86.2		%		50-150	16-DEC-19
MTBE			87.3		%		50-150	16-DEC-19
o-Xylene			85.3		%		50-150	16-DEC-19
Styrene			85.4		%		50-150	16-DEC-19
Tetrachloroethylene			94.1		%		50-150	16-DEC-19
Toluene			89.1		%		50-150	16-DEC-19
trans-1,2-Dichloroethylene			83.7		%		50-150	16-DEC-19
trans-1,3-Dichloropropene			93.7		%		50-150	16-DEC-19
Trichloroethylene			90.5		%		50-150	16-DEC-19
Trichlorofluoromethane			88.8		%		50-150	16-DEC-19
Vinyl chloride			98.8		%		50-150	16-DEC-19

# Quality Control Report

Workorder: L2393996

Report Date: 17-DEC-19

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

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## Legend:

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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:

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Qualifier	Description
J	Duplicate results and limits are expressed in terms of absolute difference.
LCS-H	Lab Control Sample recovery was above ALS DQO. Non-detected sample results are considered reliable. Other results, if reported, have been qualified.
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.

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## 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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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.



<b>Report To</b>		<b>Acct#13791</b>		<b>Report Format / Distribution</b>			<b>Select Service Level Below (Rush Turnaround Time (TAT) is not available for all tests)</b>												
Company: <b>GHD LIMITED</b>				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: <b>Laura Ermeta</b>				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: <b>455 Phillip St N2L 3X2</b>				<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: <b>519-884-0510</b>				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 <b>laura.ermeta@ghd.com</b>			Specify Date Required for E2,E or P:												
				Email 2 <b>See PO</b>			<b>Analysis Request</b>												
<b>Invoice To</b>		<b>Same as Report To</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		<b>Invoice Distribution</b>			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															
Company: <b>GHD LIMITED</b>				Email 1 or Fax <b>laura.ermeta@ghd.com</b>															
Contact: <b>Laura Ermeta</b>				Email 2															
<b>Project Information</b>				<b>Oil and Gas Required Fields (client use)</b>															
ALS Quote #: <b>44985-30-10</b>				Approver ID:				Cost Center:											
Job #: <b>73512223-1</b>				GL Account:				Routing Code:											
PO / AFE: <b>73512223-1</b>				Activity Code:															
LSD:				Location:															
ALS Lab Work Order # (lab use only) <b>L2393996-D</b>				ALS Contact: <b>Rick H</b>		Sampler:													
<b>ALS Sample # (lab use only)</b>	<b>Sample Identification and/or Coordinates (This description will appear on the report)</b>			<b>Date (dd-mmm-yy)</b>	<b>Time (hh:mm)</b>	<b>Sample Type</b>	ALK, Conductivity, pH, TDS, TSS, Phenols	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			09/12/19	10:30	Water	R	R	R	R	R	R	R	R	R	R	8	7.81	
	West Storm Water Pond			09/12/19	10:45	Water	R	R	R	R	R	R	R	R	R	R	5	7.71	
	East Storm Water Pond			09/12/19	11:00	Water	R	R	R	R	R	R	R	R	R	R	5	7.89	
<b>Drinking Water (DW) Samples<sup>1</sup> (client use)</b>				<b>Special Instructions / Specify Criteria to add on report (client Use)</b>															
Are samples taken from a Regulated DW System? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No				<b>**Please fill in Client Supplied temperature and pH for Unionized NH3 calculation**</b>															
Are samples for human drinking water use? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No																			
				<b>SAMPLE CONDITION AS RECEIVED (lab use only)</b>															
				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 checked="" type="checkbox"/>															
				INITIAL COOLER TEMPERATURES °C								FINAL COOLER TEMPERATURES °C							
												4.3							
<b>SHIPMENT RELEASE (client use)</b>				<b>INITIAL SHIPMENT RECEPTION (lab use only)</b>								<b>FINAL SHIPMENT RECEPTION (lab use only)</b>							
Released by: <b>R Tobin</b>		Date: <b>Dec 09/19</b>	Time: <b>13:00</b>	Received by:		Date:		Time:		Received by:		Date:		Time:					
												<b>Dec 10/19</b>		<b>1030</b>					





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

Date Received: 10-DEC-19  
Report Date: 12-DEC-19 15:36 (MT)  
Version: FINAL REV. 2

Client Phone: 519-884-0510

## Certificate of Analysis

Lab Work Order #: L2393995  
Project P.O. #: 73512223-1  
Job Reference: 44985-20-19  
C of C Numbers:  
Legal Site Desc:

Comments:

12-DEC-2019 Job ID updated to 44985-20-19

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
L2393995-1 EQ POND DISCHARGE Sampled By: CLIENT on 09-DEC-19 @ 10:30 Matrix: WATER							
<b>Microtox Physical Tests</b>							
Turbidity	N/A				12-DEC-19	12-DEC-19	R4941496
Colour	Colourless				12-DEC-19	12-DEC-19	R4941496
Clarification	None				12-DEC-19	12-DEC-19	R4941496
Initial pH	7.8		0.10	pH	12-DEC-19	12-DEC-19	R4941496
Final pH	7.8		0.10	pH	12-DEC-19	12-DEC-19	R4941496
Lab Treatment	None				12-DEC-19	12-DEC-19	R4941496
<b>Microtox Original</b>							
EC50 (15min) Original	>100		1.0	%	12-DEC-19	12-DEC-19	R4941496
EC20 (15min) Original	>100		1.0	%	12-DEC-19	12-DEC-19	R4941496
EC50 (5min) Original	>100		1.0	%	12-DEC-19	12-DEC-19	R4941496
EC20 (5min) Original	>100		1.0	%	12-DEC-19	12-DEC-19	R4941496
Interpretation Original	NON TOXIC				12-DEC-19	12-DEC-19	R4941496

\* 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.*



Environmental

### Quality Control Report

Workorder: L2393995

Report Date: 12-DEC-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
<b>MICROTOX-ORG-ED</b>								
	Water							
<b>Batch</b>	<b>R4941496</b>							
<b>WG3240895-2 CRM</b>		<b>PHENOL_ED</b>						
EC50 (5min) Original			14.2		mg/L		13-26	12-DEC-19
<b>WG3240895-3 CRM</b>		<b>PHENOL_ED</b>						
EC50 (5min) Original			15.1		mg/L		13-26	12-DEC-19
<b>WG3240895-4 DUP</b>		<b>L2393995-1</b>						
EC50 (15min) Original		>100	>100	RPD-NA	%	N/A		12-DEC-19
EC20 (15min) Original		>100	>100	RPD-NA	%	N/A		12-DEC-19
EC50 (5min) Original		>100	>100	RPD-NA	%	N/A		12-DEC-19
EC20 (5min) Original		>100	>100	RPD-NA	%	N/A		12-DEC-19
<b>WG3240895-1 MB</b>								
EC50 (15min) Original			PASS					12-DEC-19
EC20 (15min) Original			PASS					12-DEC-19
EC50 (5min) Original			PASS					12-DEC-19
EC20 (5min) Original			PASS					12-DEC-19

# Quality Control Report

Workorder: L2393995

Report Date: 12-DEC-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.



# **Appendix D**

## **Analytical Data Verification Memo**



# Memorandum

November 5, 2019

Revised: January 20, 2020

To: Diana Ball; Jim Yardley

Ref. No.: 044985-20

From:  Laura Ermeta/ev/59

**Subject: Analytical Data Verification  
Surface Water Sampling Events  
Clean Harbors Canada Inc.  
Sarnia, Ontario  
January to December 2019**

## 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 January to December 2019. Samples were submitted to ALS Canada Ltd. (ALS) located in Edmonton, Alberta for microtox analysis as well as Waterloo, Ontario for all remaining analyses. Select microtox samples were subcontracted by ALS to either Bureau Veritas Laboratories (BV Labs) or AGAT Laboratories Ltd. (AGAT) due to instrumentation issues. 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) "National Functional Guidelines for Superfund Organic Methods Data Review", USEPA-540-R-2016-002, September 2016
- ii) "National Functional Guidelines for Inorganic Superfund Methods Data Review", USEPA-540-R-2016-001, September 2016

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 ( $<10^{\circ}\text{C}$ ). The samples summarized in Table 4 were qualified due to high temperature upon arrival at the laboratory. Samples collected on June 18, 2019 arrived at the laboratory on the day of sampling and had not had time to achieve a temperature of  $<10^{\circ}\text{C}$ . This is acceptable since the cooling process had been initiated.

Two samples in report L2281993 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.

Most method blank results were non-detect, indicating that laboratory contamination was not a factor for this investigation. Magnesium was detected in the method blank in report L2377419. Associated sample concentrations were greater than ten times the blank value and were not qualified.

## 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. Most surrogate recoveries met the above criteria. Surrogate 2,3,6-trichlorophenol in report L2281993 had a high recovery. Non-detect results associated with high surrogate recoveries were not qualified. The indicated high bias would not impact the data.



## 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. Pentachlorophenol and 2,4-dinitrophenol had high LCS recoveries in select reports. Non-detect results associated with these 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 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.

### Organic Analyses

The MS samples were spiked with all compounds of interest. All percent recoveries were within the laboratory control limits, demonstrating acceptable analytical accuracy.

### Inorganic Analyses

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 6).

## 9. Conclusion

Based on the assessment detailed in the foregoing, the data are acceptable with the specific qualifications noted herein.





**Analytical Method and Holding Time Criteria  
Surface Water Sampling Events  
Clean Harbors Canada Inc.  
Sarnia, Ontario  
January to December 2019**

Parameters	Methodology <sup>(1)</sup>	Holding Time Criteria <sup>(2)</sup>
		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	3 days
Anions (Chloride, Bromide, Fluoride, Sulphate)	EPA 300.1	28 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 / EPS 1/RM/24	2 days for unrefrigerated samples; 7 days for refrigerated samples

## 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  
 EPS - Environmental Protection Series

- (2) Holding times differing from those defined in the indicated methodology were obtained from the  
 Canadian Council of Ministers of the Environment (CCME) or O. Reg. 153 Analytical Protocol

N - Nitrogen

NA - Not applicable

Table 3

**Qualified Sample Data Due To Holding Time Exceedance  
Surface Water Sampling Events  
Clean Harbors Canada Inc.  
Sarnia, Ontario  
January to December 2019**

Lab Report #	Parameter	Sample ID	Holding Time	Holding Time Criteria	Analyte	Qualified Sample Results	Units
L2281993	Gen Chem	EQ POND DISCHARGE	5 days	3 days	Dissolved organic carbon (DOC)	5.00 J-	mg/L
L2281993	Gen Chem	WEST STORM WATER POND	6 days	3 days	Dissolved organic carbon (DOC)	4.99 J-	mg/L
L2281993	Gen Chem	EAST STORM WATER POND	6 days	3 days	Dissolved organic carbon (DOC)	6.23 J-	mg/L
L2281917	Microtox	EQ POND DISCHARGE	5 days	2 days	EC 20 (15 min)	>81.9 J	%
L2281917	Microtox	EQ POND DISCHARGE	5 days	2 days	EC 20 (5 min)	>81.9 J	%
L2281917	Microtox	EQ POND DISCHARGE	5 days	2 days	EC 50 (15 min)	>81.9 J	%
L2281917	Microtox	EQ POND DISCHARGE	5 days	2 days	EC 50 (5 min)	>81.9 J	%
L2311186	Microtox	EQ POND DISCHARGE	4 days	2 days	EC 50 (15 min)	>81.9 J	%

## Notes:

- J- - Estimated concentration, result may be biased low
- 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  
January to December 2019**

Lab Report #	Parameter	Associated Sample ID	Temp. Upon Receipt at Laboratory (°C)	Required Temperature (°C)	Analyte	Qualified Result	Units
L2281993	SVOCs	EAST STORM WATER POND	11.3	10	1,2,4-Trichlorobenzene	0.40 UJ	µg/L
L2281993	SVOCs	EAST STORM WATER POND	11.3	10	1,2-Dichlorobenzene	0.40 UJ	µg/L
L2281993	SVOCs	EAST STORM WATER POND	11.3	10	1,3-Dichlorobenzene	0.40 UJ	µg/L
L2281993	SVOCs	EAST STORM WATER POND	11.3	10	1,4-Dichlorobenzene	0.40 UJ	µg/L
L2281993	SVOCs	EAST STORM WATER POND	11.3	10	1-Methylnaphthalene	0.40 UJ	µg/L
L2281993	SVOCs	EAST STORM WATER POND	11.3	10	2,3,4,5-Tetrachlorophenol	0.50 UJ	µg/L
L2281993	SVOCs	EAST STORM WATER POND	11.3	10	2,3,4,6-Tetrachlorophenol	0.50 UJ	µg/L
L2281993	SVOCs	EAST STORM WATER POND	11.3	10	2,3,6-Trichlorophenol	0.50 UJ	µg/L
L2281993	SVOCs	EAST STORM WATER POND	11.3	10	2,4,5-Trichlorophenol	0.50 UJ	µg/L
L2281993	SVOCs	EAST STORM WATER POND	11.3	10	2,4,6-Trichlorophenol	0.50 UJ	µg/L
L2281993	SVOCs	EAST STORM WATER POND	11.3	10	2,4-Dichlorophenol	0.30 UJ	µg/L
L2281993	SVOCs	EAST STORM WATER POND	11.3	10	2,4-Dimethylphenol	0.50 UJ	µg/L
L2281993	SVOCs	EAST STORM WATER POND	11.3	10	2,4-Dinitrophenol	1.0 UJ	µg/L
L2281993	SVOCs	EAST STORM WATER POND	11.3	10	2,4-Dinitrotoluene	0.40 UJ	µg/L
L2281993	SVOCs	EAST STORM WATER POND	11.3	10	2,6-Dinitrotoluene	0.40 UJ	µg/L
L2281993	SVOCs	EAST STORM WATER POND	11.3	10	2-Chlorophenol	0.30 UJ	µg/L
L2281993	SVOCs	EAST STORM WATER POND	11.3	10	2-Methylnaphthalene	0.40 UJ	µg/L
L2281993	SVOCs	EAST STORM WATER POND	11.3	10	3,3'-Dichlorobenzidine	0.40 UJ	µg/L
L2281993	SVOCs	EAST STORM WATER POND	11.3	10	4-Chloroaniline	0.40 UJ	µg/L
L2281993	SVOCs	EAST STORM WATER POND	11.3	10	Acenaphthene	0.20 UJ	µg/L
L2281993	SVOCs	EAST STORM WATER POND	11.3	10	Acenaphthylene	0.20 UJ	µg/L
L2281993	SVOCs	EAST STORM WATER POND	11.3	10	Anthracene	0.20 UJ	µg/L
L2281993	SVOCs	EAST STORM WATER POND	11.3	10	Benzo(a)anthracene	0.20 UJ	µg/L
L2281993	SVOCs	EAST STORM WATER POND	11.3	10	Benzo(a)pyrene	0.050 UJ	µg/L
L2281993	SVOCs	EAST STORM WATER POND	11.3	10	Benzo(b)fluoranthene	0.20 UJ	µg/L
L2281993	SVOCs	EAST STORM WATER POND	11.3	10	Benzo(g,h,i)perylene	0.20 UJ	µg/L
L2281993	SVOCs	EAST STORM WATER POND	11.3	10	Benzo(k)fluoranthene	0.20 UJ	µg/L
L2281993	SVOCs	EAST STORM WATER POND	11.3	10	bis(2-Chloroethyl)ether	0.40 UJ	µg/L
L2281993	SVOCs	EAST STORM WATER POND	11.3	10	bis(2-Ethylhexyl)phthalate (DEHP)	2.0 UJ	µg/L
L2281993	SVOCs	EAST STORM WATER POND	11.3	10	Chrysene	0.20 UJ	µg/L
L2281993	SVOCs	EAST STORM WATER POND	11.3	10	Dibenz(a,h)anthracene	0.20 UJ	µg/L
L2281993	SVOCs	EAST STORM WATER POND	11.3	10	Diethyl phthalate	0.20 UJ	µg/L



Table 4

**Qualified Sample Data Due To Insufficient Sample Preservation - Temperature  
Surface Water Sampling Events  
Clean Harbors Canada Inc.  
Sarnia, Ontario  
January to December 2019**

Lab Report #	Parameter	Associated Sample ID	Temp. Upon Receipt at Laboratory (°C)	Required Temperature (°C)	Analyte	Qualified Result	Units
L2281993	SVOCs	EAST STORM WATER POND	11.3	10	Dimethyl phthalate	0.20 UJ	µg/L
L2281993	SVOCs	EAST STORM WATER POND	11.3	10	Fluoranthene	0.20 UJ	µg/L
L2281993	SVOCs	EAST STORM WATER POND	11.3	10	Fluorene	0.20 UJ	µg/L
L2281993	SVOCs	EAST STORM WATER POND	11.3	10	Hexachlorobenzene	0.040 UJ	µg/L
L2281993	SVOCs	EAST STORM WATER POND	11.3	10	Hexachlorobutadiene	0.20 UJ	µg/L
L2281993	SVOCs	EAST STORM WATER POND	11.3	10	Indeno(1,2,3-cd)pyrene	0.20 UJ	µg/L
L2281993	SVOCs	EAST STORM WATER POND	11.3	10	Naphthalene	0.20 UJ	µg/L
L2281993	SVOCs	EAST STORM WATER POND	11.3	10	Pentachlorophenol	0.50 UJ	µg/L
L2281993	SVOCs	EAST STORM WATER POND	11.3	10	Perylene	0.20 UJ	µg/L
L2281993	SVOCs	EAST STORM WATER POND	11.3	10	Phenanthrene	0.20 UJ	µg/L
L2281993	SVOCs	EAST STORM WATER POND	11.3	10	Pyrene	0.20 UJ	µg/L
L2281993	VOCs	EAST STORM WATER POND	11.3	10	1,1,1,2-Tetrachloroethane	0.50 UJ	µg/L
L2281993	VOCs	EAST STORM WATER POND	11.3	10	1,1,1-Trichloroethane	0.50 UJ	µg/L
L2281993	VOCs	EAST STORM WATER POND	11.3	10	1,1,2,2-Tetrachloroethane	0.50 UJ	µg/L
L2281993	VOCs	EAST STORM WATER POND	11.3	10	1,1,2-Trichloroethane	0.50 UJ	µg/L
L2281993	VOCs	EAST STORM WATER POND	11.3	10	1,1-Dichloroethane	0.50 UJ	µg/L
L2281993	VOCs	EAST STORM WATER POND	11.3	10	1,1-Dichloroethene	0.50 UJ	µg/L
L2281993	VOCs	EAST STORM WATER POND	11.3	10	1,2-Dibromoethane (Ethylene dibromide)	0.20 UJ	µg/L
L2281993	VOCs	EAST STORM WATER POND	11.3	10	1,2-Dichlorobenzene	0.50 UJ	µg/L
L2281993	VOCs	EAST STORM WATER POND	11.3	10	1,2-Dichloroethane	0.50 UJ	µg/L
L2281993	VOCs	EAST STORM WATER POND	11.3	10	1,2-Dichloropropane	0.50 UJ	µg/L
L2281993	VOCs	EAST STORM WATER POND	11.3	10	1,3-Dichlorobenzene	0.50 UJ	µg/L
L2281993	VOCs	EAST STORM WATER POND	11.3	10	1,4-Dichlorobenzene	0.50 UJ	µg/L
L2281993	VOCs	EAST STORM WATER POND	11.3	10	2-Butanone (Methyl ethyl ketone) (MEK)	20 UJ	µg/L
L2281993	VOCs	EAST STORM WATER POND	11.3	10	4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	20 UJ	µg/L
L2281993	VOCs	EAST STORM WATER POND	11.3	10	Acetone	20 UJ	µg/L
L2281993	VOCs	EAST STORM WATER POND	11.3	10	Benzene	0.50 UJ	µg/L
L2281993	VOCs	EAST STORM WATER POND	11.3	10	Bromodichloromethane	1.0 UJ	µg/L
L2281993	VOCs	EAST STORM WATER POND	11.3	10	Bromoform	1.0 UJ	µg/L
L2281993	VOCs	EAST STORM WATER POND	11.3	10	Bromomethane (Methyl bromide)	0.50 UJ	µg/L
L2281993	VOCs	EAST STORM WATER POND	11.3	10	Carbon tetrachloride	0.50 UJ	µg/L

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L2281993	VOCs	EAST STORM WATER POND	11.3	10	Chlorobenzene	0.50 UJ	µg/L
L2281993	VOCs	EAST STORM WATER POND	11.3	10	Chloroethane	1.0 UJ	µg/L
L2281993	VOCs	EAST STORM WATER POND	11.3	10	Chloroform (Trichloromethane)	1.0 UJ	µg/L
L2281993	VOCs	EAST STORM WATER POND	11.3	10	cis-1,2-Dichloroethene	0.50 UJ	µg/L
L2281993	VOCs	EAST STORM WATER POND	11.3	10	cis-1,3-Dichloropropene	0.50 UJ	µg/L
L2281993	VOCs	EAST STORM WATER POND	11.3	10	Dibromochloromethane	1.0 UJ	µg/L
L2281993	VOCs	EAST STORM WATER POND	11.3	10	Dichlorodifluoromethane (CFC-12)	1.0 UJ	µg/L
L2281993	VOCs	EAST STORM WATER POND	11.3	10	Ethylbenzene	0.50 UJ	µg/L
L2281993	VOCs	EAST STORM WATER POND	11.3	10	Hexane	0.50 UJ	µg/L
L2281993	VOCs	EAST STORM WATER POND	11.3	10	m&p-Xylenes	1.0 UJ	µg/L
L2281993	VOCs	EAST STORM WATER POND	11.3	10	Methyl tert butyl ether (MTBE)	0.50 UJ	µg/L
L2281993	VOCs	EAST STORM WATER POND	11.3	10	Methylene chloride	2.0 UJ	µg/L
L2281993	VOCs	EAST STORM WATER POND	11.3	10	o-Xylene	0.50 UJ	µg/L
L2281993	VOCs	EAST STORM WATER POND	11.3	10	Styrene	0.50 UJ	µg/L
L2281993	VOCs	EAST STORM WATER POND	11.3	10	Tetrachloroethene	0.50 UJ	µg/L
L2281993	VOCs	EAST STORM WATER POND	11.3	10	Toluene	0.50 UJ	µg/L
L2281993	VOCs	EAST STORM WATER POND	11.3	10	trans-1,2-Dichloroethene	0.50 UJ	µg/L
L2281993	VOCs	EAST STORM WATER POND	11.3	10	trans-1,3-Dichloropropene	0.50 UJ	µg/L
L2281993	VOCs	EAST STORM WATER POND	11.3	10	Trichloroethene	0.50 UJ	µg/L
L2281993	VOCs	EAST STORM WATER POND	11.3	10	Trichlorofluoromethane (CFC-11)	1.0 UJ	µg/L
L2281993	VOCs	EAST STORM WATER POND	11.3	10	Trihalomethanes	2.0 UJ	µg/L
L2281993	VOCs	EAST STORM WATER POND	11.3	10	Vinyl chloride	0.50 UJ	µg/L
L2281993	VOCs	EAST STORM WATER POND	11.3	10	Xylenes (total)	1.1 UJ	µg/L
L2281993	Gen Chem	EAST STORM WATER POND	11.3	10	Alkalinity, total (as CaCO3)	166 J-	mg/L
L2281993	Gen Chem	EAST STORM WATER POND	11.3	10	Ammonia-N	2.51 J-	mg/L
L2281993	Gen Chem	EAST STORM WATER POND	11.3	10	Bromide	1.09 J-	mg/L
L2281993	Gen Chem	EAST STORM WATER POND	11.3	10	Chemical oxygen demand (COD)	24 J-	mg/L
L2281993	Gen Chem	EAST STORM WATER POND	11.3	10	Chloride	59.8 J-	mg/L
L2281993	Gen Chem	EAST STORM WATER POND	11.3	10	Chromium VI (hexavalent)	0.00050 UJ	mg/L
L2281993	Gen Chem	EAST STORM WATER POND	11.3	10	Conductivity	787 J-	µmhos/cm
L2281993	Gen Chem	EAST STORM WATER POND	11.3	10	Cyanide (total)	0.0020 UJ	mg/L

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L2281993	Gen Chem	EAST STORM WATER POND	11.3	10	Dissolved organic carbon (DOC)	6.23 J-	mg/L
L2281993	Gen Chem	EAST STORM WATER POND	11.3	10	Fluoride	0.629 J-	mg/L
L2281993	Gen Chem	EAST STORM WATER POND	11.3	10	Nitrate (as N)	0.030 J-	mg/L
L2281993	Gen Chem	EAST STORM WATER POND	11.3	10	Nitrite (as N)	0.010 UJ	mg/L
L2281993	Gen Chem	EAST STORM WATER POND	11.3	10	pH, lab	7.81 J	s.u.
L2281993	Gen Chem	EAST STORM WATER POND	11.3	10	Phenolics (total)	0.0020 J-	mg/L
L2281993	Gen Chem	EAST STORM WATER POND	11.3	10	Phosphorus	0.0670 J-	mg/L
L2281993	Gen Chem	EAST STORM WATER POND	11.3	10	Sulfate	144 J-	mg/L
L2281993	Gen Chem	EAST STORM WATER POND	11.3	10	Total dissolved solids (TDS)	481 J-	mg/L
L2281993	Gen Chem	EAST STORM WATER POND	11.3	10	Total kjeldahl nitrogen (TKN)	2.85 J-	mg/L
L2281993	Gen Chem	EAST STORM WATER POND	11.3	10	Total suspended solids (TSS)	23.0 J-	mg/L
L2281993	Gen Chem	EAST STORM WATER POND	11.3	10	Un-ionized ammonia	0.0192 J-	mg/L
L2281993	SVOCs	EQ POND DISCHARGE	11.3	10	1,2,4-Trichlorobenzene	0.40 UJ	µg/L
L2281993	SVOCs	EQ POND DISCHARGE	11.3	10	1,2-Dichlorobenzene	0.40 UJ	µg/L
L2281993	SVOCs	EQ POND DISCHARGE	11.3	10	1,3-Dichlorobenzene	0.40 UJ	µg/L
L2281993	SVOCs	EQ POND DISCHARGE	11.3	10	1,4-Dichlorobenzene	0.40 UJ	µg/L
L2281993	SVOCs	EQ POND DISCHARGE	11.3	10	1-Methylnaphthalene	0.40 UJ	µg/L
L2281993	SVOCs	EQ POND DISCHARGE	11.3	10	2,3,4,5-Tetrachlorophenol	0.50 UJ	µg/L
L2281993	SVOCs	EQ POND DISCHARGE	11.3	10	2,3,4,6-Tetrachlorophenol	0.50 UJ	µg/L
L2281993	SVOCs	EQ POND DISCHARGE	11.3	10	2,3,6-Trichlorophenol	0.50 UJ	µg/L
L2281993	SVOCs	EQ POND DISCHARGE	11.3	10	2,4,5-Trichlorophenol	0.50 UJ	µg/L
L2281993	SVOCs	EQ POND DISCHARGE	11.3	10	2,4,6-Trichlorophenol	0.50 UJ	µg/L
L2281993	SVOCs	EQ POND DISCHARGE	11.3	10	2,4-Dichlorophenol	0.30 UJ	µg/L
L2281993	SVOCs	EQ POND DISCHARGE	11.3	10	2,4-Dimethylphenol	0.50 UJ	µg/L
L2281993	SVOCs	EQ POND DISCHARGE	11.3	10	2,4-Dinitrophenol	1.0 UJ	µg/L
L2281993	SVOCs	EQ POND DISCHARGE	11.3	10	2,4-Dinitrotoluene	0.40 UJ	µg/L
L2281993	SVOCs	EQ POND DISCHARGE	11.3	10	2,6-Dinitrotoluene	0.40 UJ	µg/L
L2281993	SVOCs	EQ POND DISCHARGE	11.3	10	2-Chlorophenol	0.30 UJ	µg/L
L2281993	SVOCs	EQ POND DISCHARGE	11.3	10	2-Methylnaphthalene	0.40 UJ	µg/L
L2281993	SVOCs	EQ POND DISCHARGE	11.3	10	3,3'-Dichlorobenzidine	0.40 UJ	µg/L
L2281993	SVOCs	EQ POND DISCHARGE	11.3	10	4-Chloroaniline	0.40 UJ	µg/L

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L2281993	SVOCs	EQ POND DISCHARGE	11.3	10	Acenaphthene	0.20 UJ	µg/L
L2281993	SVOCs	EQ POND DISCHARGE	11.3	10	Acenaphthylene	0.20 UJ	µg/L
L2281993	SVOCs	EQ POND DISCHARGE	11.3	10	Anthracene	0.20 UJ	µg/L
L2281993	SVOCs	EQ POND DISCHARGE	11.3	10	Benzo(a)anthracene	0.20 UJ	µg/L
L2281993	SVOCs	EQ POND DISCHARGE	11.3	10	Benzo(a)pyrene	0.050 UJ	µg/L
L2281993	SVOCs	EQ POND DISCHARGE	11.3	10	Benzo(b)fluoranthene	0.20 UJ	µg/L
L2281993	SVOCs	EQ POND DISCHARGE	11.3	10	Benzo(g,h,i)perylene	0.20 UJ	µg/L
L2281993	SVOCs	EQ POND DISCHARGE	11.3	10	Benzo(k)fluoranthene	0.20 UJ	µg/L
L2281993	SVOCs	EQ POND DISCHARGE	11.3	10	bis(2-Chloroethyl)ether	0.40 UJ	µg/L
L2281993	SVOCs	EQ POND DISCHARGE	11.3	10	bis(2-Ethylhexyl)phthalate (DEHP)	2.0 UJ	µg/L
L2281993	SVOCs	EQ POND DISCHARGE	11.3	10	Chrysene	0.20 UJ	µg/L
L2281993	SVOCs	EQ POND DISCHARGE	11.3	10	Dibenz(a,h)anthracene	0.20 UJ	µg/L
L2281993	SVOCs	EQ POND DISCHARGE	11.3	10	Diethyl phthalate	0.20 UJ	µg/L
L2281993	SVOCs	EQ POND DISCHARGE	11.3	10	Dimethyl phthalate	0.20 UJ	µg/L
L2281993	SVOCs	EQ POND DISCHARGE	11.3	10	Fluoranthene	0.20 UJ	µg/L
L2281993	SVOCs	EQ POND DISCHARGE	11.3	10	Fluorene	0.20 UJ	µg/L
L2281993	SVOCs	EQ POND DISCHARGE	11.3	10	Hexachlorobenzene	0.040 UJ	µg/L
L2281993	SVOCs	EQ POND DISCHARGE	11.3	10	Hexachlorobutadiene	0.20 UJ	µg/L
L2281993	SVOCs	EQ POND DISCHARGE	11.3	10	Indeno(1,2,3-cd)pyrene	0.20 UJ	µg/L
L2281993	SVOCs	EQ POND DISCHARGE	11.3	10	Naphthalene	0.20 UJ	µg/L
L2281993	SVOCs	EQ POND DISCHARGE	11.3	10	Pentachlorophenol	0.50 UJ	µg/L
L2281993	SVOCs	EQ POND DISCHARGE	11.3	10	Perylene	0.20 UJ	µg/L
L2281993	SVOCs	EQ POND DISCHARGE	11.3	10	Phenanthrene	0.20 UJ	µg/L
L2281993	SVOCs	EQ POND DISCHARGE	11.3	10	Pyrene	0.20 UJ	µg/L
L2281993	VOCs	EQ POND DISCHARGE	11.3	10	1,1,1,2-Tetrachloroethane	0.50 UJ	µg/L
L2281993	VOCs	EQ POND DISCHARGE	11.3	10	1,1,1-Trichloroethane	0.50 UJ	µg/L
L2281993	VOCs	EQ POND DISCHARGE	11.3	10	1,1,2,2-Tetrachloroethane	0.50 UJ	µg/L
L2281993	VOCs	EQ POND DISCHARGE	11.3	10	1,1,2-Trichloroethane	0.50 UJ	µg/L
L2281993	VOCs	EQ POND DISCHARGE	11.3	10	1,1-Dichloroethane	0.50 UJ	µg/L
L2281993	VOCs	EQ POND DISCHARGE	11.3	10	1,1-Dichloroethene	0.50 UJ	µg/L
L2281993	VOCs	EQ POND DISCHARGE	11.3	10	1,2-Dibromoethane (Ethylene dibromide)	0.20 UJ	µg/L

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L2281993	VOCs	EQ POND DISCHARGE	11.3	10	1,2-Dichlorobenzene	0.50 UJ	µg/L
L2281993	VOCs	EQ POND DISCHARGE	11.3	10	1,2-Dichloroethane	0.50 UJ	µg/L
L2281993	VOCs	EQ POND DISCHARGE	11.3	10	1,2-Dichloropropane	0.50 UJ	µg/L
L2281993	VOCs	EQ POND DISCHARGE	11.3	10	1,3-Dichlorobenzene	0.50 UJ	µg/L
L2281993	VOCs	EQ POND DISCHARGE	11.3	10	1,4-Dichlorobenzene	0.50 UJ	µg/L
L2281993	VOCs	EQ POND DISCHARGE	11.3	10	2-Butanone (Methyl ethyl ketone) (MEK)	20 UJ	µg/L
L2281993	VOCs	EQ POND DISCHARGE	11.3	10	4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	20 UJ	µg/L
L2281993	VOCs	EQ POND DISCHARGE	11.3	10	Acetone	20 UJ	µg/L
L2281993	VOCs	EQ POND DISCHARGE	11.3	10	Benzene	0.50 UJ	µg/L
L2281993	VOCs	EQ POND DISCHARGE	11.3	10	Bromodichloromethane	1.0 UJ	µg/L
L2281993	VOCs	EQ POND DISCHARGE	11.3	10	Bromoform	1.0 UJ	µg/L
L2281993	VOCs	EQ POND DISCHARGE	11.3	10	Bromomethane (Methyl bromide)	0.50 UJ	µg/L
L2281993	VOCs	EQ POND DISCHARGE	11.3	10	Carbon tetrachloride	0.50 UJ	µg/L
L2281993	VOCs	EQ POND DISCHARGE	11.3	10	Chlorobenzene	0.50 UJ	µg/L
L2281993	VOCs	EQ POND DISCHARGE	11.3	10	Chloroethane	1.0 UJ	µg/L
L2281993	VOCs	EQ POND DISCHARGE	11.3	10	Chloroform (Trichloromethane)	1.0 UJ	µg/L
L2281993	VOCs	EQ POND DISCHARGE	11.3	10	cis-1,2-Dichloroethene	0.50 UJ	µg/L
L2281993	VOCs	EQ POND DISCHARGE	11.3	10	cis-1,3-Dichloropropene	0.50 UJ	µg/L
L2281993	VOCs	EQ POND DISCHARGE	11.3	10	Dibromochloromethane	1.0 UJ	µg/L
L2281993	VOCs	EQ POND DISCHARGE	11.3	10	Dichlorodifluoromethane (CFC-12)	1.0 UJ	µg/L
L2281993	VOCs	EQ POND DISCHARGE	11.3	10	Ethylbenzene	0.50 UJ	µg/L
L2281993	VOCs	EQ POND DISCHARGE	11.3	10	Hexane	0.50 UJ	µg/L
L2281993	VOCs	EQ POND DISCHARGE	11.3	10	m&p-Xylenes	1.0 UJ	µg/L
L2281993	VOCs	EQ POND DISCHARGE	11.3	10	Methyl tert butyl ether (MTBE)	0.50 UJ	µg/L
L2281993	VOCs	EQ POND DISCHARGE	11.3	10	Methylene chloride	2.0 UJ	µg/L
L2281993	VOCs	EQ POND DISCHARGE	11.3	10	o-Xylene	0.50 UJ	µg/L
L2281993	VOCs	EQ POND DISCHARGE	11.3	10	Styrene	0.50 UJ	µg/L
L2281993	VOCs	EQ POND DISCHARGE	11.3	10	Tetrachloroethene	0.50 UJ	µg/L
L2281993	VOCs	EQ POND DISCHARGE	11.3	10	Toluene	0.50 UJ	µg/L
L2281993	VOCs	EQ POND DISCHARGE	11.3	10	trans-1,2-Dichloroethene	0.50 UJ	µg/L
L2281993	VOCs	EQ POND DISCHARGE	11.3	10	trans-1,3-Dichloropropene	0.50 UJ	µg/L
L2281993	VOCs	EQ POND DISCHARGE	11.3	10	Trichloroethene	0.50 UJ	µg/L

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L2281993	VOCs	EQ POND DISCHARGE	11.3	10	Trichlorofluoromethane (CFC-11)	1.0 UJ	µg/L
L2281993	VOCs	EQ POND DISCHARGE	11.3	10	Trihalomethanes	2.0 UJ	µg/L
L2281993	VOCs	EQ POND DISCHARGE	11.3	10	Vinyl chloride	0.50 UJ	µg/L
L2281993	VOCs	EQ POND DISCHARGE	11.3	10	Xylenes (total)	1.1 UJ	µg/L
L2281993	Gen Chem	EQ POND DISCHARGE	11.3	10	Alkalinity, total (as CaCO3)	157 J-	mg/L
L2281993	Gen Chem	EQ POND DISCHARGE	11.3	10	Ammonia-N	2.69 J-	mg/L
L2281993	Gen Chem	EQ POND DISCHARGE	11.3	10	Bromide	1.26 J-	mg/L
L2281993	Gen Chem	EQ POND DISCHARGE	11.3	10	Chemical oxygen demand (COD)	10 UJ	mg/L
L2281993	Gen Chem	EQ POND DISCHARGE	11.3	10	Chloride	60.8 J-	mg/L
L2281993	Gen Chem	EQ POND DISCHARGE	11.3	10	Chromium VI (hexavalent)	0.00050 UJ	mg/L
L2281993	Gen Chem	EQ POND DISCHARGE	11.3	10	Conductivity	765 J-	µmhos/cm
L2281993	Gen Chem	EQ POND DISCHARGE	11.3	10	Cyanide (total)	0.0020 UJ	mg/L
L2281993	Gen Chem	EQ POND DISCHARGE	11.3	10	Dissolved organic carbon (DOC)	5.00 J-	mg/L
L2281993	Gen Chem	EQ POND DISCHARGE	11.3	10	Fluoride	0.586 J-	mg/L
L2281993	Gen Chem	EQ POND DISCHARGE	11.3	10	Nitrate (as N)	0.073 J-	mg/L
L2281993	Gen Chem	EQ POND DISCHARGE	11.3	10	Nitrite (as N)	0.010 UJ	mg/L
L2281993	Gen Chem	EQ POND DISCHARGE	11.3	10	pH, lab	8.20 J	s.u.
L2281993	Gen Chem	EQ POND DISCHARGE	11.3	10	Phenolics (total)	0.0022 J-	mg/L
L2281993	Gen Chem	EQ POND DISCHARGE	11.3	10	Phosphorus	0.0201 J-	mg/L
L2281993	Gen Chem	EQ POND DISCHARGE	11.3	10	Sulfate	141 J-	mg/L
L2281993	Gen Chem	EQ POND DISCHARGE	11.3	10	Total dissolved solids (TDS)	451 J-	mg/L
L2281993	Gen Chem	EQ POND DISCHARGE	11.3	10	Total kjeldahl nitrogen (TKN)	3.03 J-	mg/L
L2281993	Gen Chem	EQ POND DISCHARGE	11.3	10	Total suspended solids (TSS)	2.6 J-	mg/L
L2281993	Gen Chem	EQ POND DISCHARGE	11.3	10	Un-ionized ammonia	0.0318 J-	mg/L
L2281993	SVOCs	WEST STORM WATER POND	11.3	10	1,2,4-Trichlorobenzene	0.40 UJ	µg/L
L2281993	SVOCs	WEST STORM WATER POND	11.3	10	1,2-Dichlorobenzene	0.40 UJ	µg/L
L2281993	SVOCs	WEST STORM WATER POND	11.3	10	1,3-Dichlorobenzene	0.40 UJ	µg/L
L2281993	SVOCs	WEST STORM WATER POND	11.3	10	1,4-Dichlorobenzene	0.40 UJ	µg/L
L2281993	SVOCs	WEST STORM WATER POND	11.3	10	1-Methylnaphthalene	0.40 UJ	µg/L
L2281993	SVOCs	WEST STORM WATER POND	11.3	10	2,3,4,5-Tetrachlorophenol	0.50 UJ	µg/L

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L2281993	SVOCs	WEST STORM WATER POND	11.3	10	2,3,4,6-Tetrachlorophenol	0.50 UJ	µg/L
L2281993	SVOCs	WEST STORM WATER POND	11.3	10	2,3,6-Trichlorophenol	0.50 UJ	µg/L
L2281993	SVOCs	WEST STORM WATER POND	11.3	10	2,4,5-Trichlorophenol	0.50 UJ	µg/L
L2281993	SVOCs	WEST STORM WATER POND	11.3	10	2,4,6-Trichlorophenol	0.50 UJ	µg/L
L2281993	SVOCs	WEST STORM WATER POND	11.3	10	2,4-Dichlorophenol	0.30 UJ	µg/L
L2281993	SVOCs	WEST STORM WATER POND	11.3	10	2,4-Dimethylphenol	0.50 UJ	µg/L
L2281993	SVOCs	WEST STORM WATER POND	11.3	10	2,4-Dinitrophenol	1.0 UJ	µg/L
L2281993	SVOCs	WEST STORM WATER POND	11.3	10	2,4-Dinitrotoluene	0.40 UJ	µg/L
L2281993	SVOCs	WEST STORM WATER POND	11.3	10	2,6-Dinitrotoluene	0.40 UJ	µg/L
L2281993	SVOCs	WEST STORM WATER POND	11.3	10	2-Chlorophenol	0.30 UJ	µg/L
L2281993	SVOCs	WEST STORM WATER POND	11.3	10	2-Methylnaphthalene	0.40 UJ	µg/L
L2281993	SVOCs	WEST STORM WATER POND	11.3	10	3,3'-Dichlorobenzidine	0.40 UJ	µg/L
L2281993	SVOCs	WEST STORM WATER POND	11.3	10	4-Chloroaniline	0.40 UJ	µg/L
L2281993	SVOCs	WEST STORM WATER POND	11.3	10	Acenaphthene	0.20 UJ	µg/L
L2281993	SVOCs	WEST STORM WATER POND	11.3	10	Acenaphthylene	0.20 UJ	µg/L
L2281993	SVOCs	WEST STORM WATER POND	11.3	10	Anthracene	0.20 UJ	µg/L
L2281993	SVOCs	WEST STORM WATER POND	11.3	10	Benzo(a)anthracene	0.20 UJ	µg/L
L2281993	SVOCs	WEST STORM WATER POND	11.3	10	Benzo(a)pyrene	0.050 UJ	µg/L
L2281993	SVOCs	WEST STORM WATER POND	11.3	10	Benzo(b)fluoranthene	0.20 UJ	µg/L
L2281993	SVOCs	WEST STORM WATER POND	11.3	10	Benzo(g,h,i)perylene	0.20 UJ	µg/L
L2281993	SVOCs	WEST STORM WATER POND	11.3	10	Benzo(k)fluoranthene	0.20 UJ	µg/L
L2281993	SVOCs	WEST STORM WATER POND	11.3	10	bis(2-Chloroethyl)ether	0.40 UJ	µg/L
L2281993	SVOCs	WEST STORM WATER POND	11.3	10	bis(2-Ethylhexyl)phthalate (DEHP)	2.0 UJ	µg/L
L2281993	SVOCs	WEST STORM WATER POND	11.3	10	Chrysene	0.20 UJ	µg/L
L2281993	SVOCs	WEST STORM WATER POND	11.3	10	Dibenz(a,h)anthracene	0.20 UJ	µg/L
L2281993	SVOCs	WEST STORM WATER POND	11.3	10	Diethyl phthalate	0.20 UJ	µg/L
L2281993	SVOCs	WEST STORM WATER POND	11.3	10	Dimethyl phthalate	0.20 UJ	µg/L
L2281993	SVOCs	WEST STORM WATER POND	11.3	10	Fluoranthene	0.20 UJ	µg/L
L2281993	SVOCs	WEST STORM WATER POND	11.3	10	Fluorene	0.20 UJ	µg/L
L2281993	SVOCs	WEST STORM WATER POND	11.3	10	Hexachlorobenzene	0.040 UJ	µg/L
L2281993	SVOCs	WEST STORM WATER POND	11.3	10	Hexachlorobutadiene	0.20 UJ	µg/L
L2281993	SVOCs	WEST STORM WATER POND	11.3	10	Indeno(1,2,3-cd)pyrene	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
L2281993	SVOCs	WEST STORM WATER POND	11.3	10	Naphthalene	0.20 UJ	µg/L
L2281993	SVOCs	WEST STORM WATER POND	11.3	10	Pentachlorophenol	0.50 UJ	µg/L
L2281993	SVOCs	WEST STORM WATER POND	11.3	10	Perylene	0.20 UJ	µg/L
L2281993	SVOCs	WEST STORM WATER POND	11.3	10	Phenanthrene	0.20 UJ	µg/L
L2281993	SVOCs	WEST STORM WATER POND	11.3	10	Pyrene	0.20 UJ	µg/L
L2281993	VOCs	WEST STORM WATER POND	11.3	10	1,1,1,2-Tetrachloroethane	0.50 UJ	µg/L
L2281993	VOCs	WEST STORM WATER POND	11.3	10	1,1,1-Trichloroethane	0.50 UJ	µg/L
L2281993	VOCs	WEST STORM WATER POND	11.3	10	1,1,2,2-Tetrachloroethane	0.50 UJ	µg/L
L2281993	VOCs	WEST STORM WATER POND	11.3	10	1,1,2-Trichloroethane	0.50 UJ	µg/L
L2281993	VOCs	WEST STORM WATER POND	11.3	10	1,1-Dichloroethane	0.50 UJ	µg/L
L2281993	VOCs	WEST STORM WATER POND	11.3	10	1,1-Dichloroethene	0.50 UJ	µg/L
L2281993	VOCs	WEST STORM WATER POND	11.3	10	1,2-Dibromoethane (Ethylene dibromide)	0.20 UJ	µg/L
L2281993	VOCs	WEST STORM WATER POND	11.3	10	1,2-Dichlorobenzene	0.50 UJ	µg/L
L2281993	VOCs	WEST STORM WATER POND	11.3	10	1,2-Dichloroethane	0.50 UJ	µg/L
L2281993	VOCs	WEST STORM WATER POND	11.3	10	1,2-Dichloropropane	0.50 UJ	µg/L
L2281993	VOCs	WEST STORM WATER POND	11.3	10	1,3-Dichlorobenzene	0.50 UJ	µg/L
L2281993	VOCs	WEST STORM WATER POND	11.3	10	1,4-Dichlorobenzene	0.50 UJ	µg/L
L2281993	VOCs	WEST STORM WATER POND	11.3	10	2-Butanone (Methyl ethyl ketone) (MEK)	20 UJ	µg/L
L2281993	VOCs	WEST STORM WATER POND	11.3	10	4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	20 UJ	µg/L
L2281993	VOCs	WEST STORM WATER POND	11.3	10	Acetone	20 UJ	µg/L
L2281993	VOCs	WEST STORM WATER POND	11.3	10	Benzene	0.50 UJ	µg/L
L2281993	VOCs	WEST STORM WATER POND	11.3	10	Bromodichloromethane	1.0 UJ	µg/L
L2281993	VOCs	WEST STORM WATER POND	11.3	10	Bromoform	1.0 UJ	µg/L
L2281993	VOCs	WEST STORM WATER POND	11.3	10	Bromomethane (Methyl bromide)	0.50 UJ	µg/L
L2281993	VOCs	WEST STORM WATER POND	11.3	10	Carbon tetrachloride	0.50 UJ	µg/L
L2281993	VOCs	WEST STORM WATER POND	11.3	10	Chlorobenzene	0.50 UJ	µg/L
L2281993	VOCs	WEST STORM WATER POND	11.3	10	Chloroethane	1.0 UJ	µg/L
L2281993	VOCs	WEST STORM WATER POND	11.3	10	Chloroform (Trichloromethane)	1.0 UJ	µg/L
L2281993	VOCs	WEST STORM WATER POND	11.3	10	cis-1,2-Dichloroethene	0.50 UJ	µg/L
L2281993	VOCs	WEST STORM WATER POND	11.3	10	cis-1,3-Dichloropropene	0.50 UJ	µg/L
L2281993	VOCs	WEST STORM WATER POND	11.3	10	Dibromochloromethane	1.0 UJ	µg/L
L2281993	VOCs	WEST STORM WATER POND	11.3	10	Dichlorodifluoromethane (CFC-12)	1.0 UJ	µg/L



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L2281993	VOCs	WEST STORM WATER POND	11.3	10	Ethylbenzene	0.50 UJ	µg/L
L2281993	VOCs	WEST STORM WATER POND	11.3	10	Hexane	0.50 UJ	µg/L
L2281993	VOCs	WEST STORM WATER POND	11.3	10	m&p-Xylenes	1.0 UJ	µg/L
L2281993	VOCs	WEST STORM WATER POND	11.3	10	Methyl tert butyl ether (MTBE)	0.50 UJ	µg/L
L2281993	VOCs	WEST STORM WATER POND	11.3	10	Methylene chloride	2.0 UJ	µg/L
L2281993	VOCs	WEST STORM WATER POND	11.3	10	o-Xylene	0.50 UJ	µg/L
L2281993	VOCs	WEST STORM WATER POND	11.3	10	Styrene	0.50 UJ	µg/L
L2281993	VOCs	WEST STORM WATER POND	11.3	10	Tetrachloroethene	0.50 UJ	µg/L
L2281993	VOCs	WEST STORM WATER POND	11.3	10	Toluene	0.50 UJ	µg/L
L2281993	VOCs	WEST STORM WATER POND	11.3	10	trans-1,2-Dichloroethene	0.50 UJ	µg/L
L2281993	VOCs	WEST STORM WATER POND	11.3	10	trans-1,3-Dichloropropene	0.50 UJ	µg/L
L2281993	VOCs	WEST STORM WATER POND	11.3	10	Trichloroethene	0.50 UJ	µg/L
L2281993	VOCs	WEST STORM WATER POND	11.3	10	Trichlorofluoromethane (CFC-11)	1.0 UJ	µg/L
L2281993	VOCs	WEST STORM WATER POND	11.3	10	Trihalomethanes	2.0 UJ	µg/L
L2281993	VOCs	WEST STORM WATER POND	11.3	10	Vinyl chloride	0.50 UJ	µg/L
L2281993	VOCs	WEST STORM WATER POND	11.3	10	Xylenes (total)	1.1 UJ	µg/L
L2281993	Gen Chem	WEST STORM WATER POND	11.3	10	Alkalinity, total (as CaCO3)	155 J-	µg/L
L2281993	Gen Chem	WEST STORM WATER POND	11.3	10	Ammonia-N	4.46 J-	µg/L
L2281993	Gen Chem	WEST STORM WATER POND	11.3	10	Bromide	3.32 J-	µg/L
L2281993	Gen Chem	WEST STORM WATER POND	11.3	10	Chemical oxygen demand (COD)	18 J-	µg/L
L2281993	Gen Chem	WEST STORM WATER POND	11.3	10	Chloride	81.8 J-	µg/L
L2281993	Gen Chem	WEST STORM WATER POND	11.3	10	Chromium VI (hexavalent)	0.00050 UJ	µg/L
L2281993	Gen Chem	WEST STORM WATER POND	11.3	10	Conductivity	810 J-	µg/L
L2281993	Gen Chem	WEST STORM WATER POND	11.3	10	Cyanide (total)	0.0020 UJ	µg/L
L2281993	Gen Chem	WEST STORM WATER POND	11.3	10	Dissolved organic carbon (DOC)	4.99 J-	µg/L
L2281993	Gen Chem	WEST STORM WATER POND	11.3	10	Fluoride	0.521 J-	µg/L
L2281993	Gen Chem	WEST STORM WATER POND	11.3	10	Nitrate (as N)	0.252 J-	µg/L
L2281993	Gen Chem	WEST STORM WATER POND	11.3	10	Nitrite (as N)	0.010 UJ	µg/L
L2281993	Gen Chem	WEST STORM WATER POND	11.3	10	pH, lab	8.10 J	µg/L
L2281993	Gen Chem	WEST STORM WATER POND	11.3	10	Phenolics (total)	0.0013 J-	µg/L
L2281993	Gen Chem	WEST STORM WATER POND	11.3	10	Phosphorus	0.0236 J-	µg/L

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L2281993	Gen Chem	WEST STORM WATER POND	11.3	10	Sulfate	125 J-	µg/L
L2281993	Gen Chem	WEST STORM WATER POND	11.3	10	Total dissolved solids (TDS)	484 J-	µg/L
L2281993	Gen Chem	WEST STORM WATER POND	11.3	10	Total kjeldahl nitrogen (TKN)	4.94 J-	µg/L
L2281993	Gen Chem	WEST STORM WATER POND	11.3	10	Total suspended solids (TSS)	5.6 J-	µg/L
L2281993	Gen Chem	WEST STORM WATER POND	11.3	10	Un-ionized ammonia	0.0481 J-	µg/L
L2310219	SVOCs	EAST STORM WATER POND	20.8	10	1,2,4-Trichlorobenzene	0.40 UJ	µg/L
L2310219	SVOCs	EAST STORM WATER POND	20.8	10	1,2-Dichlorobenzene	0.40 UJ	µg/L
L2310219	SVOCs	EAST STORM WATER POND	20.8	10	1,3-Dichlorobenzene	0.40 UJ	µg/L
L2310219	SVOCs	EAST STORM WATER POND	20.8	10	1,4-Dichlorobenzene	0.40 UJ	µg/L
L2310219	SVOCs	EAST STORM WATER POND	20.8	10	1-Methylnaphthalene	0.40 UJ	µg/L
L2310219	SVOCs	EAST STORM WATER POND	20.8	10	2,3,4,5-Tetrachlorophenol	0.50 UJ	µg/L
L2310219	SVOCs	EAST STORM WATER POND	20.8	10	2,3,4,6-Tetrachlorophenol	0.50 UJ	µg/L
L2310219	SVOCs	EAST STORM WATER POND	20.8	10	2,3,6-Trichlorophenol	0.50 UJ	µg/L
L2310219	SVOCs	EAST STORM WATER POND	20.8	10	2,4,5-Trichlorophenol	0.50 UJ	µg/L
L2310219	SVOCs	EAST STORM WATER POND	20.8	10	2,4,6-Trichlorophenol	0.50 UJ	µg/L
L2310219	SVOCs	EAST STORM WATER POND	20.8	10	2,4-Dichlorophenol	0.30 UJ	µg/L
L2310219	SVOCs	EAST STORM WATER POND	20.8	10	2,4-Dimethylphenol	0.50 UJ	µg/L
L2310219	SVOCs	EAST STORM WATER POND	20.8	10	2,4-Dinitrophenol	1.0 UJ	µg/L
L2310219	SVOCs	EAST STORM WATER POND	20.8	10	2,4-Dinitrotoluene	0.40 UJ	µg/L
L2310219	SVOCs	EAST STORM WATER POND	20.8	10	2,6-Dinitrotoluene	0.40 UJ	µg/L
L2310219	SVOCs	EAST STORM WATER POND	20.8	10	2-Chlorophenol	0.30 UJ	µg/L
L2310219	SVOCs	EAST STORM WATER POND	20.8	10	2-Methylnaphthalene	0.40 UJ	µg/L
L2310219	SVOCs	EAST STORM WATER POND	20.8	10	3,3'-Dichlorobenzidine	0.40 UJ	µg/L
L2310219	SVOCs	EAST STORM WATER POND	20.8	10	4-Chloroaniline	0.40 UJ	µg/L
L2310219	SVOCs	EAST STORM WATER POND	20.8	10	Acenaphthene	0.20 UJ	µg/L
L2310219	SVOCs	EAST STORM WATER POND	20.8	10	Acenaphthylene	0.20 UJ	µg/L
L2310219	SVOCs	EAST STORM WATER POND	20.8	10	Anthracene	0.20 UJ	µg/L
L2310219	SVOCs	EAST STORM WATER POND	20.8	10	Benzo(a)anthracene	0.20 UJ	µg/L
L2310219	SVOCs	EAST STORM WATER POND	20.8	10	Benzo(a)pyrene	0.050 UJ	µg/L
L2310219	SVOCs	EAST STORM WATER POND	20.8	10	Benzo(b)fluoranthene	0.20 UJ	µg/L
L2310219	SVOCs	EAST STORM WATER POND	20.8	10	Benzo(g,h,i)perylene	0.20 UJ	µg/L
L2310219	SVOCs	EAST STORM WATER POND	20.8	10	Benzo(k)fluoranthene	0.20 UJ	µg/L

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L2310219	SVOCs	EAST STORM WATER POND	20.8	10	bis(2-Chloroethyl)ether	0.40 UJ	µg/L
L2310219	SVOCs	EAST STORM WATER POND	20.8	10	bis(2-Ethylhexyl)phthalate (DEHP)	2.0 UJ	µg/L
L2310219	SVOCs	EAST STORM WATER POND	20.8	10	Chrysene	0.20 UJ	µg/L
L2310219	SVOCs	EAST STORM WATER POND	20.8	10	Dibenz(a,h)anthracene	0.20 UJ	µg/L
L2310219	SVOCs	EAST STORM WATER POND	20.8	10	Diethyl phthalate	0.20 UJ	µg/L
L2310219	SVOCs	EAST STORM WATER POND	20.8	10	Dimethyl phthalate	0.20 UJ	µg/L
L2310219	SVOCs	EAST STORM WATER POND	20.8	10	Fluoranthene	0.20 UJ	µg/L
L2310219	SVOCs	EAST STORM WATER POND	20.8	10	Fluorene	0.20 UJ	µg/L
L2310219	SVOCs	EAST STORM WATER POND	20.8	10	Hexachlorobenzene	0.040 UJ	µg/L
L2310219	SVOCs	EAST STORM WATER POND	20.8	10	Hexachlorobutadiene	0.20 UJ	µg/L
L2310219	SVOCs	EAST STORM WATER POND	20.8	10	Indeno(1,2,3-cd)pyrene	0.20 UJ	µg/L
L2310219	SVOCs	EAST STORM WATER POND	20.8	10	Naphthalene	0.20 UJ	µg/L
L2310219	SVOCs	EAST STORM WATER POND	20.8	10	Pentachlorophenol	0.50 UJ	µg/L
L2310219	SVOCs	EAST STORM WATER POND	20.8	10	Perylene	0.20 UJ	µg/L
L2310219	SVOCs	EAST STORM WATER POND	20.8	10	Phenanthrene	0.20 UJ	µg/L
L2310219	SVOCs	EAST STORM WATER POND	20.8	10	Pyrene	0.20 UJ	µg/L
L2310219	VOCs	EAST STORM WATER POND	20.8	10	1,1,1,2-Tetrachloroethane	0.50 UJ	µg/L
L2310219	VOCs	EAST STORM WATER POND	20.8	10	1,1,1-Trichloroethane	0.50 UJ	µg/L
L2310219	VOCs	EAST STORM WATER POND	20.8	10	1,1,2,2-Tetrachloroethane	0.50 UJ	µg/L
L2310219	VOCs	EAST STORM WATER POND	20.8	10	1,1,2-Trichloroethane	0.50 UJ	µg/L
L2310219	VOCs	EAST STORM WATER POND	20.8	10	1,1-Dichloroethane	0.50 UJ	µg/L
L2310219	VOCs	EAST STORM WATER POND	20.8	10	1,1-Dichloroethene	0.50 UJ	µg/L
L2310219	VOCs	EAST STORM WATER POND	20.8	10	1,2-Dibromoethane (Ethylene dibromide)	0.20 UJ	µg/L
L2310219	VOCs	EAST STORM WATER POND	20.8	10	1,2-Dichlorobenzene	0.50 UJ	µg/L
L2310219	VOCs	EAST STORM WATER POND	20.8	10	1,2-Dichloroethane	0.50 UJ	µg/L
L2310219	VOCs	EAST STORM WATER POND	20.8	10	1,2-Dichloropropane	0.50 UJ	µg/L
L2310219	VOCs	EAST STORM WATER POND	20.8	10	1,3-Dichlorobenzene	0.50 UJ	µg/L
L2310219	VOCs	EAST STORM WATER POND	20.8	10	1,4-Dichlorobenzene	0.50 UJ	µg/L
L2310219	VOCs	EAST STORM WATER POND	20.8	10	2-Butanone (Methyl ethyl ketone) (MEK)	20 UJ	µg/L
L2310219	VOCs	EAST STORM WATER POND	20.8	10	4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	20 UJ	µg/L
L2310219	VOCs	EAST STORM WATER POND	20.8	10	Acetone	20 UJ	µg/L

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L2310219	VOCs	EAST STORM WATER POND	20.8	10	Benzene	0.50 UJ	µg/L
L2310219	VOCs	EAST STORM WATER POND	20.8	10	Bromodichloromethane	1.0 UJ	µg/L
L2310219	VOCs	EAST STORM WATER POND	20.8	10	Bromoform	1.0 UJ	µg/L
L2310219	VOCs	EAST STORM WATER POND	20.8	10	Bromomethane (Methyl bromide)	0.50 UJ	µg/L
L2310219	VOCs	EAST STORM WATER POND	20.8	10	Carbon tetrachloride	0.50 UJ	µg/L
L2310219	VOCs	EAST STORM WATER POND	20.8	10	Chlorobenzene	0.50 UJ	µg/L
L2310219	VOCs	EAST STORM WATER POND	20.8	10	Chloroethane	1.0 UJ	µg/L
L2310219	VOCs	EAST STORM WATER POND	20.8	10	Chloroform (Trichloromethane)	1.0 UJ	µg/L
L2310219	VOCs	EAST STORM WATER POND	20.8	10	cis-1,2-Dichloroethene	0.50 UJ	µg/L
L2310219	VOCs	EAST STORM WATER POND	20.8	10	cis-1,3-Dichloropropene	0.50 UJ	µg/L
L2310219	VOCs	EAST STORM WATER POND	20.8	10	Dibromochloromethane	1.0 UJ	µg/L
L2310219	VOCs	EAST STORM WATER POND	20.8	10	Dichlorodifluoromethane (CFC-12)	1.0 UJ	µg/L
L2310219	VOCs	EAST STORM WATER POND	20.8	10	Ethylbenzene	0.50 UJ	µg/L
L2310219	VOCs	EAST STORM WATER POND	20.8	10	Hexane	0.50 UJ	µg/L
L2310219	VOCs	EAST STORM WATER POND	20.8	10	m&p-Xylenes	1.0 UJ	µg/L
L2310219	VOCs	EAST STORM WATER POND	20.8	10	Methyl tert butyl ether (MTBE)	0.50 UJ	µg/L
L2310219	VOCs	EAST STORM WATER POND	20.8	10	Methylene chloride	2.0 UJ	µg/L
L2310219	VOCs	EAST STORM WATER POND	20.8	10	o-Xylene	0.50 UJ	µg/L
L2310219	VOCs	EAST STORM WATER POND	20.8	10	Styrene	0.50 UJ	µg/L
L2310219	VOCs	EAST STORM WATER POND	20.8	10	Tetrachloroethene	0.50 UJ	µg/L
L2310219	VOCs	EAST STORM WATER POND	20.8	10	Toluene	0.50 UJ	µg/L
L2310219	VOCs	EAST STORM WATER POND	20.8	10	trans-1,2-Dichloroethene	0.50 UJ	µg/L
L2310219	VOCs	EAST STORM WATER POND	20.8	10	trans-1,3-Dichloropropene	0.50 UJ	µg/L
L2310219	VOCs	EAST STORM WATER POND	20.8	10	Trichloroethene	0.50 UJ	µg/L
L2310219	VOCs	EAST STORM WATER POND	20.8	10	Trichlorofluoromethane (CFC-11)	1.0 UJ	µg/L
L2310219	VOCs	EAST STORM WATER POND	20.8	10	Trihalomethanes	2.0 UJ	µg/L
L2310219	VOCs	EAST STORM WATER POND	20.8	10	Vinyl chloride	0.50 UJ	µg/L
L2310219	VOCs	EAST STORM WATER POND	20.8	10	Xylenes (total)	1.1 UJ	µg/L

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L2310219	Gen Chem	EAST STORM WATER POND	20.8	10	Alkalinity, total (as CaCO3)	176 J-	mg/L
L2310219	Gen Chem	EAST STORM WATER POND	20.8	10	Ammonia-N	0.10 UJ	mg/L
L2310219	Gen Chem	EAST STORM WATER POND	20.8	10	Bromide	1.85 J-	mg/L
L2310219	Gen Chem	EAST STORM WATER POND	20.8	10	Chemical oxygen demand (COD)	39 J-	mg/L
L2310219	Gen Chem	EAST STORM WATER POND	20.8	10	Chloride	75.6 J-	mg/L
L2310219	Gen Chem	EAST STORM WATER POND	20.8	10	Chromium VI (hexavalent)	0.00050 UJ	mg/L
L2310219	Gen Chem	EAST STORM WATER POND	20.8	10	Conductivity	782 J-	µmhos/cm
L2310219	Gen Chem	EAST STORM WATER POND	20.8	10	Cyanide (total)	0.0020 UJ	mg/L
L2310219	Gen Chem	EAST STORM WATER POND	20.8	10	Dissolved organic carbon (DOC)	7.27 J-	mg/L
L2310219	Gen Chem	EAST STORM WATER POND	20.8	10	Fluoride	0.655 J-	mg/L
L2310219	Gen Chem	EAST STORM WATER POND	20.8	10	Nitrate (as N)	0.020 UJ	mg/L
L2310219	Gen Chem	EAST STORM WATER POND	20.8	10	Nitrite (as N)	0.010 UJ	mg/L
L2310219	Gen Chem	EAST STORM WATER POND	20.8	10	pH, lab	7.85 J	s.u.
L2310219	Gen Chem	EAST STORM WATER POND	20.8	10	Phenolics (total)	0.0036 J-	mg/L
L2310219	Gen Chem	EAST STORM WATER POND	20.8	10	Phosphorus	0.0604 J-	mg/L
L2310219	Gen Chem	EAST STORM WATER POND	20.8	10	Sulfate	129 J-	mg/L
L2310219	Gen Chem	EAST STORM WATER POND	20.8	10	Total dissolved solids (TDS)	481 J-	mg/L
L2310219	Gen Chem	EAST STORM WATER POND	20.8	10	Total kjeldahl nitrogen (TKN)	0.92 J-	mg/L
L2310219	Gen Chem	EAST STORM WATER POND	20.8	10	Total suspended solids (TSS)	15.5 J-	mg/L
L2310219	Gen Chem	EAST STORM WATER POND	20.8	10	Un-ionized ammonia	0.0012 UJ	mg/L
L2310219	SVOCs	EQ POND DISCHARGE	20.8	10	1,2,4-Trichlorobenzene	0.40 UJ	µg/L
L2310219	SVOCs	EQ POND DISCHARGE	20.8	10	1,2-Dichlorobenzene	0.40 UJ	µg/L
L2310219	SVOCs	EQ POND DISCHARGE	20.8	10	1,3-Dichlorobenzene	0.40 UJ	µg/L
L2310219	SVOCs	EQ POND DISCHARGE	20.8	10	1,4-Dichlorobenzene	0.40 UJ	µg/L
L2310219	SVOCs	EQ POND DISCHARGE	20.8	10	1-Methylnaphthalene	0.40 UJ	µg/L
L2310219	SVOCs	EQ POND DISCHARGE	20.8	10	2,3,4,5-Tetrachlorophenol	0.50 UJ	µg/L
L2310219	SVOCs	EQ POND DISCHARGE	20.8	10	2,3,4,6-Tetrachlorophenol	0.50 UJ	µg/L
L2310219	SVOCs	EQ POND DISCHARGE	20.8	10	2,3,6-Trichlorophenol	0.50 UJ	µg/L
L2310219	SVOCs	EQ POND DISCHARGE	20.8	10	2,4,5-Trichlorophenol	0.50 UJ	µg/L
L2310219	SVOCs	EQ POND DISCHARGE	20.8	10	2,4,6-Trichlorophenol	0.50 UJ	µg/L
L2310219	SVOCs	EQ POND DISCHARGE	20.8	10	2,4-Dichlorophenol	0.30 UJ	µg/L
L2310219	SVOCs	EQ POND DISCHARGE	20.8	10	2,4-Dimethylphenol	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
L2310219	SVOCs	EQ POND DISCHARGE	20.8	10	2,4-Dinitrophenol	1.0 UJ	µg/L
L2310219	SVOCs	EQ POND DISCHARGE	20.8	10	2,4-Dinitrotoluene	0.40 UJ	µg/L
L2310219	SVOCs	EQ POND DISCHARGE	20.8	10	2,6-Dinitrotoluene	0.40 UJ	µg/L
L2310219	SVOCs	EQ POND DISCHARGE	20.8	10	2-Chlorophenol	0.30 UJ	µg/L
L2310219	SVOCs	EQ POND DISCHARGE	20.8	10	2-Methylnaphthalene	0.40 UJ	µg/L
L2310219	SVOCs	EQ POND DISCHARGE	20.8	10	3,3'-Dichlorobenzidine	0.40 UJ	µg/L
L2310219	SVOCs	EQ POND DISCHARGE	20.8	10	4-Chloroaniline	0.40 UJ	µg/L
L2310219	SVOCs	EQ POND DISCHARGE	20.8	10	Acenaphthene	0.20 UJ	µg/L
L2310219	SVOCs	EQ POND DISCHARGE	20.8	10	Acenaphthylene	0.20 UJ	µg/L
L2310219	SVOCs	EQ POND DISCHARGE	20.8	10	Anthracene	0.20 UJ	µg/L
L2310219	SVOCs	EQ POND DISCHARGE	20.8	10	Benzo(a)anthracene	0.20 UJ	µg/L
L2310219	SVOCs	EQ POND DISCHARGE	20.8	10	Benzo(a)pyrene	0.050 UJ	µg/L
L2310219	SVOCs	EQ POND DISCHARGE	20.8	10	Benzo(b)fluoranthene	0.20 UJ	µg/L
L2310219	SVOCs	EQ POND DISCHARGE	20.8	10	Benzo(g,h,i)perylene	0.20 UJ	µg/L
L2310219	SVOCs	EQ POND DISCHARGE	20.8	10	Benzo(k)fluoranthene	0.20 UJ	µg/L
L2310219	SVOCs	EQ POND DISCHARGE	20.8	10	bis(2-Chloroethyl)ether	0.40 UJ	µg/L
L2310219	SVOCs	EQ POND DISCHARGE	20.8	10	bis(2-Ethylhexyl)phthalate (DEHP)	2.0 UJ	µg/L
L2310219	SVOCs	EQ POND DISCHARGE	20.8	10	Chrysene	0.20 UJ	µg/L
L2310219	SVOCs	EQ POND DISCHARGE	20.8	10	Dibenz(a,h)anthracene	0.20 UJ	µg/L
L2310219	SVOCs	EQ POND DISCHARGE	20.8	10	Diethyl phthalate	0.20 UJ	µg/L
L2310219	SVOCs	EQ POND DISCHARGE	20.8	10	Dimethyl phthalate	0.20 UJ	µg/L
L2310219	SVOCs	EQ POND DISCHARGE	20.8	10	Fluoranthene	0.20 UJ	µg/L
L2310219	SVOCs	EQ POND DISCHARGE	20.8	10	Fluorene	0.20 UJ	µg/L
L2310219	SVOCs	EQ POND DISCHARGE	20.8	10	Hexachlorobenzene	0.040 UJ	µg/L
L2310219	SVOCs	EQ POND DISCHARGE	20.8	10	Hexachlorobutadiene	0.20 UJ	µg/L
L2310219	SVOCs	EQ POND DISCHARGE	20.8	10	Indeno(1,2,3-cd)pyrene	0.20 UJ	µg/L
L2310219	SVOCs	EQ POND DISCHARGE	20.8	10	Naphthalene	0.20 UJ	µg/L
L2310219	SVOCs	EQ POND DISCHARGE	20.8	10	Pentachlorophenol	0.50 UJ	µg/L
L2310219	SVOCs	EQ POND DISCHARGE	20.8	10	Perylene	0.20 UJ	µg/L
L2310219	SVOCs	EQ POND DISCHARGE	20.8	10	Phenanthrene	0.20 UJ	µg/L
L2310219	SVOCs	EQ POND DISCHARGE	20.8	10	Pyrene	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
L2310219	VOCs	EQ POND DISCHARGE	20.8	10	1,1,1,2-Tetrachloroethane	0.50 UJ	µg/L
L2310219	VOCs	EQ POND DISCHARGE	20.8	10	1,1,1-Trichloroethane	0.50 UJ	µg/L
L2310219	VOCs	EQ POND DISCHARGE	20.8	10	1,1,2,2-Tetrachloroethane	0.50 UJ	µg/L
L2310219	VOCs	EQ POND DISCHARGE	20.8	10	1,1,2-Trichloroethane	0.50 UJ	µg/L
L2310219	VOCs	EQ POND DISCHARGE	20.8	10	1,1-Dichloroethane	0.50 UJ	µg/L
L2310219	VOCs	EQ POND DISCHARGE	20.8	10	1,1-Dichloroethene	0.50 UJ	µg/L
L2310219	VOCs	EQ POND DISCHARGE	20.8	10	1,2-Dibromoethane (Ethylene dibromide)	0.20 UJ	µg/L
L2310219	VOCs	EQ POND DISCHARGE	20.8	10	1,2-Dichlorobenzene	0.50 UJ	µg/L
L2310219	VOCs	EQ POND DISCHARGE	20.8	10	1,2-Dichloroethane	0.50 UJ	µg/L
L2310219	VOCs	EQ POND DISCHARGE	20.8	10	1,2-Dichloropropane	0.50 UJ	µg/L
L2310219	VOCs	EQ POND DISCHARGE	20.8	10	1,3-Dichlorobenzene	0.50 UJ	µg/L
L2310219	VOCs	EQ POND DISCHARGE	20.8	10	1,4-Dichlorobenzene	0.50 UJ	µg/L
L2310219	VOCs	EQ POND DISCHARGE	20.8	10	2-Butanone (Methyl ethyl ketone) (MEK)	20 UJ	µg/L
L2310219	VOCs	EQ POND DISCHARGE	20.8	10	4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	20 UJ	µg/L
L2310219	VOCs	EQ POND DISCHARGE	20.8	10	Acetone	20 UJ	µg/L
L2310219	VOCs	EQ POND DISCHARGE	20.8	10	Benzene	0.50 UJ	µg/L
L2310219	VOCs	EQ POND DISCHARGE	20.8	10	Bromodichloromethane	1.0 UJ	µg/L
L2310219	VOCs	EQ POND DISCHARGE	20.8	10	Bromoform	1.0 UJ	µg/L
L2310219	VOCs	EQ POND DISCHARGE	20.8	10	Bromomethane (Methyl bromide)	0.50 UJ	µg/L
L2310219	VOCs	EQ POND DISCHARGE	20.8	10	Carbon tetrachloride	0.50 UJ	µg/L
L2310219	VOCs	EQ POND DISCHARGE	20.8	10	Chlorobenzene	0.50 UJ	µg/L
L2310219	VOCs	EQ POND DISCHARGE	20.8	10	Chloroethane	1.0 UJ	µg/L
L2310219	VOCs	EQ POND DISCHARGE	20.8	10	Chloroform (Trichloromethane)	1.0 UJ	µg/L
L2310219	VOCs	EQ POND DISCHARGE	20.8	10	cis-1,2-Dichloroethene	0.50 UJ	µg/L
L2310219	VOCs	EQ POND DISCHARGE	20.8	10	cis-1,3-Dichloropropene	0.50 UJ	µg/L
L2310219	VOCs	EQ POND DISCHARGE	20.8	10	Dibromochloromethane	1.0 UJ	µg/L
L2310219	VOCs	EQ POND DISCHARGE	20.8	10	Dichlorodifluoromethane (CFC-12)	1.0 UJ	µg/L
L2310219	VOCs	EQ POND DISCHARGE	20.8	10	Ethylbenzene	0.50 UJ	µg/L
L2310219	VOCs	EQ POND DISCHARGE	20.8	10	Hexane	0.50 UJ	µg/L
L2310219	VOCs	EQ POND DISCHARGE	20.8	10	m&p-Xylenes	1.0 UJ	µg/L
L2310219	VOCs	EQ POND DISCHARGE	20.8	10	Methyl tert butyl ether (MTBE)	0.50 UJ	µg/L
L2310219	VOCs	EQ POND DISCHARGE	20.8	10	Methylene chloride	2.0 UJ	µg/L

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L2310219	VOCs	EQ POND DISCHARGE	20.8	10	o-Xylene	0.50 UJ	µg/L
L2310219	VOCs	EQ POND DISCHARGE	20.8	10	Styrene	0.50 UJ	µg/L
L2310219	VOCs	EQ POND DISCHARGE	20.8	10	Tetrachloroethene	0.50 UJ	µg/L
L2310219	VOCs	EQ POND DISCHARGE	20.8	10	Toluene	0.50 UJ	µg/L
L2310219	VOCs	EQ POND DISCHARGE	20.8	10	trans-1,2-Dichloroethene	0.50 UJ	µg/L
L2310219	VOCs	EQ POND DISCHARGE	20.8	10	trans-1,3-Dichloropropene	0.50 UJ	µg/L
L2310219	VOCs	EQ POND DISCHARGE	20.8	10	Trichloroethene	0.50 UJ	µg/L
L2310219	VOCs	EQ POND DISCHARGE	20.8	10	Trichlorofluoromethane (CFC-11)	1.0 UJ	µg/L
L2310219	VOCs	EQ POND DISCHARGE	20.8	10	Trihalomethanes	2.0 UJ	µg/L
L2310219	VOCs	EQ POND DISCHARGE	20.8	10	Vinyl chloride	0.50 UJ	µg/L
L2310219	VOCs	EQ POND DISCHARGE	20.8	10	Xylenes (total)	1.1 UJ	µg/L
L2310219	Gen Chem	EQ POND DISCHARGE	20.8	10	Alkalinity, total (as CaCO <sub>3</sub> )	134 J-	mg/L
L2310219	Gen Chem	EQ POND DISCHARGE	20.8	10	Ammonia-N	0.20 J-	mg/L
L2310219	Gen Chem	EQ POND DISCHARGE	20.8	10	Bromide	2.78 J-	mg/L
L2310219	Gen Chem	EQ POND DISCHARGE	20.8	10	Chemical oxygen demand (COD)	18 J-	mg/L
L2310219	Gen Chem	EQ POND DISCHARGE	20.8	10	Chloride	74.4 J-	mg/L
L2310219	Gen Chem	EQ POND DISCHARGE	20.8	10	Chromium VI (hexavalent)	0.00050 UJ	mg/L
L2310219	Gen Chem	EQ POND DISCHARGE	20.8	10	Conductivity	720 J-	µmhos/cm
L2310219	Gen Chem	EQ POND DISCHARGE	20.8	10	Cyanide (total)	0.0020 UJ	mg/L
L2310219	Gen Chem	EQ POND DISCHARGE	20.8	10	Dissolved organic carbon (DOC)	4.90 J-	mg/L
L2310219	Gen Chem	EQ POND DISCHARGE	20.8	10	Fluoride	0.584 J-	mg/L
L2310219	Gen Chem	EQ POND DISCHARGE	20.8	10	Nitrate (as N)	0.020 UJ	mg/L
L2310219	Gen Chem	EQ POND DISCHARGE	20.8	10	Nitrite (as N)	0.010 UJ	mg/L
L2310219	Gen Chem	EQ POND DISCHARGE	20.8	10	pH, lab	8.43 J	s.u.
L2310219	Gen Chem	EQ POND DISCHARGE	20.8	10	Phenolics (total)	0.0055 J-	mg/L
L2310219	Gen Chem	EQ POND DISCHARGE	20.8	10	Phosphorus	0.0136 J-	mg/L
L2310219	Gen Chem	EQ POND DISCHARGE	20.8	10	Sulfate	130 J-	mg/L
L2310219	Gen Chem	EQ POND DISCHARGE	20.8	10	Total dissolved solids (TDS)	449 J-	mg/L
L2310219	Gen Chem	EQ POND DISCHARGE	20.8	10	Total kjeldahl nitrogen (TKN)	0.46 J-	mg/L
L2310219	Gen Chem	EQ POND DISCHARGE	20.8	10	Total suspended solids (TSS)	3.7 J-	mg/L
L2310219	Gen Chem	EQ POND DISCHARGE	20.8	10	Un-ionized ammonia	0.020 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
L2310219	SVOCs	WEST STORM WATER POND	20.8	10	1,2,4-Trichlorobenzene	0.40 UJ	µg/L
L2310219	SVOCs	WEST STORM WATER POND	20.8	10	1,2-Dichlorobenzene	0.40 UJ	µg/L
L2310219	SVOCs	WEST STORM WATER POND	20.8	10	1,3-Dichlorobenzene	0.40 UJ	µg/L
L2310219	SVOCs	WEST STORM WATER POND	20.8	10	1,4-Dichlorobenzene	0.40 UJ	µg/L
L2310219	SVOCs	WEST STORM WATER POND	20.8	10	1-Methylnaphthalene	0.40 UJ	µg/L
L2310219	SVOCs	WEST STORM WATER POND	20.8	10	2,3,4,5-Tetrachlorophenol	0.50 UJ	µg/L
L2310219	SVOCs	WEST STORM WATER POND	20.8	10	2,3,4,6-Tetrachlorophenol	0.50 UJ	µg/L
L2310219	SVOCs	WEST STORM WATER POND	20.8	10	2,3,6-Trichlorophenol	0.50 UJ	µg/L
L2310219	SVOCs	WEST STORM WATER POND	20.8	10	2,4,5-Trichlorophenol	0.50 UJ	µg/L
L2310219	SVOCs	WEST STORM WATER POND	20.8	10	2,4,6-Trichlorophenol	0.50 UJ	µg/L
L2310219	SVOCs	WEST STORM WATER POND	20.8	10	2,4-Dichlorophenol	0.30 UJ	µg/L
L2310219	SVOCs	WEST STORM WATER POND	20.8	10	2,4-Dimethylphenol	0.50 UJ	µg/L
L2310219	SVOCs	WEST STORM WATER POND	20.8	10	2,4-Dinitrophenol	1.0 UJ	µg/L
L2310219	SVOCs	WEST STORM WATER POND	20.8	10	2,4-Dinitrotoluene	0.40 UJ	µg/L
L2310219	SVOCs	WEST STORM WATER POND	20.8	10	2,6-Dinitrotoluene	0.40 UJ	µg/L
L2310219	SVOCs	WEST STORM WATER POND	20.8	10	2-Chlorophenol	0.30 UJ	µg/L
L2310219	SVOCs	WEST STORM WATER POND	20.8	10	2-Methylnaphthalene	0.40 UJ	µg/L
L2310219	SVOCs	WEST STORM WATER POND	20.8	10	3,3'-Dichlorobenzidine	0.40 UJ	µg/L
L2310219	SVOCs	WEST STORM WATER POND	20.8	10	4-Chloroaniline	0.40 UJ	µg/L
L2310219	SVOCs	WEST STORM WATER POND	20.8	10	Acenaphthene	0.20 UJ	µg/L
L2310219	SVOCs	WEST STORM WATER POND	20.8	10	Acenaphthylene	0.20 UJ	µg/L
L2310219	SVOCs	WEST STORM WATER POND	20.8	10	Anthracene	0.20 UJ	µg/L
L2310219	SVOCs	WEST STORM WATER POND	20.8	10	Benzo(a)anthracene	0.20 UJ	µg/L
L2310219	SVOCs	WEST STORM WATER POND	20.8	10	Benzo(a)pyrene	0.050 UJ	µg/L
L2310219	SVOCs	WEST STORM WATER POND	20.8	10	Benzo(b)fluoranthene	0.20 UJ	µg/L
L2310219	SVOCs	WEST STORM WATER POND	20.8	10	Benzo(g,h,i)perylene	0.20 UJ	µg/L
L2310219	SVOCs	WEST STORM WATER POND	20.8	10	Benzo(k)fluoranthene	0.20 UJ	µg/L
L2310219	SVOCs	WEST STORM WATER POND	20.8	10	bis(2-Chloroethyl)ether	0.40 UJ	µg/L
L2310219	SVOCs	WEST STORM WATER POND	20.8	10	bis(2-Ethylhexyl)phthalate (DEHP)	2.0 UJ	µg/L
L2310219	SVOCs	WEST STORM WATER POND	20.8	10	Chrysene	0.20 UJ	µg/L
L2310219	SVOCs	WEST STORM WATER POND	20.8	10	Dibenz(a,h)anthracene	0.20 UJ	µg/L
L2310219	SVOCs	WEST STORM WATER POND	20.8	10	Diethyl phthalate	0.20 UJ	µg/L

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L2310219	SVOCs	WEST STORM WATER POND	20.8	10	Dimethyl phthalate	0.20 UJ	µg/L
L2310219	SVOCs	WEST STORM WATER POND	20.8	10	Fluoranthene	0.20 UJ	µg/L
L2310219	SVOCs	WEST STORM WATER POND	20.8	10	Fluorene	0.20 UJ	µg/L
L2310219	SVOCs	WEST STORM WATER POND	20.8	10	Hexachlorobenzene	0.040 UJ	µg/L
L2310219	SVOCs	WEST STORM WATER POND	20.8	10	Hexachlorobutadiene	0.20 UJ	µg/L
L2310219	SVOCs	WEST STORM WATER POND	20.8	10	Indeno(1,2,3-cd)pyrene	0.20 UJ	µg/L
L2310219	SVOCs	WEST STORM WATER POND	20.8	10	Naphthalene	0.20 UJ	µg/L
L2310219	SVOCs	WEST STORM WATER POND	20.8	10	Pentachlorophenol	0.50 UJ	µg/L
L2310219	SVOCs	WEST STORM WATER POND	20.8	10	Perylene	0.20 UJ	µg/L
L2310219	SVOCs	WEST STORM WATER POND	20.8	10	Phenanthrene	0.20 UJ	µg/L
L2310219	SVOCs	WEST STORM WATER POND	20.8	10	Pyrene	0.20 UJ	µg/L
L2310219	VOCs	WEST STORM WATER POND	20.8	10	1,1,1,2-Tetrachloroethane	0.50 UJ	µg/L
L2310219	VOCs	WEST STORM WATER POND	20.8	10	1,1,1-Trichloroethane	0.50 UJ	µg/L
L2310219	VOCs	WEST STORM WATER POND	20.8	10	1,1,2,2-Tetrachloroethane	0.50 UJ	µg/L
L2310219	VOCs	WEST STORM WATER POND	20.8	10	1,1,2-Trichloroethane	0.50 UJ	µg/L
L2310219	VOCs	WEST STORM WATER POND	20.8	10	1,1-Dichloroethane	0.50 UJ	µg/L
L2310219	VOCs	WEST STORM WATER POND	20.8	10	1,1-Dichloroethene	0.50 UJ	µg/L
L2310219	VOCs	WEST STORM WATER POND	20.8	10	1,2-Dibromoethane (Ethylene dibromide)	0.20 UJ	µg/L
L2310219	VOCs	WEST STORM WATER POND	20.8	10	1,2-Dichlorobenzene	0.50 UJ	µg/L
L2310219	VOCs	WEST STORM WATER POND	20.8	10	1,2-Dichloroethane	0.50 UJ	µg/L
L2310219	VOCs	WEST STORM WATER POND	20.8	10	1,2-Dichloropropane	0.50 UJ	µg/L
L2310219	VOCs	WEST STORM WATER POND	20.8	10	1,3-Dichlorobenzene	0.50 UJ	µg/L
L2310219	VOCs	WEST STORM WATER POND	20.8	10	1,4-Dichlorobenzene	0.50 UJ	µg/L
L2310219	VOCs	WEST STORM WATER POND	20.8	10	2-Butanone (Methyl ethyl ketone) (MEK)	20 UJ	µg/L
L2310219	VOCs	WEST STORM WATER POND	20.8	10	4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	20 UJ	µg/L
L2310219	VOCs	WEST STORM WATER POND	20.8	10	Acetone	20 UJ	µg/L
L2310219	VOCs	WEST STORM WATER POND	20.8	10	Benzene	0.50 UJ	µg/L
L2310219	VOCs	WEST STORM WATER POND	20.8	10	Bromodichloromethane	1.0 UJ	µg/L
L2310219	VOCs	WEST STORM WATER POND	20.8	10	Bromoform	1.0 UJ	µg/L
L2310219	VOCs	WEST STORM WATER POND	20.8	10	Bromomethane (Methyl bromide)	0.50 UJ	µg/L
L2310219	VOCs	WEST STORM WATER POND	20.8	10	Carbon tetrachloride	0.50 UJ	µg/L

Table 4

**Qualified Sample Data Due To Insufficient Sample Preservation - Temperature  
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Clean Harbors Canada Inc.  
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Lab Report #	Parameter	Associated Sample ID	Temp. Upon Receipt at Laboratory (°C)	Required Temperature (°C)	Analyte	Qualified Result	Units
L2310219	VOCs	WEST STORM WATER POND	20.8	10	Chlorobenzene	0.50 UJ	µg/L
L2310219	VOCs	WEST STORM WATER POND	20.8	10	Chloroethane	1.0 UJ	µg/L
L2310219	VOCs	WEST STORM WATER POND	20.8	10	Chloroform (Trichloromethane)	1.0 UJ	µg/L
L2310219	VOCs	WEST STORM WATER POND	20.8	10	cis-1,2-Dichloroethene	0.50 UJ	µg/L
L2310219	VOCs	WEST STORM WATER POND	20.8	10	cis-1,3-Dichloropropene	0.50 UJ	µg/L
L2310219	VOCs	WEST STORM WATER POND	20.8	10	Dibromochloromethane	1.0 UJ	µg/L
L2310219	VOCs	WEST STORM WATER POND	20.8	10	Dichlorodifluoromethane (CFC-12)	1.0 UJ	µg/L
L2310219	VOCs	WEST STORM WATER POND	20.8	10	Ethylbenzene	0.50 UJ	µg/L
L2310219	VOCs	WEST STORM WATER POND	20.8	10	Hexane	0.50 UJ	µg/L
L2310219	VOCs	WEST STORM WATER POND	20.8	10	m&p-Xylenes	1.0 UJ	µg/L
L2310219	VOCs	WEST STORM WATER POND	20.8	10	Methyl tert butyl ether (MTBE)	0.50 UJ	µg/L
L2310219	VOCs	WEST STORM WATER POND	20.8	10	Methylene chloride	2.0 UJ	µg/L
L2310219	VOCs	WEST STORM WATER POND	20.8	10	o-Xylene	0.50 UJ	µg/L
L2310219	VOCs	WEST STORM WATER POND	20.8	10	Styrene	0.50 UJ	µg/L
L2310219	VOCs	WEST STORM WATER POND	20.8	10	Tetrachloroethene	0.50 UJ	µg/L
L2310219	VOCs	WEST STORM WATER POND	20.8	10	Toluene	0.50 UJ	µg/L
L2310219	VOCs	WEST STORM WATER POND	20.8	10	trans-1,2-Dichloroethene	0.50 UJ	µg/L
L2310219	VOCs	WEST STORM WATER POND	20.8	10	trans-1,3-Dichloropropene	0.50 UJ	µg/L
L2310219	VOCs	WEST STORM WATER POND	20.8	10	Trichloroethene	0.50 UJ	µg/L
L2310219	VOCs	WEST STORM WATER POND	20.8	10	Trichlorofluoromethane (CFC-11)	1.0 UJ	µg/L
L2310219	VOCs	WEST STORM WATER POND	20.8	10	Trihalomethanes	2.0 UJ	µg/L
L2310219	VOCs	WEST STORM WATER POND	20.8	10	Vinyl chloride	0.50 UJ	µg/L
L2310219	VOCs	WEST STORM WATER POND	20.8	10	Xylenes (total)	1.1 UJ	µg/L
L2310219	Gen Chem	WEST STORM WATER POND	20.8	10	Alkalinity, total (as CaCO3)	177 J-	mg/L
L2310219	Gen Chem	WEST STORM WATER POND	20.8	10	Ammonia-N	0.15 J-	mg/L
L2310219	Gen Chem	WEST STORM WATER POND	20.8	10	Bromide	2.50 J-	mg/L
L2310219	Gen Chem	WEST STORM WATER POND	20.8	10	Chemical oxygen demand (COD)	24 J-	mg/L
L2310219	Gen Chem	WEST STORM WATER POND	20.8	10	Chloride	69.3 J-	mg/L
L2310219	Gen Chem	WEST STORM WATER POND	20.8	10	Chromium VI (hexavalent)	0.00050 UJ	mg/L
L2310219	Gen Chem	WEST STORM WATER POND	20.8	10	Conductivity	756 J-	µmhos/cm
L2310219	Gen Chem	WEST STORM WATER POND	20.8	10	Cyanide (total)	0.0020 UJ	mg/L

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L2310219	Gen Chem	WEST STORM WATER POND	20.8	10	Dissolved organic carbon (DOC)	6.04 J-	mg/L
L2310219	Gen Chem	WEST STORM WATER POND	20.8	10	Fluoride	0.536 J-	mg/L
L2310219	Gen Chem	WEST STORM WATER POND	20.8	10	Nitrate (as N)	0.020 UJ	mg/L
L2310219	Gen Chem	WEST STORM WATER POND	20.8	10	Nitrite (as N)	0.010 UJ	mg/L
L2310219	Gen Chem	WEST STORM WATER POND	20.8	10	pH, lab	8.06 J	s.u.
L2310219	Gen Chem	WEST STORM WATER POND	20.8	10	Phenolics (total)	0.0060 J-	mg/L
L2310219	Gen Chem	WEST STORM WATER POND	20.8	10	Phosphorus	0.0224 J-	mg/L
L2310219	Gen Chem	WEST STORM WATER POND	20.8	10	Sulfate	124 J-	mg/L
L2310219	Gen Chem	WEST STORM WATER POND	20.8	10	Total dissolved solids (TDS)	470 J-	mg/L
L2310219	Gen Chem	WEST STORM WATER POND	20.8	10	Total kjeldahl nitrogen (TKN)	0.97 J-	mg/L
L2310219	Gen Chem	WEST STORM WATER POND	20.8	10	Total suspended solids (TSS)	7.6 J-	mg/L
L2310219	Gen Chem	WEST STORM WATER POND	20.8	10	Un-ionized ammonia	0.0037 J-	mg/L
L2333790	SVOCs	EAST STORM WATER POND	18.9	10	1,2,4-Trichlorobenzene	0.40 UJ	µg/L
L2333790	SVOCs	EAST STORM WATER POND	18.9	10	1,2-Dichlorobenzene	0.40 UJ	µg/L
L2333790	SVOCs	EAST STORM WATER POND	18.9	10	1,3-Dichlorobenzene	0.40 UJ	µg/L
L2333790	SVOCs	EAST STORM WATER POND	18.9	10	1,4-Dichlorobenzene	0.40 UJ	µg/L
L2333790	SVOCs	EAST STORM WATER POND	18.9	10	1-Methylnaphthalene	0.40 UJ	µg/L
L2333790	SVOCs	EAST STORM WATER POND	18.9	10	2,3,4,5-Tetrachlorophenol	0.50 UJ	µg/L
L2333790	SVOCs	EAST STORM WATER POND	18.9	10	2,3,4,6-Tetrachlorophenol	0.50 UJ	µg/L
L2333790	SVOCs	EAST STORM WATER POND	18.9	10	2,3,6-Trichlorophenol	0.50 UJ	µg/L
L2333790	SVOCs	EAST STORM WATER POND	18.9	10	2,4,5-Trichlorophenol	0.50 UJ	µg/L
L2333790	SVOCs	EAST STORM WATER POND	18.9	10	2,4,6-Trichlorophenol	0.50 UJ	µg/L
L2333790	SVOCs	EAST STORM WATER POND	18.9	10	2,4-Dichlorophenol	0.30 UJ	µg/L
L2333790	SVOCs	EAST STORM WATER POND	18.9	10	2,4-Dimethylphenol	0.50 UJ	µg/L
L2333790	SVOCs	EAST STORM WATER POND	18.9	10	2,4-Dinitrophenol	1.2 UJ	µg/L
L2333790	SVOCs	EAST STORM WATER POND	18.9	10	2,4-Dinitrotoluene	0.40 UJ	µg/L
L2333790	SVOCs	EAST STORM WATER POND	18.9	10	2,6-Dinitrotoluene	0.40 UJ	µg/L
L2333790	SVOCs	EAST STORM WATER POND	18.9	10	2-Chlorophenol	0.30 UJ	µg/L
L2333790	SVOCs	EAST STORM WATER POND	18.9	10	2-Methylnaphthalene	0.40 UJ	µg/L
L2333790	SVOCs	EAST STORM WATER POND	18.9	10	3,3'-Dichlorobenzidine	0.40 UJ	µg/L
L2333790	SVOCs	EAST STORM WATER POND	18.9	10	4-Chloroaniline	0.40 UJ	µg/L

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L2333790	SVOCs	EAST STORM WATER POND	18.9	10	Acenaphthene	0.20 UJ	µg/L
L2333790	SVOCs	EAST STORM WATER POND	18.9	10	Acenaphthylene	0.20 UJ	µg/L
L2333790	SVOCs	EAST STORM WATER POND	18.9	10	Anthracene	0.20 UJ	µg/L
L2333790	SVOCs	EAST STORM WATER POND	18.9	10	Benzo(a)anthracene	0.20 UJ	µg/L
L2333790	SVOCs	EAST STORM WATER POND	18.9	10	Benzo(a)pyrene	0.050 UJ	µg/L
L2333790	SVOCs	EAST STORM WATER POND	18.9	10	Benzo(b)fluoranthene	0.20 UJ	µg/L
L2333790	SVOCs	EAST STORM WATER POND	18.9	10	Benzo(g,h,i)perylene	0.20 UJ	µg/L
L2333790	SVOCs	EAST STORM WATER POND	18.9	10	Benzo(k)fluoranthene	0.20 UJ	µg/L
L2333790	SVOCs	EAST STORM WATER POND	18.9	10	bis(2-Chloroethyl)ether	0.40 UJ	µg/L
L2333790	SVOCs	EAST STORM WATER POND	18.9	10	bis(2-Ethylhexyl)phthalate (DEHP)	2.0 UJ	µg/L
L2333790	SVOCs	EAST STORM WATER POND	18.9	10	Chrysene	0.20 UJ	µg/L
L2333790	SVOCs	EAST STORM WATER POND	18.9	10	Dibenz(a,h)anthracene	0.20 UJ	µg/L
L2333790	SVOCs	EAST STORM WATER POND	18.9	10	Diethyl phthalate	0.20 UJ	µg/L
L2333790	SVOCs	EAST STORM WATER POND	18.9	10	Dimethyl phthalate	0.28 J-	µg/L
L2333790	SVOCs	EAST STORM WATER POND	18.9	10	Fluoranthene	0.20 UJ	µg/L
L2333790	SVOCs	EAST STORM WATER POND	18.9	10	Fluorene	0.20 UJ	µg/L
L2333790	SVOCs	EAST STORM WATER POND	18.9	10	Hexachlorobenzene	0.040 UJ	µg/L
L2333790	SVOCs	EAST STORM WATER POND	18.9	10	Hexachlorobutadiene	0.20 UJ	µg/L
L2333790	SVOCs	EAST STORM WATER POND	18.9	10	Indeno(1,2,3-cd)pyrene	0.20 UJ	µg/L
L2333790	SVOCs	EAST STORM WATER POND	18.9	10	Naphthalene	0.20 UJ	µg/L
L2333790	SVOCs	EAST STORM WATER POND	18.9	10	Pentachlorophenol	0.50 UJ	µg/L
L2333790	SVOCs	EAST STORM WATER POND	18.9	10	Perylene	0.20 UJ	µg/L
L2333790	SVOCs	EAST STORM WATER POND	18.9	10	Phenanthrene	0.20 UJ	µg/L
L2333790	SVOCs	EAST STORM WATER POND	18.9	10	Pyrene	0.20 UJ	µg/L
L2333790	VOCs	EAST STORM WATER POND	18.9	10	1,1,1,2-Tetrachloroethane	0.50 UJ	µg/L
L2333790	VOCs	EAST STORM WATER POND	18.9	10	1,1,1-Trichloroethane	0.50 UJ	µg/L
L2333790	VOCs	EAST STORM WATER POND	18.9	10	1,1,2,2-Tetrachloroethane	0.50 UJ	µg/L
L2333790	VOCs	EAST STORM WATER POND	18.9	10	1,1,2-Trichloroethane	0.50 UJ	µg/L
L2333790	VOCs	EAST STORM WATER POND	18.9	10	1,1-Dichloroethane	0.50 UJ	µg/L
L2333790	VOCs	EAST STORM WATER POND	18.9	10	1,1-Dichloroethene	0.50 UJ	µg/L
L2333790	VOCs	EAST STORM WATER POND	18.9	10	1,2-Dibromoethane (Ethylene dibromide)	0.20 UJ	µg/L

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L2333790	VOCs	EAST STORM WATER POND	18.9	10	1,2-Dichlorobenzene	0.50 UJ	µg/L
L2333790	VOCs	EAST STORM WATER POND	18.9	10	1,2-Dichloroethane	0.50 UJ	µg/L
L2333790	VOCs	EAST STORM WATER POND	18.9	10	1,2-Dichloropropane	0.50 UJ	µg/L
L2333790	VOCs	EAST STORM WATER POND	18.9	10	1,3-Dichlorobenzene	0.50 UJ	µg/L
L2333790	VOCs	EAST STORM WATER POND	18.9	10	1,4-Dichlorobenzene	0.50 UJ	µg/L
L2333790	VOCs	EAST STORM WATER POND	18.9	10	2-Butanone (Methyl ethyl ketone) (MEK)	53 J-	µg/L
L2333790	VOCs	EAST STORM WATER POND	18.9	10	4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	20 UJ	µg/L
L2333790	VOCs	EAST STORM WATER POND	18.9	10	Acetone	209 J-	µg/L
L2333790	VOCs	EAST STORM WATER POND	18.9	10	Benzene	0.50 UJ	µg/L
L2333790	VOCs	EAST STORM WATER POND	18.9	10	Bromodichloromethane	1.0 UJ	µg/L
L2333790	VOCs	EAST STORM WATER POND	18.9	10	Bromoform	1.0 UJ	µg/L
L2333790	VOCs	EAST STORM WATER POND	18.9	10	Bromomethane (Methyl bromide)	0.50 UJ	µg/L
L2333790	VOCs	EAST STORM WATER POND	18.9	10	Carbon tetrachloride	0.50 UJ	µg/L
L2333790	VOCs	EAST STORM WATER POND	18.9	10	Chlorobenzene	0.50 UJ	µg/L
L2333790	VOCs	EAST STORM WATER POND	18.9	10	Chloroethane	1.0 UJ	µg/L
L2333790	VOCs	EAST STORM WATER POND	18.9	10	Chloroform (Trichloromethane)	1.0 UJ	µg/L
L2333790	VOCs	EAST STORM WATER POND	18.9	10	cis-1,2-Dichloroethene	0.50 UJ	µg/L
L2333790	VOCs	EAST STORM WATER POND	18.9	10	cis-1,3-Dichloropropene	0.50 UJ	µg/L
L2333790	VOCs	EAST STORM WATER POND	18.9	10	Dibromochloromethane	1.0 UJ	µg/L
L2333790	VOCs	EAST STORM WATER POND	18.9	10	Dichlorodifluoromethane (CFC-12)	1.0 UJ	µg/L
L2333790	VOCs	EAST STORM WATER POND	18.9	10	Ethylbenzene	0.50 UJ	µg/L
L2333790	VOCs	EAST STORM WATER POND	18.9	10	Hexane	0.50 UJ	µg/L
L2333790	VOCs	EAST STORM WATER POND	18.9	10	m&p-Xylenes	1.0 UJ	µg/L
L2333790	VOCs	EAST STORM WATER POND	18.9	10	Methyl tert butyl ether (MTBE)	0.50 UJ	µg/L
L2333790	VOCs	EAST STORM WATER POND	18.9	10	Methylene chloride	2.0 UJ	µg/L
L2333790	VOCs	EAST STORM WATER POND	18.9	10	o-Xylene	0.50 UJ	µg/L
L2333790	VOCs	EAST STORM WATER POND	18.9	10	Styrene	0.50 UJ	µg/L
L2333790	VOCs	EAST STORM WATER POND	18.9	10	Tetrachloroethene	0.50 UJ	µg/L
L2333790	VOCs	EAST STORM WATER POND	18.9	10	Toluene	0.56 J-	µg/L
L2333790	VOCs	EAST STORM WATER POND	18.9	10	trans-1,2-Dichloroethene	0.50 UJ	µg/L
L2333790	VOCs	EAST STORM WATER POND	18.9	10	trans-1,3-Dichloropropene	0.50 UJ	µg/L
L2333790	VOCs	EAST STORM WATER POND	18.9	10	Trichloroethene	0.50 UJ	µg/L
L2333790	VOCs	EAST STORM WATER POND	18.9	10	Trichlorofluoromethane (CFC-11)	1.0 UJ	µg/L

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L2333790	VOCs	EAST STORM WATER POND	18.9	10	Trihalomethanes	2.0 UJ	µg/L
L2333790	VOCs	EAST STORM WATER POND	18.9	10	Vinyl chloride	0.50 UJ	µg/L
L2333790	VOCs	EAST STORM WATER POND	18.9	10	Xylenes (total)	1.1 UJ	µg/L
L2333790	Gen Chem	EAST STORM WATER POND	18.9	10	Alkalinity, total (as CaCO <sub>3</sub> )	114 J-	mg/L
L2333790	Gen Chem	EAST STORM WATER POND	18.9	10	Ammonia-N	0.477 J-	mg/L
L2333790	Gen Chem	EAST STORM WATER POND	18.9	10	Bromide	7.65 J-	mg/L
L2333790	Gen Chem	EAST STORM WATER POND	18.9	10	Chemical oxygen demand (COD)	48 J-	mg/L
L2333790	Gen Chem	EAST STORM WATER POND	18.9	10	Chloride	130 J-	mg/L
L2333790	Gen Chem	EAST STORM WATER POND	18.9	10	Chromium VI (hexavalent)	0.00162 J-	mg/L
L2333790	Gen Chem	EAST STORM WATER POND	18.9	10	Conductivity	974 J-	µmhos/cm
L2333790	Gen Chem	EAST STORM WATER POND	18.9	10	Cyanide (total)	0.0050 J-	mg/L
L2333790	Gen Chem	EAST STORM WATER POND	18.9	10	Dissolved organic carbon (DOC)	8.35 J-	mg/L
L2333790	Gen Chem	EAST STORM WATER POND	18.9	10	Fluoride	0.750 J-	mg/L
L2333790	Gen Chem	EAST STORM WATER POND	18.9	10	Nitrate (as N)	0.044 J-	mg/L
L2333790	Gen Chem	EAST STORM WATER POND	18.9	10	Nitrite (as N)	0.030 J-	mg/L
L2333790	Gen Chem	EAST STORM WATER POND	18.9	10	pH, lab	7.80 J	s.u.
L2333790	Gen Chem	EAST STORM WATER POND	18.9	10	Phenolics (total)	0.0155 J-	mg/L
L2333790	Gen Chem	EAST STORM WATER POND	18.9	10	Phosphorus	0.113 J-	mg/L
L2333790	Gen Chem	EAST STORM WATER POND	18.9	10	Sulfate	155 J-	mg/L
L2333790	Gen Chem	EAST STORM WATER POND	18.9	10	Total dissolved solids (TDS)	615 J-	mg/L
L2333790	Gen Chem	EAST STORM WATER POND	18.9	10	Total kjeldahl nitrogen (TKN)	1.81 J-	mg/L
L2333790	Gen Chem	EAST STORM WATER POND	18.9	10	Total suspended solids (TSS)	91.5 J-	mg/L
L2333790	Gen Chem	EAST STORM WATER POND	18.9	10	Un-ionized ammonia	0.00619 J-	mg/L
L2333790	SVOCs	EQ POND DISCHARGE	18.9	10	1,2,4-Trichlorobenzene	0.40 UJ	µg/L
L2333790	SVOCs	EQ POND DISCHARGE	18.9	10	1,2-Dichlorobenzene	0.40 UJ	µg/L
L2333790	SVOCs	EQ POND DISCHARGE	18.9	10	1,3-Dichlorobenzene	0.40 UJ	µg/L
L2333790	SVOCs	EQ POND DISCHARGE	18.9	10	1,4-Dichlorobenzene	0.40 UJ	µg/L
L2333790	SVOCs	EQ POND DISCHARGE	18.9	10	1-Methylnaphthalene	0.40 UJ	µg/L
L2333790	SVOCs	EQ POND DISCHARGE	18.9	10	2,3,4,5-Tetrachlorophenol	0.50 UJ	µg/L
L2333790	SVOCs	EQ POND DISCHARGE	18.9	10	2,3,4,6-Tetrachlorophenol	0.50 UJ	µg/L
L2333790	SVOCs	EQ POND DISCHARGE	18.9	10	2,3,6-Trichlorophenol	0.50 UJ	µg/L

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L2333790	SVOCs	EQ POND DISCHARGE	18.9	10	2,4,5-Trichlorophenol	0.50 UJ	µg/L
L2333790	SVOCs	EQ POND DISCHARGE	18.9	10	2,4,6-Trichlorophenol	0.50 UJ	µg/L
L2333790	SVOCs	EQ POND DISCHARGE	18.9	10	2,4-Dichlorophenol	0.30 UJ	µg/L
L2333790	SVOCs	EQ POND DISCHARGE	18.9	10	2,4-Dimethylphenol	0.50 UJ	µg/L
L2333790	SVOCs	EQ POND DISCHARGE	18.9	10	2,4-Dinitrophenol	1.0 UJ	µg/L
L2333790	SVOCs	EQ POND DISCHARGE	18.9	10	2,4-Dinitrotoluene	0.40 UJ	µg/L
L2333790	SVOCs	EQ POND DISCHARGE	18.9	10	2,6-Dinitrotoluene	0.40 UJ	µg/L
L2333790	SVOCs	EQ POND DISCHARGE	18.9	10	2-Chlorophenol	0.30 UJ	µg/L
L2333790	SVOCs	EQ POND DISCHARGE	18.9	10	2-Methylnaphthalene	0.40 UJ	µg/L
L2333790	SVOCs	EQ POND DISCHARGE	18.9	10	3,3'-Dichlorobenzidine	0.40 UJ	µg/L
L2333790	SVOCs	EQ POND DISCHARGE	18.9	10	4-Chloroaniline	0.40 UJ	µg/L
L2333790	SVOCs	EQ POND DISCHARGE	18.9	10	Acenaphthene	0.20 UJ	µg/L
L2333790	SVOCs	EQ POND DISCHARGE	18.9	10	Acenaphthylene	0.20 UJ	µg/L
L2333790	SVOCs	EQ POND DISCHARGE	18.9	10	Anthracene	0.20 UJ	µg/L
L2333790	SVOCs	EQ POND DISCHARGE	18.9	10	Benzo(a)anthracene	0.20 UJ	µg/L
L2333790	SVOCs	EQ POND DISCHARGE	18.9	10	Benzo(a)pyrene	0.050 UJ	µg/L
L2333790	SVOCs	EQ POND DISCHARGE	18.9	10	Benzo(b)fluoranthene	0.20 UJ	µg/L
L2333790	SVOCs	EQ POND DISCHARGE	18.9	10	Benzo(g,h,i)perylene	0.20 UJ	µg/L
L2333790	SVOCs	EQ POND DISCHARGE	18.9	10	Benzo(k)fluoranthene	0.20 UJ	µg/L
L2333790	SVOCs	EQ POND DISCHARGE	18.9	10	bis(2-Chloroethyl)ether	0.40 UJ	µg/L
L2333790	SVOCs	EQ POND DISCHARGE	18.9	10	bis(2-Ethylhexyl)phthalate (DEHP)	2.0 UJ	µg/L
L2333790	SVOCs	EQ POND DISCHARGE	18.9	10	Chrysene	0.20 UJ	µg/L
L2333790	SVOCs	EQ POND DISCHARGE	18.9	10	Dibenz(a,h)anthracene	0.20 UJ	µg/L
L2333790	SVOCs	EQ POND DISCHARGE	18.9	10	Diethyl phthalate	0.20 UJ	µg/L
L2333790	SVOCs	EQ POND DISCHARGE	18.9	10	Dimethyl phthalate	0.20 UJ	µg/L
L2333790	SVOCs	EQ POND DISCHARGE	18.9	10	Fluoranthene	0.20 UJ	µg/L
L2333790	SVOCs	EQ POND DISCHARGE	18.9	10	Fluorene	0.20 UJ	µg/L
L2333790	SVOCs	EQ POND DISCHARGE	18.9	10	Hexachlorobenzene	0.040 UJ	µg/L
L2333790	SVOCs	EQ POND DISCHARGE	18.9	10	Hexachlorobutadiene	0.20 UJ	µg/L
L2333790	SVOCs	EQ POND DISCHARGE	18.9	10	Indeno(1,2,3-cd)pyrene	0.20 UJ	µg/L
L2333790	SVOCs	EQ POND DISCHARGE	18.9	10	Naphthalene	0.20 UJ	µg/L
L2333790	SVOCs	EQ POND DISCHARGE	18.9	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
L2333790	SVOCs	EQ POND DISCHARGE	18.9	10	Perylene	0.20 UJ	µg/L
L2333790	SVOCs	EQ POND DISCHARGE	18.9	10	Phenanthrene	0.20 UJ	µg/L
L2333790	SVOCs	EQ POND DISCHARGE	18.9	10	Pyrene	0.20 UJ	µg/L
L2333790	VOCs	EQ POND DISCHARGE	18.9	10	1,1,1,2-Tetrachloroethane	0.50 UJ	µg/L
L2333790	VOCs	EQ POND DISCHARGE	18.9	10	1,1,1-Trichloroethane	0.50 UJ	µg/L
L2333790	VOCs	EQ POND DISCHARGE	18.9	10	1,1,2,2-Tetrachloroethane	0.50 UJ	µg/L
L2333790	VOCs	EQ POND DISCHARGE	18.9	10	1,1,2-Trichloroethane	0.50 UJ	µg/L
L2333790	VOCs	EQ POND DISCHARGE	18.9	10	1,1-Dichloroethane	0.50 UJ	µg/L
L2333790	VOCs	EQ POND DISCHARGE	18.9	10	1,1-Dichloroethene	0.50 UJ	µg/L
L2333790	VOCs	EQ POND DISCHARGE	18.9	10	1,2-Dibromoethane (Ethylene dibromide)	0.20 UJ	µg/L
L2333790	VOCs	EQ POND DISCHARGE	18.9	10	1,2-Dichlorobenzene	0.50 UJ	µg/L
L2333790	VOCs	EQ POND DISCHARGE	18.9	10	1,2-Dichloroethane	0.50 UJ	µg/L
L2333790	VOCs	EQ POND DISCHARGE	18.9	10	1,2-Dichloropropane	0.50 UJ	µg/L
L2333790	VOCs	EQ POND DISCHARGE	18.9	10	1,3-Dichlorobenzene	0.50 UJ	µg/L
L2333790	VOCs	EQ POND DISCHARGE	18.9	10	1,4-Dichlorobenzene	0.50 UJ	µg/L
L2333790	VOCs	EQ POND DISCHARGE	18.9	10	2-Butanone (Methyl ethyl ketone) (MEK)	20 UJ	µg/L
L2333790	VOCs	EQ POND DISCHARGE	18.9	10	4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	20 UJ	µg/L
L2333790	VOCs	EQ POND DISCHARGE	18.9	10	Acetone	20 UJ	µg/L
L2333790	VOCs	EQ POND DISCHARGE	18.9	10	Benzene	0.50 UJ	µg/L
L2333790	VOCs	EQ POND DISCHARGE	18.9	10	Bromodichloromethane	1.0 UJ	µg/L
L2333790	VOCs	EQ POND DISCHARGE	18.9	10	Bromoform	1.0 UJ	µg/L
L2333790	VOCs	EQ POND DISCHARGE	18.9	10	Bromomethane (Methyl bromide)	0.50 UJ	µg/L
L2333790	VOCs	EQ POND DISCHARGE	18.9	10	Carbon tetrachloride	0.50 UJ	µg/L
L2333790	VOCs	EQ POND DISCHARGE	18.9	10	Chlorobenzene	0.50 UJ	µg/L
L2333790	VOCs	EQ POND DISCHARGE	18.9	10	Chloroethane	1.0 UJ	µg/L
L2333790	VOCs	EQ POND DISCHARGE	18.9	10	Chloroform (Trichloromethane)	1.0 UJ	µg/L
L2333790	VOCs	EQ POND DISCHARGE	18.9	10	cis-1,2-Dichloroethene	0.50 UJ	µg/L
L2333790	VOCs	EQ POND DISCHARGE	18.9	10	cis-1,3-Dichloropropene	0.50 UJ	µg/L
L2333790	VOCs	EQ POND DISCHARGE	18.9	10	Dibromochloromethane	1.0 UJ	µg/L
L2333790	VOCs	EQ POND DISCHARGE	18.9	10	Dichlorodifluoromethane (CFC-12)	1.0 UJ	µg/L
L2333790	VOCs	EQ POND DISCHARGE	18.9	10	Ethylbenzene	0.50 UJ	µg/L

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L2333790	VOCs	EQ POND DISCHARGE	18.9	10	Hexane	0.50 UJ	µg/L
L2333790	VOCs	EQ POND DISCHARGE	18.9	10	m&p-Xylenes	1.0 UJ	µg/L
L2333790	VOCs	EQ POND DISCHARGE	18.9	10	Methyl tert butyl ether (MTBE)	0.50 UJ	µg/L
L2333790	VOCs	EQ POND DISCHARGE	18.9	10	Methylene chloride	2.0 UJ	µg/L
L2333790	VOCs	EQ POND DISCHARGE	18.9	10	o-Xylene	0.50 UJ	µg/L
L2333790	VOCs	EQ POND DISCHARGE	18.9	10	Styrene	0.50 UJ	µg/L
L2333790	VOCs	EQ POND DISCHARGE	18.9	10	Tetrachloroethene	0.50 UJ	µg/L
L2333790	VOCs	EQ POND DISCHARGE	18.9	10	Toluene	0.50 UJ	µg/L
L2333790	VOCs	EQ POND DISCHARGE	18.9	10	trans-1,2-Dichloroethene	0.50 UJ	µg/L
L2333790	VOCs	EQ POND DISCHARGE	18.9	10	trans-1,3-Dichloropropene	0.50 UJ	µg/L
L2333790	VOCs	EQ POND DISCHARGE	18.9	10	Trichloroethene	0.50 UJ	µg/L
L2333790	VOCs	EQ POND DISCHARGE	18.9	10	Trichlorofluoromethane (CFC-11)	1.0 UJ	µg/L
L2333790	VOCs	EQ POND DISCHARGE	18.9	10	Trihalomethanes	2.0 UJ	µg/L
L2333790	VOCs	EQ POND DISCHARGE	18.9	10	Vinyl chloride	0.50 UJ	µg/L
L2333790	VOCs	EQ POND DISCHARGE	18.9	10	Xylenes (total)	1.1 UJ	µg/L
L2333790	Gen Chem	EQ POND DISCHARGE	18.9	10	Alkalinity, total (as CaCO3)	125 J-	mg/L
L2333790	Gen Chem	EQ POND DISCHARGE	18.9	10	Ammonia-N	0.069 J-	mg/L
L2333790	Gen Chem	EQ POND DISCHARGE	18.9	10	Bromide	2.47 J-	mg/L
L2333790	Gen Chem	EQ POND DISCHARGE	18.9	10	Chemical oxygen demand (COD)	10 UJ	mg/L
L2333790	Gen Chem	EQ POND DISCHARGE	18.9	10	Chloride	70.4 J-	mg/L
L2333790	Gen Chem	EQ POND DISCHARGE	18.9	10	Chromium VI (hexavalent)	0.00050 UJ	mg/L
L2333790	Gen Chem	EQ POND DISCHARGE	18.9	10	Conductivity	706 J-	µmhos/cm
L2333790	Gen Chem	EQ POND DISCHARGE	18.9	10	Cyanide (total)	0.0020 UJ	mg/L
L2333790	Gen Chem	EQ POND DISCHARGE	18.9	10	Dissolved organic carbon (DOC)	3.62 J-	mg/L
L2333790	Gen Chem	EQ POND DISCHARGE	18.9	10	Fluoride	0.583 J-	mg/L
L2333790	Gen Chem	EQ POND DISCHARGE	18.9	10	Nitrate (as N)	0.028 J-	mg/L
L2333790	Gen Chem	EQ POND DISCHARGE	18.9	10	Nitrite (as N)	0.010 UJ	mg/L
L2333790	Gen Chem	EQ POND DISCHARGE	18.9	10	pH, lab	8.10 J	s.u.
L2333790	Gen Chem	EQ POND DISCHARGE	18.9	10	Phenolics (total)	0.0024 J-	mg/L
L2333790	Gen Chem	EQ POND DISCHARGE	18.9	10	Phosphorus	0.0391 J-	mg/L
L2333790	Gen Chem	EQ POND DISCHARGE	18.9	10	Sulfate	119 J-	mg/L

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L2333790	Gen Chem	EQ POND DISCHARGE	18.9	10	Total dissolved solids (TDS)	427 J-	mg/L
L2333790	Gen Chem	EQ POND DISCHARGE	18.9	10	Total kjeldahl nitrogen (TKN)	0.50 J-	mg/L
L2333790	Gen Chem	EQ POND DISCHARGE	18.9	10	Total suspended solids (TSS)	4.6 J-	mg/L
L2333790	Gen Chem	EQ POND DISCHARGE	18.9	10	Un-ionized ammonia	0.00282 J-	mg/L
L2333790	SVOCs	WEST STORM WATER POND	18.9	10	1,2,4-Trichlorobenzene	0.40 UJ	µg/L
L2333790	SVOCs	WEST STORM WATER POND	18.9	10	1,2-Dichlorobenzene	0.40 UJ	µg/L
L2333790	SVOCs	WEST STORM WATER POND	18.9	10	1,3-Dichlorobenzene	0.40 UJ	µg/L
L2333790	SVOCs	WEST STORM WATER POND	18.9	10	1,4-Dichlorobenzene	0.40 UJ	µg/L
L2333790	SVOCs	WEST STORM WATER POND	18.9	10	1-Methylnaphthalene	0.40 UJ	µg/L
L2333790	SVOCs	WEST STORM WATER POND	18.9	10	2,3,4,5-Tetrachlorophenol	0.50 UJ	µg/L
L2333790	SVOCs	WEST STORM WATER POND	18.9	10	2,3,4,6-Tetrachlorophenol	0.50 UJ	µg/L
L2333790	SVOCs	WEST STORM WATER POND	18.9	10	2,3,6-Trichlorophenol	0.50 UJ	µg/L
L2333790	SVOCs	WEST STORM WATER POND	18.9	10	2,4,5-Trichlorophenol	0.50 UJ	µg/L
L2333790	SVOCs	WEST STORM WATER POND	18.9	10	2,4,6-Trichlorophenol	0.50 UJ	µg/L
L2333790	SVOCs	WEST STORM WATER POND	18.9	10	2,4-Dichlorophenol	0.30 UJ	µg/L
L2333790	SVOCs	WEST STORM WATER POND	18.9	10	2,4-Dimethylphenol	0.50 UJ	µg/L
L2333790	SVOCs	WEST STORM WATER POND	18.9	10	2,4-Dinitrophenol	1.0 UJ	µg/L
L2333790	SVOCs	WEST STORM WATER POND	18.9	10	2,4-Dinitrotoluene	0.40 UJ	µg/L
L2333790	SVOCs	WEST STORM WATER POND	18.9	10	2,6-Dinitrotoluene	0.40 UJ	µg/L
L2333790	SVOCs	WEST STORM WATER POND	18.9	10	2-Chlorophenol	0.30 UJ	µg/L
L2333790	SVOCs	WEST STORM WATER POND	18.9	10	2-Methylnaphthalene	0.40 UJ	µg/L
L2333790	SVOCs	WEST STORM WATER POND	18.9	10	3,3'-Dichlorobenzidine	0.40 UJ	µg/L
L2333790	SVOCs	WEST STORM WATER POND	18.9	10	4-Chloroaniline	0.40 UJ	µg/L
L2333790	SVOCs	WEST STORM WATER POND	18.9	10	Acenaphthene	0.20 UJ	µg/L
L2333790	SVOCs	WEST STORM WATER POND	18.9	10	Acenaphthylene	0.20 UJ	µg/L
L2333790	SVOCs	WEST STORM WATER POND	18.9	10	Anthracene	0.20 UJ	µg/L
L2333790	SVOCs	WEST STORM WATER POND	18.9	10	Benzo(a)anthracene	0.20 UJ	µg/L
L2333790	SVOCs	WEST STORM WATER POND	18.9	10	Benzo(a)pyrene	0.050 UJ	µg/L
L2333790	SVOCs	WEST STORM WATER POND	18.9	10	Benzo(b)fluoranthene	0.20 UJ	µg/L
L2333790	SVOCs	WEST STORM WATER POND	18.9	10	Benzo(g,h,i)perylene	0.20 UJ	µg/L
L2333790	SVOCs	WEST STORM WATER POND	18.9	10	Benzo(k)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
L2333790	SVOCs	WEST STORM WATER POND	18.9	10	bis(2-Chloroethyl)ether	0.40 UJ	µg/L
L2333790	SVOCs	WEST STORM WATER POND	18.9	10	bis(2-Ethylhexyl)phthalate (DEHP)	2.0 UJ	µg/L
L2333790	SVOCs	WEST STORM WATER POND	18.9	10	Chrysene	0.20 UJ	µg/L
L2333790	SVOCs	WEST STORM WATER POND	18.9	10	Dibenz(a,h)anthracene	0.20 UJ	µg/L
L2333790	SVOCs	WEST STORM WATER POND	18.9	10	Diethyl phthalate	0.20 UJ	µg/L
L2333790	SVOCs	WEST STORM WATER POND	18.9	10	Dimethyl phthalate	0.20 UJ	µg/L
L2333790	SVOCs	WEST STORM WATER POND	18.9	10	Fluoranthene	0.20 UJ	µg/L
L2333790	SVOCs	WEST STORM WATER POND	18.9	10	Fluorene	0.20 UJ	µg/L
L2333790	SVOCs	WEST STORM WATER POND	18.9	10	Hexachlorobenzene	0.040 UJ	µg/L
L2333790	SVOCs	WEST STORM WATER POND	18.9	10	Hexachlorobutadiene	0.20 UJ	µg/L
L2333790	SVOCs	WEST STORM WATER POND	18.9	10	Indeno(1,2,3-cd)pyrene	0.20 UJ	µg/L
L2333790	SVOCs	WEST STORM WATER POND	18.9	10	Naphthalene	0.20 UJ	µg/L
L2333790	SVOCs	WEST STORM WATER POND	18.9	10	Pentachlorophenol	0.50 UJ	µg/L
L2333790	SVOCs	WEST STORM WATER POND	18.9	10	Perylene	0.20 UJ	µg/L
L2333790	SVOCs	WEST STORM WATER POND	18.9	10	Phenanthrene	0.20 UJ	µg/L
L2333790	SVOCs	WEST STORM WATER POND	18.9	10	Pyrene	0.20 UJ	µg/L
L2333790	VOCs	WEST STORM WATER POND	18.9	10	1,1,1,2-Tetrachloroethane	0.50 UJ	µg/L
L2333790	VOCs	WEST STORM WATER POND	18.9	10	1,1,1-Trichloroethane	0.50 UJ	µg/L
L2333790	VOCs	WEST STORM WATER POND	18.9	10	1,1,2,2-Tetrachloroethane	0.50 UJ	µg/L
L2333790	VOCs	WEST STORM WATER POND	18.9	10	1,1,2-Trichloroethane	0.50 UJ	µg/L
L2333790	VOCs	WEST STORM WATER POND	18.9	10	1,1-Dichloroethane	0.50 UJ	µg/L
L2333790	VOCs	WEST STORM WATER POND	18.9	10	1,1-Dichloroethene	0.50 UJ	µg/L
L2333790	VOCs	WEST STORM WATER POND	18.9	10	1,2-Dibromoethane (Ethylene dibromide)	0.20 UJ	µg/L
L2333790	VOCs	WEST STORM WATER POND	18.9	10	1,2-Dichlorobenzene	0.50 UJ	µg/L
L2333790	VOCs	WEST STORM WATER POND	18.9	10	1,2-Dichloroethane	0.50 UJ	µg/L
L2333790	VOCs	WEST STORM WATER POND	18.9	10	1,2-Dichloropropane	0.50 UJ	µg/L
L2333790	VOCs	WEST STORM WATER POND	18.9	10	1,3-Dichlorobenzene	0.50 UJ	µg/L
L2333790	VOCs	WEST STORM WATER POND	18.9	10	1,4-Dichlorobenzene	0.50 UJ	µg/L
L2333790	VOCs	WEST STORM WATER POND	18.9	10	2-Butanone (Methyl ethyl ketone) (MEK)	20 UJ	µg/L
L2333790	VOCs	WEST STORM WATER POND	18.9	10	4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	20 UJ	µg/L
L2333790	VOCs	WEST STORM WATER POND	18.9	10	Acetone	20 UJ	µg/L

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L2333790	VOCs	WEST STORM WATER POND	18.9	10	Benzene	0.50 UJ	µg/L
L2333790	VOCs	WEST STORM WATER POND	18.9	10	Bromodichloromethane	1.0 UJ	µg/L
L2333790	VOCs	WEST STORM WATER POND	18.9	10	Bromoform	1.0 UJ	µg/L
L2333790	VOCs	WEST STORM WATER POND	18.9	10	Bromomethane (Methyl bromide)	0.50 UJ	µg/L
L2333790	VOCs	WEST STORM WATER POND	18.9	10	Carbon tetrachloride	0.50 UJ	µg/L
L2333790	VOCs	WEST STORM WATER POND	18.9	10	Chlorobenzene	0.50 UJ	µg/L
L2333790	VOCs	WEST STORM WATER POND	18.9	10	Chloroethane	1.0 UJ	µg/L
L2333790	VOCs	WEST STORM WATER POND	18.9	10	Chloroform (Trichloromethane)	1.0 UJ	µg/L
L2333790	VOCs	WEST STORM WATER POND	18.9	10	cis-1,2-Dichloroethene	0.50 UJ	µg/L
L2333790	VOCs	WEST STORM WATER POND	18.9	10	cis-1,3-Dichloropropene	0.50 UJ	µg/L
L2333790	VOCs	WEST STORM WATER POND	18.9	10	Dibromochloromethane	1.0 UJ	µg/L
L2333790	VOCs	WEST STORM WATER POND	18.9	10	Dichlorodifluoromethane (CFC-12)	1.0 UJ	µg/L
L2333790	VOCs	WEST STORM WATER POND	18.9	10	Ethylbenzene	0.50 UJ	µg/L
L2333790	VOCs	WEST STORM WATER POND	18.9	10	Hexane	0.50 UJ	µg/L
L2333790	VOCs	WEST STORM WATER POND	18.9	10	m&p-Xylenes	1.0 UJ	µg/L
L2333790	VOCs	WEST STORM WATER POND	18.9	10	Methyl tert butyl ether (MTBE)	0.50 UJ	µg/L
L2333790	VOCs	WEST STORM WATER POND	18.9	10	Methylene chloride	2.0 UJ	µg/L
L2333790	VOCs	WEST STORM WATER POND	18.9	10	o-Xylene	0.50 UJ	µg/L
L2333790	VOCs	WEST STORM WATER POND	18.9	10	Styrene	0.50 UJ	µg/L
L2333790	VOCs	WEST STORM WATER POND	18.9	10	Tetrachloroethene	0.50 UJ	µg/L
L2333790	VOCs	WEST STORM WATER POND	18.9	10	Toluene	0.50 UJ	µg/L
L2333790	VOCs	WEST STORM WATER POND	18.9	10	trans-1,2-Dichloroethene	0.50 UJ	µg/L
L2333790	VOCs	WEST STORM WATER POND	18.9	10	trans-1,3-Dichloropropene	0.50 UJ	µg/L
L2333790	VOCs	WEST STORM WATER POND	18.9	10	Trichloroethene	0.50 UJ	µg/L
L2333790	VOCs	WEST STORM WATER POND	18.9	10	Trichlorofluoromethane (CFC-11)	1.0 UJ	µg/L
L2333790	VOCs	WEST STORM WATER POND	18.9	10	Trihalomethanes	2.0 UJ	µg/L
L2333790	VOCs	WEST STORM WATER POND	18.9	10	Vinyl chloride	0.50 UJ	µg/L
L2333790	VOCs	WEST STORM WATER POND	18.9	10	Xylenes (total)	1.1 UJ	µg/L

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L2333790	Gen Chem	WEST STORM WATER POND	18.9	10	Alkalinity, total (as CaCO3)	114 J-	mg/L
L2333790	Gen Chem	WEST STORM WATER POND	18.9	10	Ammonia-N	0.051 J-	mg/L
L2333790	Gen Chem	WEST STORM WATER POND	18.9	10	Bromide	2.43 J-	mg/L
L2333790	Gen Chem	WEST STORM WATER POND	18.9	10	Chemical oxygen demand (COD)	14 J-	mg/L
L2333790	Gen Chem	WEST STORM WATER POND	18.9	10	Chloride	69.2 J-	mg/L
L2333790	Gen Chem	WEST STORM WATER POND	18.9	10	Chromium VI (hexavalent)	0.00050 UJ	mg/L
L2333790	Gen Chem	WEST STORM WATER POND	18.9	10	Conductivity	681 J-	µmhos/cm
L2333790	Gen Chem	WEST STORM WATER POND	18.9	10	Cyanide (total)	0.0020 UJ	mg/L
L2333790	Gen Chem	WEST STORM WATER POND	18.9	10	Dissolved organic carbon (DOC)	4.64 J-	mg/L
L2333790	Gen Chem	WEST STORM WATER POND	18.9	10	Fluoride	0.596 J-	mg/L
L2333790	Gen Chem	WEST STORM WATER POND	18.9	10	Nitrate (as N)	0.049 J-	mg/L
L2333790	Gen Chem	WEST STORM WATER POND	18.9	10	Nitrite (as N)	0.010 UJ	mg/L
L2333790	Gen Chem	WEST STORM WATER POND	18.9	10	pH, lab	8.10 J	s.u.
L2333790	Gen Chem	WEST STORM WATER POND	18.9	10	Phenolics (total)	0.0028 J-	mg/L
L2333790	Gen Chem	WEST STORM WATER POND	18.9	10	Phosphorus	0.0261 J-	mg/L
L2333790	Gen Chem	WEST STORM WATER POND	18.9	10	Sulfate	117 J-	mg/L
L2333790	Gen Chem	WEST STORM WATER POND	18.9	10	Total dissolved solids (TDS)	418 J-	mg/L
L2333790	Gen Chem	WEST STORM WATER POND	18.9	10	Total kjeldahl nitrogen (TKN)	0.49 J-	mg/L
L2333790	Gen Chem	WEST STORM WATER POND	18.9	10	Total suspended solids (TSS)	5.1 J-	mg/L
L2333790	Gen Chem	WEST STORM WATER POND	18.9	10	Un-ionized ammonia	0.00148 J-	mg/L
L2377419	SVOCs	EQ POND DISCHARGE	10.6	10	1,2,4-Trichlorobenzene	0.40 UJ	µg/L
L2377419	SVOCs	EQ POND DISCHARGE	10.6	10	1,2-Dichlorobenzene	0.40 UJ	µg/L
L2377419	SVOCs	EQ POND DISCHARGE	10.6	10	1,3-Dichlorobenzene	0.40 UJ	µg/L
L2377419	SVOCs	EQ POND DISCHARGE	10.6	10	1,4-Dichlorobenzene	0.40 UJ	µg/L
L2377419	SVOCs	EQ POND DISCHARGE	10.6	10	1-Methylnaphthalene	0.40 UJ	µg/L
L2377419	SVOCs	EQ POND DISCHARGE	10.6	10	2,3,4,5-Tetrachlorophenol	0.50 UJ	µg/L
L2377419	SVOCs	EQ POND DISCHARGE	10.6	10	2,3,4,6-Tetrachlorophenol	0.50 UJ	µg/L
L2377419	SVOCs	EQ POND DISCHARGE	10.6	10	2,3,6-Trichlorophenol	0.50 UJ	µg/L
L2377419	SVOCs	EQ POND DISCHARGE	10.6	10	2,4,5-Trichlorophenol	0.50 UJ	µg/L
L2377419	SVOCs	EQ POND DISCHARGE	10.6	10	2,4,6-Trichlorophenol	0.50 UJ	µg/L
L2377419	SVOCs	EQ POND DISCHARGE	10.6	10	2,4-Dichlorophenol	0.30 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
L2377419	SVOCs	EQ POND DISCHARGE	10.6	10	2,4-Dimethylphenol	0.50 UJ	µg/L
L2377419	SVOCs	EQ POND DISCHARGE	10.6	10	2,4-Dinitrophenol	1.0 UJ	µg/L
L2377419	SVOCs	EQ POND DISCHARGE	10.6	10	2,4-Dinitrotoluene	0.40 UJ	µg/L
L2377419	SVOCs	EQ POND DISCHARGE	10.6	10	2,6-Dinitrotoluene	0.40 UJ	µg/L
L2377419	SVOCs	EQ POND DISCHARGE	10.6	10	2-Chlorophenol	0.30 UJ	µg/L
L2377419	SVOCs	EQ POND DISCHARGE	10.6	10	2-Methylnaphthalene	0.40 UJ	µg/L
L2377419	SVOCs	EQ POND DISCHARGE	10.6	10	3,3'-Dichlorobenzidine	0.40 UJ	µg/L
L2377419	SVOCs	EQ POND DISCHARGE	10.6	10	4-Chloroaniline	0.40 UJ	µg/L
L2377419	SVOCs	EQ POND DISCHARGE	10.6	10	Acenaphthene	0.20 UJ	µg/L
L2377419	SVOCs	EQ POND DISCHARGE	10.6	10	Acenaphthylene	0.20 UJ	µg/L
L2377419	SVOCs	EQ POND DISCHARGE	10.6	10	Anthracene	0.20 UJ	µg/L
L2377419	SVOCs	EQ POND DISCHARGE	10.6	10	Benzo(a)anthracene	0.20 UJ	µg/L
L2377419	SVOCs	EQ POND DISCHARGE	10.6	10	Benzo(a)pyrene	0.050 UJ	µg/L
L2377419	SVOCs	EQ POND DISCHARGE	10.6	10	Benzo(b)fluoranthene	0.20 UJ	µg/L
L2377419	SVOCs	EQ POND DISCHARGE	10.6	10	Benzo(g,h,i)perylene	0.20 UJ	µg/L
L2377419	SVOCs	EQ POND DISCHARGE	10.6	10	Benzo(k)fluoranthene	0.20 UJ	µg/L
L2377419	SVOCs	EQ POND DISCHARGE	10.6	10	bis(2-Chloroethyl)ether	0.40 UJ	µg/L
L2377419	SVOCs	EQ POND DISCHARGE	10.6	10	bis(2-Ethylhexyl)phthalate (DEHP)	2.0 UJ	µg/L
L2377419	SVOCs	EQ POND DISCHARGE	10.6	10	Chrysene	0.20 UJ	µg/L
L2377419	SVOCs	EQ POND DISCHARGE	10.6	10	Dibenz(a,h)anthracene	0.20 UJ	µg/L
L2377419	SVOCs	EQ POND DISCHARGE	10.6	10	Diethyl phthalate	0.20 UJ	µg/L
L2377419	SVOCs	EQ POND DISCHARGE	10.6	10	Dimethyl phthalate	0.20 UJ	µg/L
L2377419	SVOCs	EQ POND DISCHARGE	10.6	10	Fluoranthene	0.20 UJ	µg/L
L2377419	SVOCs	EQ POND DISCHARGE	10.6	10	Fluorene	0.20 UJ	µg/L
L2377419	SVOCs	EQ POND DISCHARGE	10.6	10	Hexachlorobenzene	0.040 UJ	µg/L
L2377419	SVOCs	EQ POND DISCHARGE	10.6	10	Hexachlorobutadiene	0.20 UJ	µg/L
L2377419	SVOCs	EQ POND DISCHARGE	10.6	10	Indeno(1,2,3-cd)pyrene	0.20 UJ	µg/L
L2377419	SVOCs	EQ POND DISCHARGE	10.6	10	Naphthalene	0.20 UJ	µg/L
L2377419	SVOCs	EQ POND DISCHARGE	10.6	10	Pentachlorophenol	0.50 UJ	µg/L
L2377419	SVOCs	EQ POND DISCHARGE	10.6	10	Perylene	0.20 UJ	µg/L
L2377419	SVOCs	EQ POND DISCHARGE	10.6	10	Phenanthrene	0.20 UJ	µg/L
L2377419	SVOCs	EQ POND DISCHARGE	10.6	10	Pyrene	0.20 UJ	µg/L

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L2377419	VOCs	EQ POND DISCHARGE	10.6	10	1,1,1,2-Tetrachloroethane	0.50 UJ	µg/L
L2377419	VOCs	EQ POND DISCHARGE	10.6	10	1,1,1-Trichloroethane	0.50 UJ	µg/L
L2377419	VOCs	EQ POND DISCHARGE	10.6	10	1,1,2,2-Tetrachloroethane	0.50 UJ	µg/L
L2377419	VOCs	EQ POND DISCHARGE	10.6	10	1,1,2-Trichloroethane	0.50 UJ	µg/L
L2377419	VOCs	EQ POND DISCHARGE	10.6	10	1,1-Dichloroethane	0.50 UJ	µg/L
L2377419	VOCs	EQ POND DISCHARGE	10.6	10	1,1-Dichloroethene	0.50 UJ	µg/L
L2377419	VOCs	EQ POND DISCHARGE	10.6	10	1,2-Dibromoethane (Ethylene dibromide)	0.20 UJ	µg/L
L2377419	VOCs	EQ POND DISCHARGE	10.6	10	1,2-Dichlorobenzene	0.50 UJ	µg/L
L2377419	VOCs	EQ POND DISCHARGE	10.6	10	1,2-Dichloroethane	0.50 UJ	µg/L
L2377419	VOCs	EQ POND DISCHARGE	10.6	10	1,2-Dichloropropane	0.50 UJ	µg/L
L2377419	VOCs	EQ POND DISCHARGE	10.6	10	1,3-Dichlorobenzene	0.50 UJ	µg/L
L2377419	VOCs	EQ POND DISCHARGE	10.6	10	1,4-Dichlorobenzene	0.50 UJ	µg/L
L2377419	VOCs	EQ POND DISCHARGE	10.6	10	2-Butanone (Methyl ethyl ketone) (MEK)	20 UJ	µg/L
L2377419	VOCs	EQ POND DISCHARGE	10.6	10	4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	20 UJ	µg/L
L2377419	VOCs	EQ POND DISCHARGE	10.6	10	Acetone	20 UJ	µg/L
L2377419	VOCs	EQ POND DISCHARGE	10.6	10	Benzene	0.50 UJ	µg/L
L2377419	VOCs	EQ POND DISCHARGE	10.6	10	Bromodichloromethane	1.0 UJ	µg/L
L2377419	VOCs	EQ POND DISCHARGE	10.6	10	Bromoform	1.0 UJ	µg/L
L2377419	VOCs	EQ POND DISCHARGE	10.6	10	Bromomethane (Methyl bromide)	0.50 UJ	µg/L
L2377419	VOCs	EQ POND DISCHARGE	10.6	10	Carbon tetrachloride	0.50 UJ	µg/L
L2377419	VOCs	EQ POND DISCHARGE	10.6	10	Chlorobenzene	0.50 UJ	µg/L
L2377419	VOCs	EQ POND DISCHARGE	10.6	10	Chloroethane	1.0 UJ	µg/L
L2377419	VOCs	EQ POND DISCHARGE	10.6	10	Chloroform (Trichloromethane)	1.0 UJ	µg/L
L2377419	VOCs	EQ POND DISCHARGE	10.6	10	cis-1,2-Dichloroethene	0.50 UJ	µg/L
L2377419	VOCs	EQ POND DISCHARGE	10.6	10	cis-1,3-Dichloropropene	0.50 UJ	µg/L
L2377419	VOCs	EQ POND DISCHARGE	10.6	10	Dibromochloromethane	1.0 UJ	µg/L
L2377419	VOCs	EQ POND DISCHARGE	10.6	10	Dichlorodifluoromethane (CFC-12)	1.0 UJ	µg/L
L2377419	VOCs	EQ POND DISCHARGE	10.6	10	Ethylbenzene	0.50 UJ	µg/L
L2377419	VOCs	EQ POND DISCHARGE	10.6	10	Hexane	0.50 UJ	µg/L
L2377419	VOCs	EQ POND DISCHARGE	10.6	10	m&p-Xylenes	1.0 UJ	µg/L
L2377419	VOCs	EQ POND DISCHARGE	10.6	10	Methyl tert butyl ether (MTBE)	0.50 UJ	µg/L



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L2377419	VOCs	EQ POND DISCHARGE	10.6	10	Methylene chloride	2.0 UJ	µg/L
L2377419	VOCs	EQ POND DISCHARGE	10.6	10	o-Xylene	0.50 UJ	µg/L
L2377419	VOCs	EQ POND DISCHARGE	10.6	10	Styrene	0.50 UJ	µg/L
L2377419	VOCs	EQ POND DISCHARGE	10.6	10	Tetrachloroethene	0.50 UJ	µg/L
L2377419	VOCs	EQ POND DISCHARGE	10.6	10	Toluene	0.50 UJ	µg/L
L2377419	VOCs	EQ POND DISCHARGE	10.6	10	trans-1,2-Dichloroethene	0.50 UJ	µg/L
L2377419	VOCs	EQ POND DISCHARGE	10.6	10	trans-1,3-Dichloropropene	0.50 UJ	µg/L
L2377419	VOCs	EQ POND DISCHARGE	10.6	10	Trichloroethene	0.50 UJ	µg/L
L2377419	VOCs	EQ POND DISCHARGE	10.6	10	Trichlorofluoromethane (CFC-11)	1.0 UJ	µg/L
L2377419	VOCs	EQ POND DISCHARGE	10.6	10	Trihalomethanes	2.0 UJ	µg/L
L2377419	VOCs	EQ POND DISCHARGE	10.6	10	Vinyl chloride	0.50 UJ	µg/L
L2377419	VOCs	EQ POND DISCHARGE	10.6	10	Xylenes (total)	1.1 UJ	µg/L
L2377419	Gen Chem	EQ POND DISCHARGE	10.6	10	Alkalinity, total (as CaCO <sub>3</sub> )	133 J-	mg/L
L2377419	Gen Chem	EQ POND DISCHARGE	10.6	10	Ammonia-N	0.096 J-	mg/L
L2377419	Gen Chem	EQ POND DISCHARGE	10.6	10	Bromide	8.50 J-	mg/L
L2377419	Gen Chem	EQ POND DISCHARGE	10.6	10	Chemical oxygen demand (COD)	13 J-	mg/L
L2377419	Gen Chem	EQ POND DISCHARGE	10.6	10	Chloride	125 J-	mg/L
L2377419	Gen Chem	EQ POND DISCHARGE	10.6	10	Chromium VI (hexavalent)	0.00050 UJ	mg/L
L2377419	Gen Chem	EQ POND DISCHARGE	10.6	10	Conductivity	968 J-	µmhos/cm
L2377419	Gen Chem	EQ POND DISCHARGE	10.6	10	Cyanide (total)	0.0020 UJ	mg/L
L2377419	Gen Chem	EQ POND DISCHARGE	10.6	10	Dissolved organic carbon (DOC)	4.85 J-	mg/L
L2377419	Gen Chem	EQ POND DISCHARGE	10.6	10	Fluoride	0.661 J-	mg/L
L2377419	Gen Chem	EQ POND DISCHARGE	10.6	10	Nitrate (as N)	0.200 J-	mg/L
L2377419	Gen Chem	EQ POND DISCHARGE	10.6	10	Nitrite (as N)	0.010 UJ	mg/L
L2377419	Gen Chem	EQ POND DISCHARGE	10.6	10	pH, lab	8.20 J	s.u.
L2377419	Gen Chem	EQ POND DISCHARGE	10.6	10	Phenolics (total)	0.0010 UJ	mg/L
L2377419	Gen Chem	EQ POND DISCHARGE	10.6	10	Phosphorus	0.0196 J-	mg/L
L2377419	Gen Chem	EQ POND DISCHARGE	10.6	10	Sulfate	126 J-	mg/L
L2377419	Gen Chem	EQ POND DISCHARGE	10.6	10	Total dissolved solids (TDS)	544 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
L2377419	Gen Chem	EQ POND DISCHARGE	10.6	10	Total kjeldahl nitrogen (TKN)	0.51 J-	mg/L
L2377419	Gen Chem	EQ POND DISCHARGE	10.6	10	Total suspended solids (TSS)	5.4 J-	mg/L
L2377419	Gen Chem	EQ POND DISCHARGE	10.6	10	Un-ionized ammonia	0.00124 J-	mg/L
L2377419	SVOCs	WEST STORM WATER POND	10.6	10	1,2,4-Trichlorobenzene	0.40 UJ	µg/L
L2377419	SVOCs	WEST STORM WATER POND	10.6	10	1,2-Dichlorobenzene	0.40 UJ	µg/L
L2377419	SVOCs	WEST STORM WATER POND	10.6	10	1,3-Dichlorobenzene	0.40 UJ	µg/L
L2377419	SVOCs	WEST STORM WATER POND	10.6	10	1,4-Dichlorobenzene	0.40 UJ	µg/L
L2377419	SVOCs	WEST STORM WATER POND	10.6	10	1-Methylnaphthalene	0.40 UJ	µg/L
L2377419	SVOCs	WEST STORM WATER POND	10.6	10	2,3,4,5-Tetrachlorophenol	0.50 UJ	µg/L
L2377419	SVOCs	WEST STORM WATER POND	10.6	10	2,3,4,6-Tetrachlorophenol	0.50 UJ	µg/L
L2377419	SVOCs	WEST STORM WATER POND	10.6	10	2,3,6-Trichlorophenol	0.50 UJ	µg/L
L2377419	SVOCs	WEST STORM WATER POND	10.6	10	2,4,5-Trichlorophenol	0.50 UJ	µg/L
L2377419	SVOCs	WEST STORM WATER POND	10.6	10	2,4,6-Trichlorophenol	0.50 UJ	µg/L
L2377419	SVOCs	WEST STORM WATER POND	10.6	10	2,4-Dichlorophenol	0.30 UJ	µg/L
L2377419	SVOCs	WEST STORM WATER POND	10.6	10	2,4-Dimethylphenol	0.50 UJ	µg/L
L2377419	SVOCs	WEST STORM WATER POND	10.6	10	2,4-Dinitrophenol	1.0 UJ	µg/L
L2377419	SVOCs	WEST STORM WATER POND	10.6	10	2,4-Dinitrotoluene	0.40 UJ	µg/L
L2377419	SVOCs	WEST STORM WATER POND	10.6	10	2,6-Dinitrotoluene	0.40 UJ	µg/L
L2377419	SVOCs	WEST STORM WATER POND	10.6	10	2-Chlorophenol	0.30 UJ	µg/L
L2377419	SVOCs	WEST STORM WATER POND	10.6	10	2-Methylnaphthalene	0.40 UJ	µg/L
L2377419	SVOCs	WEST STORM WATER POND	10.6	10	3,3'-Dichlorobenzidine	0.40 UJ	µg/L
L2377419	SVOCs	WEST STORM WATER POND	10.6	10	4-Chloroaniline	0.40 UJ	µg/L
L2377419	SVOCs	WEST STORM WATER POND	10.6	10	Acenaphthene	0.20 UJ	µg/L
L2377419	SVOCs	WEST STORM WATER POND	10.6	10	Acenaphthylene	0.20 UJ	µg/L
L2377419	SVOCs	WEST STORM WATER POND	10.6	10	Anthracene	0.20 UJ	µg/L
L2377419	SVOCs	WEST STORM WATER POND	10.6	10	Benzo(a)anthracene	0.20 UJ	µg/L
L2377419	SVOCs	WEST STORM WATER POND	10.6	10	Benzo(a)pyrene	0.050 UJ	µg/L
L2377419	SVOCs	WEST STORM WATER POND	10.6	10	Benzo(b)fluoranthene	0.20 UJ	µg/L
L2377419	SVOCs	WEST STORM WATER POND	10.6	10	Benzo(g,h,i)perylene	0.20 UJ	µg/L
L2377419	SVOCs	WEST STORM WATER POND	10.6	10	Benzo(k)fluoranthene	0.20 UJ	µg/L
L2377419	SVOCs	WEST STORM WATER POND	10.6	10	bis(2-Chloroethyl)ether	0.40 UJ	µg/L

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L2377419	SVOCs	WEST STORM WATER POND	10.6	10	bis(2-Ethylhexyl)phthalate (DEHP)	2.0 UJ	µg/L
L2377419	SVOCs	WEST STORM WATER POND	10.6	10	Chrysene	0.20 UJ	µg/L
L2377419	SVOCs	WEST STORM WATER POND	10.6	10	Dibenz(a,h)anthracene	0.20 UJ	µg/L
L2377419	SVOCs	WEST STORM WATER POND	10.6	10	Diethyl phthalate	0.20 UJ	µg/L
L2377419	SVOCs	WEST STORM WATER POND	10.6	10	Dimethyl phthalate	0.20 UJ	µg/L
L2377419	SVOCs	WEST STORM WATER POND	10.6	10	Fluoranthene	0.20 UJ	µg/L
L2377419	SVOCs	WEST STORM WATER POND	10.6	10	Fluorene	0.20 UJ	µg/L
L2377419	SVOCs	WEST STORM WATER POND	10.6	10	Hexachlorobenzene	0.040 UJ	µg/L
L2377419	SVOCs	WEST STORM WATER POND	10.6	10	Hexachlorobutadiene	0.20 UJ	µg/L
L2377419	SVOCs	WEST STORM WATER POND	10.6	10	Indeno(1,2,3-cd)pyrene	0.20 UJ	µg/L
L2377419	SVOCs	WEST STORM WATER POND	10.6	10	Naphthalene	0.20 UJ	µg/L
L2377419	SVOCs	WEST STORM WATER POND	10.6	10	Pentachlorophenol	0.50 UJ	µg/L
L2377419	SVOCs	WEST STORM WATER POND	10.6	10	Perylene	0.20 UJ	µg/L
L2377419	SVOCs	WEST STORM WATER POND	10.6	10	Phenanthrene	0.20 UJ	µg/L
L2377419	SVOCs	WEST STORM WATER POND	10.6	10	Pyrene	0.20 UJ	µg/L
L2377419	VOCs	WEST STORM WATER POND	10.6	10	1,1,1,2-Tetrachloroethane	0.50 UJ	µg/L
L2377419	VOCs	WEST STORM WATER POND	10.6	10	1,1,1-Trichloroethane	0.50 UJ	µg/L
L2377419	VOCs	WEST STORM WATER POND	10.6	10	1,1,2,2-Tetrachloroethane	0.50 UJ	µg/L
L2377419	VOCs	WEST STORM WATER POND	10.6	10	1,1,2-Trichloroethane	0.50 UJ	µg/L
L2377419	VOCs	WEST STORM WATER POND	10.6	10	1,1-Dichloroethane	0.50 UJ	µg/L
L2377419	VOCs	WEST STORM WATER POND	10.6	10	1,1-Dichloroethene	0.50 UJ	µg/L
L2377419	VOCs	WEST STORM WATER POND	10.6	10	1,2-Dibromoethane (Ethylene dibromide)	0.20 UJ	µg/L
L2377419	VOCs	WEST STORM WATER POND	10.6	10	1,2-Dichlorobenzene	0.50 UJ	µg/L
L2377419	VOCs	WEST STORM WATER POND	10.6	10	1,2-Dichloroethane	0.50 UJ	µg/L
L2377419	VOCs	WEST STORM WATER POND	10.6	10	1,2-Dichloropropane	0.50 UJ	µg/L
L2377419	VOCs	WEST STORM WATER POND	10.6	10	1,3-Dichlorobenzene	0.50 UJ	µg/L
L2377419	VOCs	WEST STORM WATER POND	10.6	10	1,4-Dichlorobenzene	0.50 UJ	µg/L
L2377419	VOCs	WEST STORM WATER POND	10.6	10	2-Butanone (Methyl ethyl ketone) (MEK)	20 UJ	µg/L
L2377419	VOCs	WEST STORM WATER POND	10.6	10	4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	20 UJ	µg/L
L2377419	VOCs	WEST STORM WATER POND	10.6	10	Acetone	20 UJ	µg/L
L2377419	VOCs	WEST STORM WATER POND	10.6	10	Benzene	0.50 UJ	µg/L

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L2377419	VOCs	WEST STORM WATER POND	10.6	10	Bromodichloromethane	1.0 UJ	µg/L
L2377419	VOCs	WEST STORM WATER POND	10.6	10	Bromoform	1.0 UJ	µg/L
L2377419	VOCs	WEST STORM WATER POND	10.6	10	Bromomethane (Methyl bromide)	0.50 UJ	µg/L
L2377419	VOCs	WEST STORM WATER POND	10.6	10	Carbon tetrachloride	0.50 UJ	µg/L
L2377419	VOCs	WEST STORM WATER POND	10.6	10	Chlorobenzene	0.50 UJ	µg/L
L2377419	VOCs	WEST STORM WATER POND	10.6	10	Chloroethane	1.0 UJ	µg/L
L2377419	VOCs	WEST STORM WATER POND	10.6	10	Chloroform (Trichloromethane)	1.0 UJ	µg/L
L2377419	VOCs	WEST STORM WATER POND	10.6	10	cis-1,2-Dichloroethene	0.50 UJ	µg/L
L2377419	VOCs	WEST STORM WATER POND	10.6	10	cis-1,3-Dichloropropene	0.50 UJ	µg/L
L2377419	VOCs	WEST STORM WATER POND	10.6	10	Dibromochloromethane	1.0 UJ	µg/L
L2377419	VOCs	WEST STORM WATER POND	10.6	10	Dichlorodifluoromethane (CFC-12)	1.0 UJ	µg/L
L2377419	VOCs	WEST STORM WATER POND	10.6	10	Ethylbenzene	0.50 UJ	µg/L
L2377419	VOCs	WEST STORM WATER POND	10.6	10	Hexane	0.50 UJ	µg/L
L2377419	VOCs	WEST STORM WATER POND	10.6	10	m&p-Xylenes	1.0 UJ	µg/L
L2377419	VOCs	WEST STORM WATER POND	10.6	10	Methyl tert butyl ether (MTBE)	0.50 UJ	µg/L
L2377419	VOCs	WEST STORM WATER POND	10.6	10	Methylene chloride	2.0 UJ	µg/L
L2377419	VOCs	WEST STORM WATER POND	10.6	10	o-Xylene	0.50 UJ	µg/L
L2377419	VOCs	WEST STORM WATER POND	10.6	10	Styrene	0.50 UJ	µg/L
L2377419	VOCs	WEST STORM WATER POND	10.6	10	Tetrachloroethene	0.50 UJ	µg/L
L2377419	VOCs	WEST STORM WATER POND	10.6	10	Toluene	0.50 UJ	µg/L
L2377419	VOCs	WEST STORM WATER POND	10.6	10	trans-1,2-Dichloroethene	0.50 UJ	µg/L
L2377419	VOCs	WEST STORM WATER POND	10.6	10	trans-1,3-Dichloropropene	0.50 UJ	µg/L
L2377419	VOCs	WEST STORM WATER POND	10.6	10	Trichloroethene	0.50 UJ	µg/L
L2377419	VOCs	WEST STORM WATER POND	10.6	10	Trichlorofluoromethane (CFC-11)	1.0 UJ	µg/L
L2377419	VOCs	WEST STORM WATER POND	10.6	10	Trihalomethanes	2.0 UJ	µg/L
L2377419	VOCs	WEST STORM WATER POND	10.6	10	Vinyl chloride	0.50 UJ	µg/L
L2377419	VOCs	WEST STORM WATER POND	10.6	10	Xylenes (total)	1.1 UJ	µg/L
L2377419	Gen Chem	WEST STORM WATER POND	10.6	10	Alkalinity, total (as CaCO3)	133 J-	mg/L
L2377419	Gen Chem	WEST STORM WATER POND	10.6	10	Ammonia-N	0.233 J-	mg/L
L2377419	Gen Chem	WEST STORM WATER POND	10.6	10	Bromide	5.18 J-	mg/L
L2377419	Gen Chem	WEST STORM WATER POND	10.6	10	Chemical oxygen demand (COD)	19 J-	mg/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
L2377419	Gen Chem	WEST STORM WATER POND	10.6	10	Chloride	91.1 J-	mg/L
L2377419	Gen Chem	WEST STORM WATER POND	10.6	10	Chromium VI (hexavalent)	0.00050 UJ	mg/L
L2377419	Gen Chem	WEST STORM WATER POND	10.6	10	Conductivity	825 J-	umhos/cm
L2377419	Gen Chem	WEST STORM WATER POND	10.6	10	Cyanide (total)	0.0020 UJ	mg/L
L2377419	Gen Chem	WEST STORM WATER POND	10.6	10	Dissolved organic carbon (DOC)	9.88 J-	mg/L
L2377419	Gen Chem	WEST STORM WATER POND	10.6	10	Fluoride	0.650 J-	mg/L
L2377419	Gen Chem	WEST STORM WATER POND	10.6	10	Nitrate (as N)	0.055 J-	mg/L
L2377419	Gen Chem	WEST STORM WATER POND	10.6	10	Nitrite (as N)	0.010 UJ	mg/L
L2377419	Gen Chem	WEST STORM WATER POND	10.6	10	pH, lab	8.19 J	s.u.
L2377419	Gen Chem	WEST STORM WATER POND	10.6	10	Phenolics (total)	0.0025 J-	mg/L
L2377419	Gen Chem	WEST STORM WATER POND	10.6	10	Phosphorus	0.0325 J-	mg/L
L2377419	Gen Chem	WEST STORM WATER POND	10.6	10	Sulfate	114 J-	mg/L
L2377419	Gen Chem	WEST STORM WATER POND	10.6	10	Total dissolved solids (TDS)	474 J-	mg/L
L2377419	Gen Chem	WEST STORM WATER POND	10.6	10	Total kjeldahl nitrogen (TKN)	0.91 J-	mg/L
L2377419	Gen Chem	WEST STORM WATER POND	10.6	10	Total suspended solids (TSS)	9.3 J-	mg/L
L2377419	Gen Chem	WEST STORM WATER POND	10.6	10	Un-ionized ammonia	0.00353 J-	mg/L
L2377419	SVOCs	EAST STORM WATER POND	10.6	10	1,2,4-Trichlorobenzene	0.40 UJ	µg/L
L2377419	SVOCs	EAST STORM WATER POND	10.6	10	1,2-Dichlorobenzene	0.40 UJ	µg/L
L2377419	SVOCs	EAST STORM WATER POND	10.6	10	1,3-Dichlorobenzene	0.40 UJ	µg/L
L2377419	SVOCs	EAST STORM WATER POND	10.6	10	1,4-Dichlorobenzene	0.40 UJ	µg/L
L2377419	SVOCs	EAST STORM WATER POND	10.6	10	1-Methylnaphthalene	0.40 UJ	µg/L
L2377419	SVOCs	EAST STORM WATER POND	10.6	10	2,3,4,5-Tetrachlorophenol	0.50 UJ	µg/L
L2377419	SVOCs	EAST STORM WATER POND	10.6	10	2,3,4,6-Tetrachlorophenol	0.50 UJ	µg/L
L2377419	SVOCs	EAST STORM WATER POND	10.6	10	2,3,6-Trichlorophenol	0.50 UJ	µg/L
L2377419	SVOCs	EAST STORM WATER POND	10.6	10	2,4,5-Trichlorophenol	0.50 UJ	µg/L
L2377419	SVOCs	EAST STORM WATER POND	10.6	10	2,4,6-Trichlorophenol	0.50 UJ	µg/L
L2377419	SVOCs	EAST STORM WATER POND	10.6	10	2,4-Dichlorophenol	0.30 UJ	µg/L
L2377419	SVOCs	EAST STORM WATER POND	10.6	10	2,4-Dimethylphenol	0.50 UJ	µg/L
L2377419	SVOCs	EAST STORM WATER POND	10.6	10	2,4-Dinitrophenol	1.0 UJ	µg/L
L2377419	SVOCs	EAST STORM WATER POND	10.6	10	2,4-Dinitrotoluene	0.40 UJ	µg/L
L2377419	SVOCs	EAST STORM WATER POND	10.6	10	2,6-Dinitrotoluene	0.40 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
L2377419	SVOCs	EAST STORM WATER POND	10.6	10	2-Chlorophenol	0.30 UJ	µg/L
L2377419	SVOCs	EAST STORM WATER POND	10.6	10	2-Methylnaphthalene	0.40 UJ	µg/L
L2377419	SVOCs	EAST STORM WATER POND	10.6	10	3,3'-Dichlorobenzidine	0.40 UJ	µg/L
L2377419	SVOCs	EAST STORM WATER POND	10.6	10	4-Chloroaniline	0.40 UJ	µg/L
L2377419	SVOCs	EAST STORM WATER POND	10.6	10	Acenaphthene	0.20 UJ	µg/L
L2377419	SVOCs	EAST STORM WATER POND	10.6	10	Acenaphthylene	0.20 UJ	µg/L
L2377419	SVOCs	EAST STORM WATER POND	10.6	10	Anthracene	0.20 UJ	µg/L
L2377419	SVOCs	EAST STORM WATER POND	10.6	10	Benzo(a)anthracene	0.20 UJ	µg/L
L2377419	SVOCs	EAST STORM WATER POND	10.6	10	Benzo(a)pyrene	0.050 UJ	µg/L
L2377419	SVOCs	EAST STORM WATER POND	10.6	10	Benzo(b)fluoranthene	0.20 UJ	µg/L
L2377419	SVOCs	EAST STORM WATER POND	10.6	10	Benzo(g,h,i)perylene	0.20 UJ	µg/L
L2377419	SVOCs	EAST STORM WATER POND	10.6	10	Benzo(k)fluoranthene	0.20 UJ	µg/L
L2377419	SVOCs	EAST STORM WATER POND	10.6	10	bis(2-Chloroethyl)ether	0.40 UJ	µg/L
L2377419	SVOCs	EAST STORM WATER POND	10.6	10	bis(2-Ethylhexyl)phthalate (DEHP)	2.0 UJ	µg/L
L2377419	SVOCs	EAST STORM WATER POND	10.6	10	Chrysene	0.20 UJ	µg/L
L2377419	SVOCs	EAST STORM WATER POND	10.6	10	Dibenz(a,h)anthracene	0.20 UJ	µg/L
L2377419	SVOCs	EAST STORM WATER POND	10.6	10	Diethyl phthalate	0.20 UJ	µg/L
L2377419	SVOCs	EAST STORM WATER POND	10.6	10	Dimethyl phthalate	0.20 UJ	µg/L
L2377419	SVOCs	EAST STORM WATER POND	10.6	10	Fluoranthene	0.20 UJ	µg/L
L2377419	SVOCs	EAST STORM WATER POND	10.6	10	Fluorene	0.20 UJ	µg/L
L2377419	SVOCs	EAST STORM WATER POND	10.6	10	Hexachlorobenzene	0.040 UJ	µg/L
L2377419	SVOCs	EAST STORM WATER POND	10.6	10	Hexachlorobutadiene	0.20 UJ	µg/L
L2377419	SVOCs	EAST STORM WATER POND	10.6	10	Indeno(1,2,3-cd)pyrene	0.20 UJ	µg/L
L2377419	SVOCs	EAST STORM WATER POND	10.6	10	Naphthalene	0.20 UJ	µg/L
L2377419	SVOCs	EAST STORM WATER POND	10.6	10	Pentachlorophenol	0.50 UJ	µg/L
L2377419	SVOCs	EAST STORM WATER POND	10.6	10	Perylene	0.20 UJ	µg/L
L2377419	SVOCs	EAST STORM WATER POND	10.6	10	Phenanthrene	0.20 UJ	µg/L
L2377419	SVOCs	EAST STORM WATER POND	10.6	10	Pyrene	0.20 UJ	µg/L

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L2377419	VOCs	EAST STORM WATER POND	10.6	10	1,1,1,2-Tetrachloroethane	0.50 UJ	µg/L
L2377419	VOCs	EAST STORM WATER POND	10.6	10	1,1,1-Trichloroethane	0.50 UJ	µg/L
L2377419	VOCs	EAST STORM WATER POND	10.6	10	1,1,2,2-Tetrachloroethane	0.50 UJ	µg/L
L2377419	VOCs	EAST STORM WATER POND	10.6	10	1,1,2-Trichloroethane	0.50 UJ	µg/L
L2377419	VOCs	EAST STORM WATER POND	10.6	10	1,1-Dichloroethane	0.50 UJ	µg/L
L2377419	VOCs	EAST STORM WATER POND	10.6	10	1,1-Dichloroethene	0.50 UJ	µg/L
L2377419	VOCs	EAST STORM WATER POND	10.6	10	1,2-Dibromoethane (Ethylene dibromide)	0.20 UJ	µg/L
L2377419	VOCs	EAST STORM WATER POND	10.6	10	1,2-Dichlorobenzene	0.50 UJ	µg/L
L2377419	VOCs	EAST STORM WATER POND	10.6	10	1,2-Dichloroethane	0.50 UJ	µg/L
L2377419	VOCs	EAST STORM WATER POND	10.6	10	1,2-Dichloropropane	0.50 UJ	µg/L
L2377419	VOCs	EAST STORM WATER POND	10.6	10	1,3-Dichlorobenzene	0.50 UJ	µg/L
L2377419	VOCs	EAST STORM WATER POND	10.6	10	1,4-Dichlorobenzene	0.50 UJ	µg/L
L2377419	VOCs	EAST STORM WATER POND	10.6	10	2-Butanone (Methyl ethyl ketone) (MEK)	20 UJ	µg/L
L2377419	VOCs	EAST STORM WATER POND	10.6	10	4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	20 UJ	µg/L
L2377419	VOCs	EAST STORM WATER POND	10.6	10	Acetone	20 UJ	µg/L
L2377419	VOCs	EAST STORM WATER POND	10.6	10	Benzene	0.50 UJ	µg/L
L2377419	VOCs	EAST STORM WATER POND	10.6	10	Bromodichloromethane	1.0 UJ	µg/L
L2377419	VOCs	EAST STORM WATER POND	10.6	10	Bromoform	1.0 UJ	µg/L
L2377419	VOCs	EAST STORM WATER POND	10.6	10	Bromomethane (Methyl bromide)	0.50 UJ	µg/L
L2377419	VOCs	EAST STORM WATER POND	10.6	10	Carbon tetrachloride	0.50 UJ	µg/L
L2377419	VOCs	EAST STORM WATER POND	10.6	10	Chlorobenzene	0.50 UJ	µg/L
L2377419	VOCs	EAST STORM WATER POND	10.6	10	Chloroethane	1.0 UJ	µg/L
L2377419	VOCs	EAST STORM WATER POND	10.6	10	Chloroform (Trichloromethane)	1.0 UJ	µg/L
L2377419	VOCs	EAST STORM WATER POND	10.6	10	cis-1,2-Dichloroethene	0.50 UJ	µg/L
L2377419	VOCs	EAST STORM WATER POND	10.6	10	cis-1,3-Dichloropropene	0.50 UJ	µg/L
L2377419	VOCs	EAST STORM WATER POND	10.6	10	Dibromochloromethane	1.0 UJ	µg/L
L2377419	VOCs	EAST STORM WATER POND	10.6	10	Dichlorodifluoromethane (CFC-12)	1.0 UJ	µg/L
L2377419	VOCs	EAST STORM WATER POND	10.6	10	Ethylbenzene	0.50 UJ	µg/L
L2377419	VOCs	EAST STORM WATER POND	10.6	10	Hexane	0.50 UJ	µg/L
L2377419	VOCs	EAST STORM WATER POND	10.6	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
L2377419	VOCs	EAST STORM WATER POND	10.6	10	Methyl tert butyl ether (MTBE)	0.50 UJ	µg/L
L2377419	VOCs	EAST STORM WATER POND	10.6	10	Methylene chloride	2.0 UJ	µg/L
L2377419	VOCs	EAST STORM WATER POND	10.6	10	o-Xylene	0.50 UJ	µg/L
L2377419	VOCs	EAST STORM WATER POND	10.6	10	Styrene	0.50 UJ	µg/L
L2377419	VOCs	EAST STORM WATER POND	10.6	10	Tetrachloroethene	0.50 UJ	µg/L
L2377419	VOCs	EAST STORM WATER POND	10.6	10	Toluene	0.50 UJ	µg/L
L2377419	VOCs	EAST STORM WATER POND	10.6	10	trans-1,2-Dichloroethene	0.50 UJ	µg/L
L2377419	VOCs	EAST STORM WATER POND	10.6	10	trans-1,3-Dichloropropene	0.50 UJ	µg/L
L2377419	VOCs	EAST STORM WATER POND	10.6	10	Trichloroethene	0.50 UJ	µg/L
L2377419	VOCs	EAST STORM WATER POND	10.6	10	Trichlorofluoromethane (CFC-11)	1.0 UJ	µg/L
L2377419	VOCs	EAST STORM WATER POND	10.6	10	Trihalomethanes	2.0 UJ	µg/L
L2377419	VOCs	EAST STORM WATER POND	10.6	10	Vinyl chloride	0.50 UJ	µg/L
L2377419	VOCs	EAST STORM WATER POND	10.6	10	Xylenes (total)	1.1 UJ	µg/L
L2377419	Gen Chem	EAST STORM WATER POND	10.6	10	Alkalinity, total (as CaCO <sub>3</sub> )	148 J-	mg/L
L2377419	Gen Chem	EAST STORM WATER POND	10.6	10	Ammonia-N	0.315 J-	mg/L
L2377419	Gen Chem	EAST STORM WATER POND	10.6	10	Bromide	2.70 J-	mg/L
L2377419	Gen Chem	EAST STORM WATER POND	10.6	10	Chemical oxygen demand (COD)	28 J-	mg/L
L2377419	Gen Chem	EAST STORM WATER POND	10.6	10	Chloride	78.0 J-	mg/L
L2377419	Gen Chem	EAST STORM WATER POND	10.6	10	Chromium VI (hexavalent)	0.00050 UJ	mg/L
L2377419	Gen Chem	EAST STORM WATER POND	10.6	10	Conductivity	847 J-	µmhos/cm
L2377419	Gen Chem	EAST STORM WATER POND	10.6	10	Cyanide (total)	0.0045 J-	mg/L
L2377419	Gen Chem	EAST STORM WATER POND	10.6	10	Dissolved organic carbon (DOC)	7.29 J-	mg/L
L2377419	Gen Chem	EAST STORM WATER POND	10.6	10	Fluoride	0.893 J-	mg/L
L2377419	Gen Chem	EAST STORM WATER POND	10.6	10	Nitrate (as N)	0.059 J-	mg/L
L2377419	Gen Chem	EAST STORM WATER POND	10.6	10	Nitrite (as N)	0.010 UJ	mg/L
L2377419	Gen Chem	EAST STORM WATER POND	10.6	10	pH, lab	8.04 J	s.u.
L2377419	Gen Chem	EAST STORM WATER POND	10.6	10	Phenolics (total)	0.0016 J-	mg/L
L2377419	Gen Chem	EAST STORM WATER POND	10.6	10	Phosphorus	0.0696 J-	mg/L
L2377419	Gen Chem	EAST STORM WATER POND	10.6	10	Sulfate	141 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
L2377419	Gen Chem	EAST STORM WATER POND	10.6	10	Total dissolved solids (TDS)	511 J-	mg/L
L2377419	Gen Chem	EAST STORM WATER POND	10.6	10	Total kjeldahl nitrogen (TKN)	1.32 J-	mg/L
L2377419	Gen Chem	EAST STORM WATER POND	10.6	10	Total suspended solids (TSS)	15.7 J-	mg/L
L2377419	Gen Chem	EAST STORM WATER POND	10.6	10	Un-ionized ammonia	0.00281 J-	mg/L

Notes:

- J- - Estimated concentration, the result may be biased low
- J - Estimated concentration
- UJ - Not detected; associated reporting limit is estimated
- Gen Chem - General Chemistry
- SVOCs - Semi-volatile Organic Compounds
- VOCs - Volatile Organic Compounds
- s.u. - Standard Units
- N - Nitrogen

Table 5

**Qualified Sample Data Due To Headspace  
Surface Water Sampling Events  
Clean Harbors Canada Inc.  
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Lab Report #	Parameter	Analyte	Associated Sample ID	Qualified Result	Units
L2281993	VOCs	1,1,1,2-Tetrachloroethane	EQ POND DISCHARGE	0.50 UJ	µg/L
L2281993	VOCs	1,1,1-Trichloroethane	EQ POND DISCHARGE	0.50 UJ	µg/L
L2281993	VOCs	1,1,2,2-Tetrachloroethane	EQ POND DISCHARGE	0.50 UJ	µg/L
L2281993	VOCs	1,1,2-Trichloroethane	EQ POND DISCHARGE	0.50 UJ	µg/L
L2281993	VOCs	1,1-Dichloroethane	EQ POND DISCHARGE	0.50 UJ	µg/L
L2281993	VOCs	1,1-Dichloroethene	EQ POND DISCHARGE	0.50 UJ	µg/L
L2281993	VOCs	1,2-Dibromoethane (Ethylene dibromide)	EQ POND DISCHARGE	0.20 UJ	µg/L
L2281993	VOCs	1,2-Dichlorobenzene	EQ POND DISCHARGE	0.50 UJ	µg/L
L2281993	VOCs	1,2-Dichloroethane	EQ POND DISCHARGE	0.50 UJ	µg/L
L2281993	VOCs	1,2-Dichloropropane	EQ POND DISCHARGE	0.50 UJ	µg/L
L2281993	VOCs	1,3-Dichlorobenzene	EQ POND DISCHARGE	0.50 UJ	µg/L
L2281993	VOCs	1,4-Dichlorobenzene	EQ POND DISCHARGE	0.50 UJ	µg/L
L2281993	VOCs	2-Butanone (Methyl ethyl ketone) (MEK)	EQ POND DISCHARGE	20 UJ	µg/L
L2281993	VOCs	4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	EQ POND DISCHARGE	20 UJ	µg/L
L2281993	VOCs	Acetone	EQ POND DISCHARGE	20 UJ	µg/L
L2281993	VOCs	Benzene	EQ POND DISCHARGE	0.50 UJ	µg/L
L2281993	VOCs	Bromodichloromethane	EQ POND DISCHARGE	1.0 UJ	µg/L
L2281993	VOCs	Bromoform	EQ POND DISCHARGE	1.0 UJ	µg/L
L2281993	VOCs	Bromomethane (Methyl bromide)	EQ POND DISCHARGE	0.50 UJ	µg/L
L2281993	VOCs	Carbon tetrachloride	EQ POND DISCHARGE	0.50 UJ	µg/L
L2281993	VOCs	Chlorobenzene	EQ POND DISCHARGE	0.50 UJ	µg/L
L2281993	VOCs	Chloroethane	EQ POND DISCHARGE	1.0 UJ	µg/L
L2281993	VOCs	Chloroform (Trichloromethane)	EQ POND DISCHARGE	1.0 UJ	µg/L
L2281993	VOCs	cis-1,2-Dichloroethene	EQ POND DISCHARGE	0.50 UJ	µg/L
L2281993	VOCs	cis-1,3-Dichloropropene	EQ POND DISCHARGE	0.50 UJ	µg/L
L2281993	VOCs	Dibromochloromethane	EQ POND DISCHARGE	1.0 UJ	µg/L
L2281993	VOCs	Dichlorodifluoromethane (CFC-12)	EQ POND DISCHARGE	1.0 UJ	µg/L
L2281993	VOCs	Ethylbenzene	EQ POND DISCHARGE	0.50 UJ	µg/L
L2281993	VOCs	Hexane	EQ POND DISCHARGE	0.50 UJ	µg/L
L2281993	VOCs	m&p-Xylenes	EQ POND DISCHARGE	1.0 UJ	µg/L
L2281993	VOCs	Methyl tert butyl ether (MTBE)	EQ POND DISCHARGE	0.50 UJ	µg/L
L2281993	VOCs	Methylene chloride	EQ POND DISCHARGE	2.0 UJ	µg/L

Table 5

**Qualified Sample Data Due To Headspace  
Surface Water Sampling Events  
Clean Harbors Canada Inc.  
Sarnia, Ontario  
January to December 2019**

Lab Report #	Parameter	Analyte	Associated Sample ID	Qualified Result	Units
L2281993	VOCs	o-Xylene	EQ POND DISCHARGE	0.50 UJ	µg/L
L2281993	VOCs	Styrene	EQ POND DISCHARGE	0.50 UJ	µg/L
L2281993	VOCs	Tetrachloroethene	EQ POND DISCHARGE	0.50 UJ	µg/L
L2281993	VOCs	Toluene	EQ POND DISCHARGE	0.50 UJ	µg/L
L2281993	VOCs	trans-1,2-Dichloroethene	EQ POND DISCHARGE	0.50 UJ	µg/L
L2281993	VOCs	trans-1,3-Dichloropropene	EQ POND DISCHARGE	0.50 UJ	µg/L
L2281993	VOCs	Trichloroethene	EQ POND DISCHARGE	0.50 UJ	µg/L
L2281993	VOCs	Trichlorofluoromethane (CFC-11)	EQ POND DISCHARGE	1.0 UJ	µg/L
L2281993	VOCs	Trihalomethanes	EQ POND DISCHARGE	2.0 UJ	µg/L
L2281993	VOCs	Vinyl chloride	EQ POND DISCHARGE	0.50 UJ	µg/L
L2281993	VOCs	Xylenes (total)	EQ POND DISCHARGE	1.1 UJ	µg/L
L2281993	VOCs	1,1,1,2-Tetrachloroethane	WEST STORM WATER POND	0.50 UJ	µg/L
L2281993	VOCs	1,1,1-Trichloroethane	WEST STORM WATER POND	0.50 UJ	µg/L
L2281993	VOCs	1,1,2,2-Tetrachloroethane	WEST STORM WATER POND	0.50 UJ	µg/L
L2281993	VOCs	1,1,2-Trichloroethane	WEST STORM WATER POND	0.50 UJ	µg/L
L2281993	VOCs	1,1-Dichloroethane	WEST STORM WATER POND	0.50 UJ	µg/L
L2281993	VOCs	1,1-Dichloroethene	WEST STORM WATER POND	0.50 UJ	µg/L
L2281993	VOCs	1,2-Dibromoethane (Ethylene dibromide)	WEST STORM WATER POND	0.20 UJ	µg/L
L2281993	VOCs	1,2-Dichlorobenzene	WEST STORM WATER POND	0.50 UJ	µg/L
L2281993	VOCs	1,2-Dichloroethane	WEST STORM WATER POND	0.50 UJ	µg/L
L2281993	VOCs	1,2-Dichloropropane	WEST STORM WATER POND	0.50 UJ	µg/L
L2281993	VOCs	1,3-Dichlorobenzene	WEST STORM WATER POND	0.50 UJ	µg/L
L2281993	VOCs	1,4-Dichlorobenzene	WEST STORM WATER POND	0.50 UJ	µg/L
L2281993	VOCs	2-Butanone (Methyl ethyl ketone) (MEK)	WEST STORM WATER POND	20 UJ	µg/L
L2281993	VOCs	4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	WEST STORM WATER POND	20 UJ	µg/L
L2281993	VOCs	Acetone	WEST STORM WATER POND	20 UJ	µg/L
L2281993	VOCs	Benzene	WEST STORM WATER POND	0.50 UJ	µg/L
L2281993	VOCs	Bromodichloromethane	WEST STORM WATER POND	1.0 UJ	µg/L
L2281993	VOCs	Bromoform	WEST STORM WATER POND	1.0 UJ	µg/L
L2281993	VOCs	Bromomethane (Methyl bromide)	WEST STORM WATER POND	0.50 UJ	µg/L

Table 5

**Qualified Sample Data Due To Headspace  
Surface Water Sampling Events  
Clean Harbors Canada Inc.  
Sarnia, Ontario  
January to December 2019**

Lab Report #	Parameter	Analyte	Associated Sample ID	Qualified Result	Units
L2281993	VOCs	Carbon tetrachloride	WEST STORM WATER POND	0.50 UJ	µg/L
L2281993	VOCs	Chlorobenzene	WEST STORM WATER POND	0.50 UJ	µg/L
L2281993	VOCs	Chloroethane	WEST STORM WATER POND	1.0 UJ	µg/L
L2281993	VOCs	Chloroform (Trichloromethane)	WEST STORM WATER POND	1.0 UJ	µg/L
L2281993	VOCs	cis-1,2-Dichloroethene	WEST STORM WATER POND	0.50 UJ	µg/L
L2281993	VOCs	cis-1,3-Dichloropropene	WEST STORM WATER POND	0.50 UJ	µg/L
L2281993	VOCs	Dibromochloromethane	WEST STORM WATER POND	1.0 UJ	µg/L
L2281993	VOCs	Dichlorodifluoromethane (CFC-12)	WEST STORM WATER POND	1.0 UJ	µg/L
L2281993	VOCs	Ethylbenzene	WEST STORM WATER POND	0.50 UJ	µg/L
L2281993	VOCs	Hexane	WEST STORM WATER POND	0.50 UJ	µg/L
L2281993	VOCs	m&p-Xylenes	WEST STORM WATER POND	1.0 UJ	µg/L
L2281993	VOCs	Methyl tert butyl ether (MTBE)	WEST STORM WATER POND	0.50 UJ	µg/L
L2281993	VOCs	Methylene chloride	WEST STORM WATER POND	2.0 UJ	µg/L
L2281993	VOCs	o-Xylene	WEST STORM WATER POND	0.50 UJ	µg/L
L2281993	VOCs	Styrene	WEST STORM WATER POND	0.50 UJ	µg/L
L2281993	VOCs	Tetrachloroethene	WEST STORM WATER POND	0.50 UJ	µg/L
L2281993	VOCs	Toluene	WEST STORM WATER POND	0.50 UJ	µg/L
L2281993	VOCs	trans-1,2-Dichloroethene	WEST STORM WATER POND	0.50 UJ	µg/L
L2281993	VOCs	trans-1,3-Dichloropropene	WEST STORM WATER POND	0.50 UJ	µg/L
L2281993	VOCs	Trichloroethene	WEST STORM WATER POND	0.50 UJ	µg/L
L2281993	VOCs	Trichlorofluoromethane (CFC-11)	WEST STORM WATER POND	1.0 UJ	µg/L
L2281993	VOCs	Trihalomethanes	WEST STORM WATER POND	2.0 UJ	µg/L
L2281993	VOCs	Vinyl chloride	WEST STORM WATER POND	0.50 UJ	µg/L
L2281993	VOCs	Xylenes (total)	WEST STORM WATER POND	1.1 UJ	µg/L

## Notes:

- UJ - Not detected; associated reporting limit is estimated  
VOCs - 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  
January to December 2019**

Lab Report #	Parameter	Sample ID	Analyte	Qualified Result	Units
L2223895	Gen Chem	EQ POND DISCHARGE	Hardness	319 J+	mg/L
L2223895	Gen Chem	WEST STORM WATER POND	Hardness	312 J+	mg/L
L2223895	Gen Chem	EAST STORM WATER POND	Hardness	324 J+	mg/L
L2249002	Gen Chem	EQ POND DISCHARGE	Hardness	284 J+	mg/L
L2249002	Gen Chem	WEST STORM WATER POND	Hardness	283 J+	mg/L
L2249002	Gen Chem	EAST STORM WATER POND	Hardness	296 J+	mg/L
L2265498	Gen Chem	EQ POND DISCHARGE	Hardness	264 J+	mg/L
L2265498	Gen Chem	WEST STORM WATER POND	Hardness	262 J+	mg/L
L2265498	Gen Chem	EAST STORM WATER POND	Hardness	263 J+	mg/L
L2281993	Gen Chem	EQ POND DISCHARGE	Hardness	274 J+	mg/L
L2281993	Gen Chem	WEST STORM WATER POND	Hardness	264 J+	mg/L
L2281993	Gen Chem	EAST STORM WATER POND	Hardness	288 J+	mg/L
L2293952	Gen Chem	SW-44985-061819-NS-STN6A	Hardness	365 J+	mg/L
L2310219	Gen Chem	EQ POND DISCHARGE	Hardness	244 J+	mg/L
L2310219	Gen Chem	WEST STORM WATER POND	Hardness	279 J+	mg/L
L2310219	Gen Chem	EAST STORM WATER POND	Hardness	269 J+	mg/L
L2333790	Gen Chem	EQ POND DISCHARGE	Hardness	217 J+	mg/L
L2333790	Gen Chem	WEST STORM WATER POND	Hardness	206 J+	mg/L
L2333790	Gen Chem	EAST STORM WATER POND	Hardness	233 J+	mg/L
L2377419	Gen Chem	EQ POND DISCHARGE	Hardness	218 J+	mg/L
L2377419	Gen Chem	WEST STORM WATER POND	Hardness	215 J+	mg/L
L2377419	Gen Chem	EAST STORM WATER POND	Hardness	238 J+	mg/L
L2387305	Gen Chem	STN6	Hardness	445 J+	mg/L
L2387305	Gen Chem	STN6A	Hardness	420 J+	mg/L
L2393996	Gen Chem	EQ POND DISCHARGE	Hardness	284 J+	mg/L
L2393996	Gen Chem	WEST STORM WATER POND	Hardness	294 J+	mg/L
L2393996	Gen Chem	EAST STORM WATER POND	Hardness	357 J+	mg/L

## Notes:

J+ - Estimated concentration, result may be biased high  
Gen Chem - General Chemistry

# **Appendix E**

## **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

<b>Waste Disposal Site Name</b>	Clean Harbors Canada, Inc. - Lambton Facility
<b>Location (e.g. street address, lot, concession)</b>	4090 Telfer Road, R.R. #1, Corunna, Ontario, N0N 1G0
<b>GPS Location (taken within the property boundary at front gate/ front entry)</b>	NAD 83; Zone 17; Easting (m) 393726; Northing (m) 4748167; Horizontal Accuracy +/-3m
<b>Municipality</b>	Lambton County
<b>Client and/or Site Owner</b>	Clean Harbors Canada, Inc.
<b>Monitoring Period (Year)</b>	January 1 through December 31, 2019
This Monitoring Report is being submitted under the following:	
<b>Certificate of Approval No.:</b>	ECA A031806 and ECA 2985-B9KKP2
<b>Director's Order No.:</b>	Not applicable
<b>Provincial Officer's Order No.:</b>	Not applicable
<b>Other:</b>	Document relates to surface water monitoring only

<b>Report Submission Frequency</b>	<input checked="" type="radio"/> <b>Annual</b> <input type="radio"/> <b>Other</b>	
<b>The site is:</b>	<input checked="" type="radio"/> <b>Active</b> <input type="radio"/> <b>Inactive</b> <input type="radio"/> <b>Closed</b>	
<b>If closed, specify C of A, control or authorizing document closure date:</b>		
<b>Has the nature of the operations at the site changed during this monitoring period?</b>	<input type="radio"/> <b>Yes</b> <input checked="" type="radio"/> <b>No</b>	
<b>If yes, provide details:</b>		
<b>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)</b>	<input type="radio"/> <b>Yes</b> <input checked="" type="radio"/> <b>No</b>	



## 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><b>Groundwater Sampling Location</b></p>	<p><b>Description/Explanation for change (change in name or location, additions, deletions)</b></p>	<p><b>Date</b></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 <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 <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 <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:                  (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                  (b) There is a predictive monitoring program in-place (modeled indicator concentrations projected over time for key locations); or                  (c) The site meets the following two conditions (typically achieved after 15 years or longer of site operation):   <i>i.</i> The site has developed stable leachate mound(s) and stable leachate plume geometry/concentrations; and  <i>ii.</i> Seasonal and annual water levels and water quality fluctuations are well understood.</p>	<p><input type="radio"/> Yes  <input type="radio"/> No</p>	<p><input type="checkbox"/> (a) <input type="checkbox"/> (b) <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 <input type="radio"/> No <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:

<b>Name:</b>			
<b>Seal:</b>	Add Image		
<b>Signature:</b>		<b>Date:</b>	
<b>CEP Contact Information:</b>			
<b>Company:</b>			
<b>Address:</b>			
<b>Telephone No.:</b>		Fax No. :	
<b>E-mail Address:</b>	Type Here		
<b>Co-signers for additional expertise provided:</b>			
<b>Signature:</b>		<b>Date:</b>	
<b>Signature:</b>		<b>Date:</b>	

## 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):

<b>Name (s)</b>	The WDS effluent drains into the Telfer Road drainage ditch and associated drains with eventually discharge to Bear Creek
<b>Distance(s)</b>	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:

<b>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:</b>	<input checked="" type="radio"/> Yes <input type="radio"/> No	If no, identify issues (Type Here):
<b>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):</b>	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> <b>Not applicable (No C of A, authorizing / control document applies)</b>	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</p> <p><input checked="" type="radio"/> No</p> <p><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</p> <p><input type="radio"/> No</p> <p><input checked="" type="radio"/> Not Applicable</p>	<p>If no, specify below or provide details in an attachment.</p>
<p><b>Surface Water Sampling Location</b></p>	<p><b>Description/Explanation for change (change in name or location, additions, deletions)</b></p>	<p><b>Date</b></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</p> <p><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) <b>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.</b></p>	<p><input checked="" type="radio"/> <b>Yes</b></p> <p><input type="radio"/> <b>No</b></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) <b>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)):</b></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"/> <b>Not Applicable</b></p>	<p>If yes, provide details and whether remedial measures are necessary (Type Here)</p>
<p>9) <b>Have trigger values for contingency plans or site remedial actions been exceeded (where they exist):</b></p>	<p><input type="radio"/> Yes</p> <p><input checked="" type="radio"/> <b>No</b></p> <p><input type="radio"/> <b>Not Applicable</b></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>	

<b>CEP Signature</b>		
<b>Relevant Discipline</b>	Professional Engineer	
<b>Date:</b>	30-Jan-20	
<b>CEP Contact Information:</b>	Mr. James Yardley, P.Eng.	
<b>Company:</b>	GHD	
<b>Address:</b>	455 Phillip St., Waterloo, Ontario N2L 3X2	
<b>Telephone No.:</b>	519-340-4265	
<b>Fax No. :</b>	519-884-0525	
<b>E-mail Address:</b>	Jim.Yardley@ghd.com	
<b>Save As</b>		<b>Print Form</b>



## 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](http://www.ghd.com)