2021 Annual Surface Water Quality Monitoring Report

Clean Harbors Lambton Facility

Clean Harbors Canada Inc.

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→ The Power of Commitment

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1. Introduction

1.1 Purpose and Organization

GHD on behalf of Clean Harbors Canada, Inc. (Clean Harbors) has prepared the "2021 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. 4731-BNNT5Y dated April 20, 2020 (SW ECA) is a new ECA for the surface water management system. The SW ECA replaces ECA No. 1065-9VVJSW dated October 19, 2015, and ECA No. 2985-B9KKP2 dated September 9, 2019. 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 2021 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 current approved surface water monitoring and characterization programs are summarized in Section 3. An evaluation of the surface water characterization program is included in Section 5.

1.2 Site Location

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

Table 1 Geo-Reference Data for the Lambton Facility

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

Notes: Geo-reference data based on digital map referencing UTM NAD83 Zone 17T (accuracy +/- 3 m). Location is in reference to the Lambton Operational Area as shown on Figure 1.

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/akali 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:

Mackenzie Costello, Senior Environmental Compliance Manager
Clean Harbors Canada, Inc.
4090 Telfer Road, Rural Route #1
Corunna, Ontario N0N 1G0
Phone: (519) 864-3890, E-mail: costello.mackenzie@cleanharbors.com

GHD was retained by Clean Harbors to conduct the 2021 annual monitoring program. The Competent Environmental Practitioner (CEP) who reviewed the 2021 Annual Surface Water Quality Monitoring Report is:

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 2021 operational area (disposal area for landfilling at the Lambton Facility) was in Cell 19-2, Cell 19-3 and Cell 20-1. The landfill disposal method and sequence is provided in the Design and Operations Report - Lambton Landfill Expansion (D&O Report) prepared by Tetra Tech WEI Inc. and dated October 8, 2015, and the most recent Waste ECA amendment. During the 2021 reporting period:

1. Cell 20-1 was constructed and the perimeter leachate collection trench was extended in the south-east portion of the disposal area
2. Disposal occurred in Cell 19-2 and 19-3 for most of the 2021. Cell 20-1 commenced receipt of waste in late December 2021.
3. Interim cover was installed over the majority of Cells 19-2, 19-3A, and 19-3B
4. The waste transport route to Cell 19-3 was adjusted and extended
5. Cell 20-1 was constructed.

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 was approved by the SW ECA and was designed to accommodate surface water for the approved 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 several 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. The construction of the

revised surface water management system was completed by October 30, 2020. Major site features that relate to the revised surface water management system at the Site are shown on Figure 2. The SW ECA addresses the amendments and the transition period required to address the various items.

Additional information regarding 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 2021 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 (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. The previous surface water management system (prior to early 2020) consisted of two on-Site surface water storage ponds (West Pond and East Pond). In 2020, the revised surface water management system was developed, and it now consists of four ponds identified as Pond A, B, C, and D (Figure 2). The four ponds are located in the southern portion of the Site and incorporated portions of the former East and West Ponds. The ponds are linked and operate as one large pond from a surface water point of view. The perimeter surface water ditches discharge to the ponds.

The Lambton Facility's Surface Water Treatment Plant (SWTP) for processing surface water pumped from Pond D is rated with a treatment capacity of 4,500 cubic metres per day (m^3/day). The SWTP consists of the following:

– Two influent pumps (including one standby), each with rated capacity of 22.7 litres per second (L/s) at 310 kilopascals (kPa) (300 imperial gallons per minute [IGPM] at 45 pounds per square inch gauge [psig]).
– Two sand filters, each with 3.6 m outside diameter and 1.8 m high, containing 6.4 m3 of 0.3 mm of silica sand and 3.2 m^3 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^3 of 20 mm clear crushed stone and 14.2 m^3 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 wet periods of high 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 test results are in compliance with daily effluent criteria. Likewise, if during operating modem, 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 three process water ponds (North Process Water Pond, South Process Water Pond, West Process Water Pond). The North

and South Process Water Ponds receive process water either by ditches or through pumps, forcemains, or vacuum trucks. The West Process Water Pond, constructed in 2016, receives water from the South Process Water Pond through a forcemain and overland hosing. 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 Pond D 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 2021 monitoring period, the following maintenance was conducted on the SWTP:

– Repaired the pressure discs and then started the recirculation at the SWTP on December 14, 2021
– Recirculation stopped on December 17, 2021, and repaired the piping to the carbon bed
– Recirculation mode started on December 20, 2021
– Began discharging off-Site on December 23, 2021

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 2021 Annual Groundwater Monitoring Report.

2.2 Surface Water Features

The Lambton Facility resides within the Sydenham River basin watershed, which ultimately drains 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. The surface water monitoring program generally did not change with the amendment to the stormwater management system (dated September 9, 2019).

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, 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 (Table 4).

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, Pond D, Pond A

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.

3.1.2.4 Off-Site Surface Water Monitoring

Location: STN6 (upstream of discharge) and STN6A (downstream of discharge). See Figure 1 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, VOC, and 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 Pond C and D 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 Pond A and Pond D 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. It was recommended to monitor for a period of 5 years after commencement of the landfill expansion to allow a database to be established that will provide a long-term database for the new surface water management set-up. After the 5-year database of surface water monitoring post-commencement of the landfill expansion, it was recommended that Clean Harbors assess the data and recommend changes to the surface water monitoring program in Annual Surface Water Quality Monitoring Report. 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 review was to be conducted after 5 years of data was collected. In 2020, collection of characterization samples was limited due to construction activities. As such, it was proposed to delay the review for one year. The surface water characterization has been included in this report and incorporates the 2021 monitoring data into the review. Refer to Section 5 for the surface water characterization.

3.3 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 requirement to provide weekly reports to the MECP was removed from the order by MECP once the LCS returned to normal operating conditions in early May 2020 and the frac tanks were emptied and removed from Site in July 2020. The Provincial Officer's Order is still open.

4. Monitoring Results and Assessment

4.1 Daily Discharge Monitoring

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

– Period 1: December 23, 2021, to December 31, 2021

Data for all parameters regularly analyzed is available for Period 1. There were no exceedances of the effluent discharge limits for TSS, phenols, or solvent extractables specified in the SW ECA in 2021. The SWMP was put in recirculation mode on December 20, 2021, with discharge commencing on December 23, 2021.

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 SW ECA.

4.2 Monthly Discharge Monitoring

The results of the monthly discharge monitoring are presented in Tables 6 to 8 with analytical reports provided in Appendix C. An analytical data verification memo summarizing GHD's assessment of the samples, 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, and sVOCs were taken on December 14, 2021. 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 from December 14, 2021, were generally below the PWQO, with the exception of the following:

– Total phenolics above the objective of 0.001 mg/L (0.0056 mg/L)
– Phosphorus above the objective of 0.01 mg/L (0.0109 mg/L)
– Molybdenum above the object of 0.04 mg/L (0.0507 mg/L)

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 detection limits that were above their associated PWQO, with bis(2-Ethylhexyl)phthalate (DEHP) the highest with a detection limit of 2.0 µg/L and PWQO of 0.6 µg/L.

4.2.2 Toxicity Monitoring

Toxicity monitoring samples from the Equalization Pond were collected in December of 2021. The contract laboratory had an instrumentation issue and was transferred to another lab. However, the sample was received after the sample holding time had expired and was not analyzed.

Review of the toxicity monitoring data for the last 5 years has not shown any positive toxicity results. The toxicity sample has a holding time of 72 hours and requires special shipment to the laboratory. Since the toxicity sample is not showing positive results and characterization samples are collected at the same time, it is proposed to be removed from the surface water program.

4.2.3 Visual Observation

Quarterly visual Site inspections were undertaken by GHD on March 17, June 7, October 5, December 16, 2021, including of the surface water management system.

No fish were observed in the Equalization Pond at the time of the 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.

The status of the water levels in the Equalization Pond was not noted during the quarterly inspections. Water levels were noted to be low in the SWMP during the first and second quarterly inspections.

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

The visual observation of fish in the Equalization Pond is difficult based on time of year, light conditions, and water temperature. The information collected with regard to whether fish are observed is not scientific in nature. It is recommended that the visual observation for fish in the Equalization Pond should be discontinued.

4.3 Supplementary Monitoring as part of the Surface Water Characterization Program

Supplementary monitoring of Pond A for general chemistry, metals, VOCs, and sVOCs was undertaken on September 1, October 7, and December 14, 2021. Pond D was sampled on December 14, 2021. The results of the chemical monitoring for the Pond A and Pond D are presented in Tables 7 and 8, respectively.

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

– Total phenolics above the objective of 0.001 mg/L on September 1 (0.0104J mg/L) and October 7 (0.0103J mg/L)
– Phosphorus above the objective of 0.01 mg/L on September 1 (0.0172J mg/L) and December 14 (0.0387 mg/L)
– Aluminum above the objective of 0.075 mg/L on September 1 (0.329J mg/L), October 7 (0.087 mg/L), and December 14 (1.05 mg/L)
– Iron above the objective of 0.3 mg/L on December 14 (1.12 mg/L)
– Molybdenum above the objective of 0.04 mg/L on September 1 (0.0810J mg/L), October 7 (0.155J mg/L), December 14 (0.0707 mg/L)

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

– Phosphorus above the objective of 0.01 mg/L on December 14 (0.0407 mg/L)
– Aluminum above the objective of 0.075 mg/L on December 14 (1.34 mg/L)
– Iron above the objective of 0.3 mg/L on December 14 (1.25 mg/L)
– Molybdenum above the objective of 0.04 mg/L on December 14 (0.0552 mg/L)

The qualifier of ‘J-‘ following a result in Tables 7 and 8 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 detection limits that were above their associated PWQO, with bis(2-Ethylhexyl)phthalate (DEHP) the highest with a detection limit of 2.5 µg/L and PWQO of 0.6 µg/L.

A comparison of the chemical monitoring for Pond A and Pond D to the Equalization Pond indicates the following:

– The analytical results for total phenolics and phosphorus at all three sampling locations is on approximately the same order of magnitude with no discernable trend noted between the concentrations at the three sampling locations.
– Individual concentrations of metals, including aluminum, iron, and silicon, were generally higher in Pond A and Pond D compared to the Equalization Pond.
– VOCs and semi-VOCs were not detected in Pond A, Pond D, or the Equalization Pond
– Generally, surface water quality is the same or slightly improves as the water moves from Pond A to Pond D and through the SWTP and the Equalization Pond.

4.4 Off-Site Surface Water Monitoring

The background (STN6) and downstream (STN6A) off-Site monitoring locations are typically monitored as part of the monitoring program if water is discharged from the Equalization Pond for an extended period of time. Samples are to be collected in spring and late summer/fall during discharge, with samples analyzed for general chemistry, metals, VOCs, semi-VOCs. No samples were collected from STN6 and/or STN6A during the reporting period. There was no discharge in the spring due to dry conditions on Site. Dry conditions persisted into fall 2020, and as such, there was no discharge from the Site until December 23, 2021. The discharge period in December was relatively short. It is recommended samples are collected from STN6 and STN6A in 2022, if conditions allow.

5. Surface Water Characterization

Condition 8 of the SW ECA specifies that a surface water characterization should be completed to evaluate surface water quality with relation to the vertical expansion and landfill operations. A key concern was the potential for dust/operational impacts since the active disposal cells are along the south, near the surface water ponds. A surface water characterization monitoring program was incorporated through the sampling of Ponds A and D (formerly the East Pond and West Pond) for 5 years following commencement of the landfill expansion. The landfill expansion commenced in 2016, however, the characterization was delayed for one year due to limited sample collection in 2020. The following section provides a review of the surface water characterization and compares surface water quality from before the landfill expansion and throughout the first 6 years of operating the expanded landfill.

Ponds A and D (formerly the East and West Ponds) were sampled prior to and during discharge periods for general chemistry, metals, VOCs, and semi-VOCs as part of the surface water characterization monitoring program. Sampling results between 2016 and 2021 from Ponds A and D, the Equalization Pond, and off-Site sampling locations (STN6 and STN6A) are provided in Appendix F.

During the period of the surface water characterization two significant items occurred that impacted the surface water quality. In 2019 a leachate seep occurred that impacted both surface water ponds. The surface water required extensive testing and treatment through recirculation prior to discharge. In 2020, the complete surface water pond system was altered to the approved surface water. This required several months of excavation and development of a significantly larger surface water storage volume. During the period of 2020 and 2021, minimal surface water discharge occurred. Both of these factors must be considered when the data is assessed.

When developing the characterization monitoring program, it was anticipated that metals were the dominate set of parameters that may change as a result of operational or disposal changes. The primary metal parameters that were evaluated as part of this characterization included aluminum, boron, cobalt, iron, molybdenum, and vanadium. Additionally, key general parameters included phosphorus, phenolics, and unionized ammonia. Concentration versus time plots for select locations and select parameters are provided in Appendix G. A summary of trending in results is provided below:

– Aluminum, iron, cobalt, and vanadium concentrations were variable since 2016. There were no discernible trends or changes in concentrations, except for slightly increasing trends in aluminum, iron, and vanadium concentrations at Pond D (West Pond). Concentrations of aluminum, iron, cobalt, and vanadium at off-Site locations, STN6 and STN6A, showed comparable or higher concentrations than observed on Site. Concentrations of aluminum, iron, and cobalt were commonly above the applicable PWQO. Concentrations of vanadium were generally below PWQO.
– Concentrations of boron and molybdenum were variable but showed similar patterns between Pond A (East Pond), Pond D (West Pond) and the Equalization Pond. Overall, between 2016 and 2021 there were no increasing or decreasing trends observed. Boron concentrations were below the applicable PWQO. Molybdenum concentrations were generally above the PWQO.
– Concentrations of phosphorus, unionized ammonia, and phenolics showed comparable concentrations from 2016 to 2021. Concentrations were generally higher at off-Site locations compared to on Site. Phosphorus and phenolics concentrations were above the PWQO and unionized ammonia was generally below the PWQO.

Overall, the review of concentrations of key parameters in surface water over the period of landfill expansion showed that there were no significant changes from the expanded landfilling operations. A slightly increasing trend was observed in Pond D (West Pond) for aluminum, iron, and vanadium. However, this trend was not observed for concentrations of these parameters in the Equalization Pond.

Review of the surface water monitoring data indicates that VOC and sVOC parameters were primarily not detected between 2016 and 2021. However, it was noted that a number of VOC and sVOC parameters had elevated detection limits, with the detection limit of sVOC parameters elevated above applicable PWQO. There were not discernible changes observed in VOC and sVOC concentrations from the expanded landfilling operations.

The Site has long periods when surface water is not discharged. Monitoring of the surface water within Pond A and D provide a representative indicator of water quality during non-discharge periods. As such, it is proposed the water characterization samples should be collected on a quarterly basis (March, June, September, and December) when the surface water system is not active during that month.

It is recommended that the following be incorporated into the surface water monitoring program:

– If there is pumping or discharge occurring on Site:
  - Complete the daily discharge monitoring at the Equalization Pond, as per Section 3.1.1.
  - Complete the monthly discharge monitoring at Pond A, Pond D, and the Equalization Pond, as per Section 3.1.2.1.
– If there is no pumping or discharge occurring on Site:
  - Complete quarterly surface water monitoring from Ponds A and D in March, June, September, and December. Samples shall be analyzed for general chemistry, metals, VOCs, and semi-VOCs.
– Maintain the requirement to sample off-Site surface water locations (STN6 and STN6A), as per Section 3.1.3.
– Include an evaluation of results in future annual reports to determine if landfill-related impacts are occurring to surface water ponds from expanded landfilling operations. Data analysis is to include a 5-year period of assessment of the surface water quality related to monitoring in accordance with Section 3.1.2.1 and 3.1.3, and the new quarterly monitoring.

6. Conclusions and Recommendations

6.1 Conclusions

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

1. SW ECA effluent criteria (TSS, solvent extractables, phenols, and flow rate) 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. Comparison between various on-site surface water monitoring locations indicate that the surface water quality improves as the water moves from Pond A to Pond D and through the SWTP and the Equalization Pond.
4. The surface water characterization indicated that there were no significant changes to surface water quality as a result from the expanded landfilling operations.

6.2 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 should continue in subsequent years.
2. Consider modifying the Surface Water Monitoring Program to incorporate the following:
   – If there is pumping or discharge occurring on Site:
     - Complete the daily discharge monitoring at the Equalization Pond, as per Section 3.1.1.
     - Complete the monthly discharge monitoring at Pond A, Pond D, and the Equalization Pond, as per Section 3.1.2.1.

- If there is no pumping or discharge occurring on Site:
  - Complete quarterly surface water monitoring from Ponds A and D in March, June, September, and December. Samples shall be analyzed for general chemistry, metals, VOCs, and semi-VOCs.
- Remove Toxicity monitoring from sampling requirements, as per Section 3.1.2.2.
- Remove the requirement to document visual observations for presence/absence of fish in the Equalization Pond, as per Section 3.1.2.3. Continue documenting the overall visual appearance of the Equalization Pond during the Quarterly Inspections.
- Maintain the requirement to sample off-Site surface water locations (STN6 and STN6A), as per Section 3.1.3.
- Include an evaluation of results in future annual reports to determine if landfill-related impacts are occurring to surface water ponds from expanded landfilling operations. Data analysis is to include a 5-year period of assessment of the surface water quality related to monitoring in accordance with Section 3.1.2.1 and 3.1.3, and the new quarterly monitoring.
- Based on future monitoring results, re-evaluate the surface water monitoring program in future annual reports.

3. 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.

7. References

GHD. 2020 Annual Surface Water Report, Clean Harbors Lambton Facility. January 18, 2021.

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.

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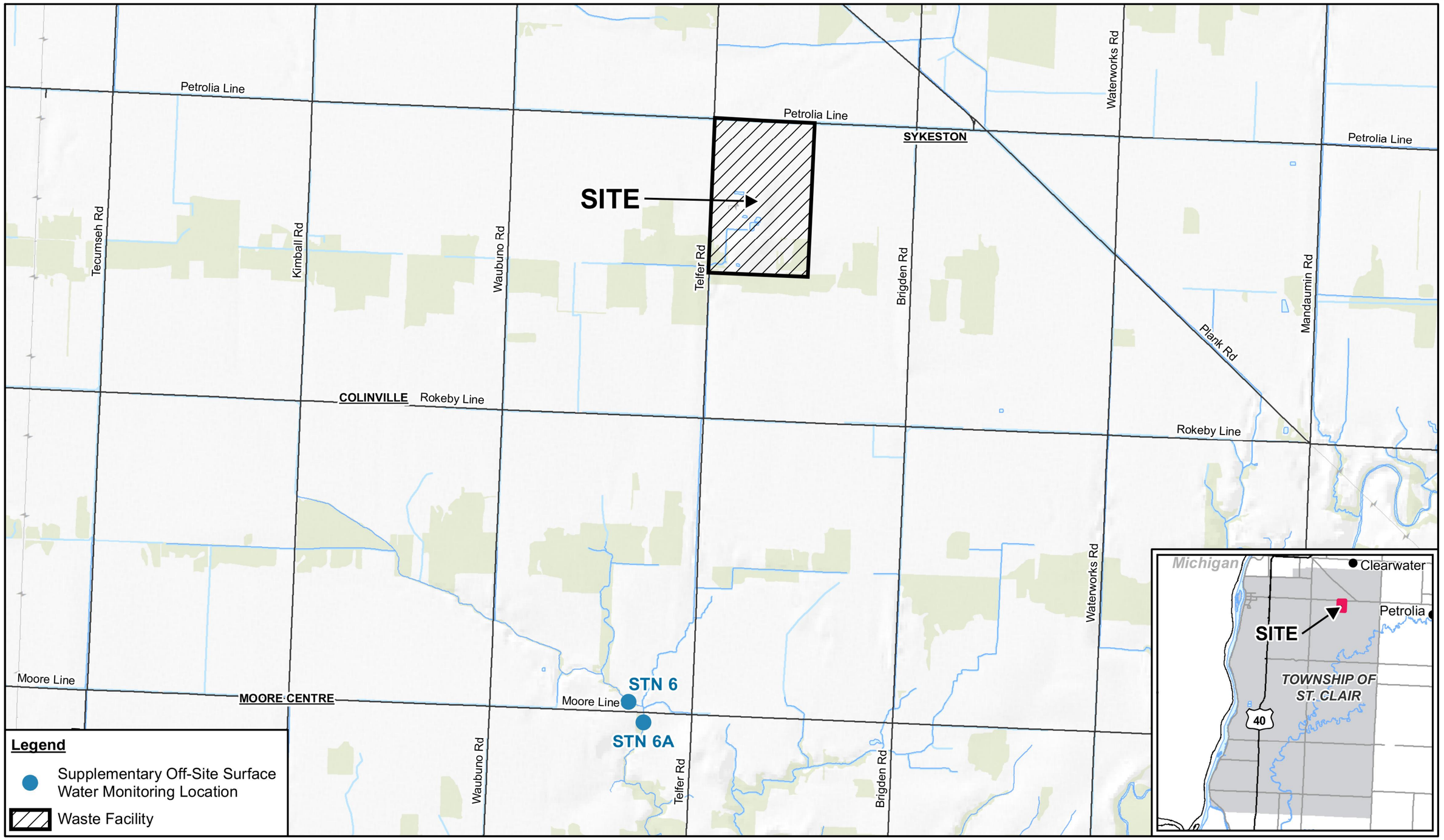
Ontario MECP. Amended Environmental Compliance Approval No. A031806 (Waste ECA) dated October 20, 2016.

Ontario MECP. Amended Environmental Compliance Approval No. 1065-9VVJSW dated October 19, 2015.

Ontario MECP. Provincial Officer's Order No. 2681-BCPKUJ (Order), dated June 5, 2019.

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



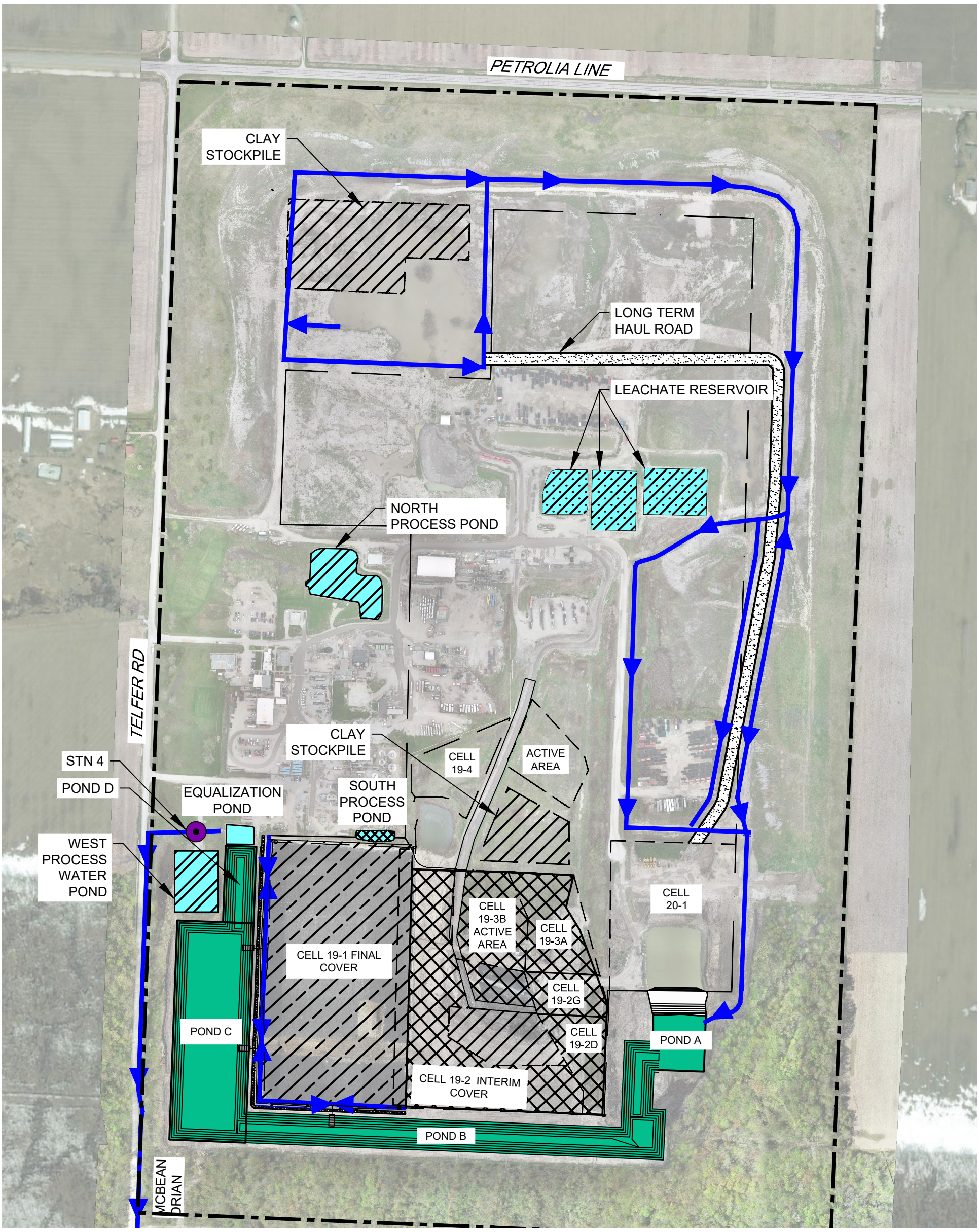
CLEAN HARBORS CANADA INC.
LAMBTON COUNTY, ONTARIO

2021 ANNUAL SURFACE WATER QUALITY MONITORING REPORT
SITE LOCATION MAP

Project No. **44985**
Date **February 2022**

FIGURE 1

Filename: I:\CAD\drawings\44000s\44985\44985-REPORTS\RPT052\44985-GHD-0000-RPT-CI-0101_WA-052.dwg
Plot Date: 17 February 2022 9:55 AM



LEGEND

- PROPERTY LINE
- WATER QUALITY STATION
- PRE-1986 LANDFILL DITCH SYSTEM
- POST-1988 LANDFILL DITCH SYSTEM
- PERMANENT STREAM
- LOCATION OF PUMPING EQUIPMENT
- TREATED SURFACE WATER RESERVOIR
- UNTREATED SURFACE WATER RESERVOIR
- PROCESS RESERVOIR
- LEACHATE RESERVOIR
- FINAL COVER
- INTERIM COVER
- STOCKPILE

0 50 100 150m

N

GHD

CLEAN HARBORS CANADA INC.
LAMBTON COUNTY, ONTARIO

2021 ANNUAL SURFACE WATER QUALITY MONITORING REPORT
2021 CAPITAL WORKS PLAN

Project No. **44985**
Date **February 2022**

FIGURE 2

Filename: I:\CAD\drawings\44000s\44985\44985-REPORTS\RPT052\44985-GHD-0000-RPT-CI-0102_WA-052.dwg
Plot Date: 17 February 2022 11:27 AM

Table 2

Surface Water Monitoring Program
2021 Annual Surface Water Quality Monitoring Report
Lambton Facility
Clean Harbors Canada Inc.

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

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

Table 3

Surface Water Monitoring Parameters
2021 Annual Surface Water Quality Monitoring Report
Lambton Facility
Clean Harbors Canada Inc.

Parameter	Analytes
General Chemistry Parameters	Alkalinity (total as CaCO3), 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)flouranthene/Benzo(j)fluoranthene, Benzo(g,h,i)perylene, Benzo(k)fluoranthene, bis(2 Chloroethy)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.

Table 5

Daily Chemical Analysis - Equalization Pond
2021 Annual Surface Water Quality Monitoring Report
Lambton Facility
Clean Harbors Canada Inc.

WASTE WATER TREATMENT PLANT - REPORT OF ANALYSIS (EQ POND)

Date		pH	Conductivity (mS/cm)	TSS (mg/L)	Phenol (mg/L)	Solvent Extractables (mg/L)	Flow Rate (LPM)	Daily Flow (L)
12/23/21	EQ POND	7.97	0.690	10.4	<0.002	<5	0	0
12/24/21	EQ POND	8.06	0.620	10.1	<0.002	<5	802	1,154,880
12/25/21	EQ POND	7.99	0.800	10.1	<0.002	<5	790	1,137,600
12/26/21	EQ POND	8.02	0.720	7.7	<0.002	<5	747	1,075,680
12/27/21	EQ POND	7.93	0.810	8.1	<0.002	<5	742	1,068,480
12/28/21	EQ POND	7.93	0.750	4.8	<0.002	<5	733	1,055,520
12/29/21	EQ POND	7.88	0.780	11.1	<0.002	<5	724	1,042,560
12/30/21	EQ POND	7.92	0.730	6.1	<0.002	<5	745	1,072,800
12/31/21	EQ POND	7.95	0.690	8.3	<0.002	<5	715	1,029,600

Notes:
Data and comments provided by Clean Harbours Canada Inc.
TSS - Total Suspended Solids
Phenol - Total Phenols
LPM - litres per minute
ppm - parts per million

Table 6

Monthly Discharge Chemical Monitoring – Equalization Pond, General Chemistry, Metals, and VOCs/sVOCs
2021 Annual Surface Water Quality Monitoring Report
Lambton Facility
Clean Harbors Canada Inc.

Sample Location:			**EQ Pond**
Sample Date:			**12/14/2021**
Parameters	**Units**	**PWQO**	
General Chemistry			
Alkalinity, total (as CaCO3)	mg/L	-	96
Ammonia-N	mg/L	-	0.164
Bromide	mg/L	-	2.56
Chemical oxygen demand (COD)	mg/L	-	14
Chloride	mg/L	-	86.8
Conductivity	umhos/cm	-	842
Cyanide (total)	mg/L	0.005	ND (0.0020)
Dissolved organic carbon (DOC) (dissolved)	mg/L	-	4.59
Fluoride	mg/L	-	0.879
Hardness	mg/L	-	-
Nitrate (as N)	mg/L	-	0.151
Nitrite (as N)	mg/L	-	ND (0.010)
pH, lab	s.u.	6.5-8.5	8.11
Phenolics (total)	mg/L	0.001	**0.0056**
Phosphorus	mg/L	0.01	**0.0109**
Sulfate	mg/L	-	186
Total dissolved solids (TDS)	mg/L	-	497
Total kjeldahl nitrogen (TKN)	mg/L	-	0.52
Total suspended solids (TSS)	mg/L	-	5.1
Trihalomethanes	ug/L	-	ND (2.0)
Un-ionized ammonia	mg/L	0.02	0.003
Field Parameters			
pH, field	s.u.	6.5-8.5	8
Temperature, field	Deg C	-	7.5
Metals			
Aluminum	mg/L	0.075	0.063
Antimony	mg/L	0.02	0.00043
Arsenic	mg/L	0.005	0.00106
Barium	mg/L	-	0.0419
Beryllium	mg/L	0.011	ND (0.00010)
Bismuth	mg/L	-	ND (0.000050)
Boron	mg/L	0.2	0.141
Cadmium	mg/L	0.0002	ND (0.000030)
Calcium	mg/L	-	59.5
Chromium VI (hexavalent)	mg/L	0.001	ND (0.00050)
Cobalt	mg/L	0.0009	ND (0.00010)
Copper	mg/L	0.005	ND (0.0010)
Iron	mg/L	0.3	0.068
Lead	mg/L	0.005	0.00018
Magnesium	mg/L	-	25.6
Manganese	mg/L	-	0.0116
Mercury	mg/L	0.0002	ND (0.0000050)

Table 6

Monthly Discharge Chemical Monitoring – Equalization Pond, General Chemistry, Metals, and VOCs/sVOCs
2021 Annual Surface Water Quality Monitoring Report
Lambton Facility
Clean Harbors Canada Inc.

Sample Location:			**EQ Pond**
Sample Date:			**12/14/2021**
Parameters	**Units**	**PWQO**	
Molybdenum	mg/L	0.04	**0.0507**
Nickel	mg/L	0.025	0.00329
Potassium	mg/L	-	10.8
Selenium	mg/L	0.1	0.000918
Silicon	mg/L	-	0.79
Silver	mg/L	0.0001	ND (0.000050)
Sodium	mg/L	-	59.8
Strontium	mg/L	-	0.535
Thallium	mg/L	0.0003	0.000019
Tin	mg/L	-	ND (0.00010)
Vanadium	mg/L	0.006	ND (0.00050)
Zinc	mg/L	0.03	ND (0.0030)
Volatiles			
1,1,1,2-Tetrachloroethane	ug/L	20	ND (0.50)
1,1,1-Trichloroethane	ug/L	10	ND (0.50)
1,1,2,2-Tetrachloroethane	ug/L	70	ND (0.50)
1,1,2-Trichloroethane	ug/L	800	ND (0.50)
1,1-Dichloroethane	ug/L	200	ND (0.50)
1,1-Dichloroethene	ug/L	40	ND (0.50)
1,2-Dibromoethane (Ethylene dibromide)	ug/L	5	ND (0.20)
1,2-Dichlorobenzene	ug/L	2.5	ND (0.50)
1,2-Dichloroethane	ug/L	100	ND (0.50)
1,2-Dichloropropane	ug/L	0.7	ND (0.50)
1,3-Dichlorobenzene	ug/L	2.5	ND (0.50)
1,4-Dichlorobenzene	ug/L	4	ND (0.50)
2-Butanone (Methyl ethyl ketone) (MEK)	ug/L	400	ND (20)
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	ug/L	-	ND (20)
Acetone	ug/L	-	ND (20)
Benzene	ug/L	100	ND (0.50)
Bromodichloromethane	ug/L	200	ND (1.0)
Bromoform	ug/L	60	ND (1.0)
Bromomethane (Methyl bromide)	ug/L	0.9	ND (0.50)
Carbon tetrachloride	ug/L	-	ND (0.50)
Chlorobenzene	ug/L	15	ND (0.50)
Chloroethane	ug/L	-	ND (1.0)
Chloroform (Trichloromethane)	ug/L	-	ND (1.0)
cis-1,2-Dichloroethene	ug/L	200	ND (0.50)
cis-1,3-Dichloropropene	ug/L	-	ND (0.50)
Dibromochloromethane	ug/L	40	ND (1.0)
Dichlorodifluoromethane (CFC-12)	ug/L	-	ND (1.0)
Ethylbenzene	ug/L	8	ND (0.50)
Hexane	ug/L	-	ND (0.50)

Table 6

Monthly Discharge Chemical Monitoring – Equalization Pond, General Chemistry, Metals, and VOCs/sVOCs
2021 Annual Surface Water Quality Monitoring Report
Lambton Facility
Clean Harbors Canada Inc.

Sample Location:			**EQ Pond**
Sample Date:			**12/14/2021**
Parameters	**Units**	**PWQO**	
m&p-Xylenes	ug/L	2	ND (1.0)
Methyl tert butyl ether (MTBE)	ug/L	200	ND (0.50)
Methylene chloride	ug/L	100	ND (2.0)
o-Xylene	ug/L	40	ND (0.50)
Styrene	ug/L	4	ND (0.50)
Tetrachloroethene	ug/L	50	ND (0.50)
Toluene	ug/L	0.8	ND (0.50)
trans-1,2-Dichloroethene	ug/L	200	ND (0.50)
trans-1,3-Dichloropropene	ug/L	7	ND (0.50)
Trichloroethene	ug/L	20	ND (0.50)
Trichlorofluoromethane (CFC-11)	ug/L	-	ND (1.0)
Vinyl chloride	ug/L	600	ND (0.50)
Xylenes (total)	ug/L	-	ND (1.1)
Semi-Volatiles			
1,2,4-Trichlorobenzene	ug/L	0.5	ND (0.40)
1,2-Dichlorobenzene	ug/L	2.5	ND (0.40)
1,3-Dichlorobenzene	ug/L	2.5	ND (0.40)
1,4-Dichlorobenzene	ug/L	4	ND (0.40)
1-Methylnaphthalene	ug/L	2	ND (0.40)
2,3,4,5-Tetrachlorophenol	ug/L	-	ND (0.50)
2,3,4,6-Tetrachlorophenol	ug/L	-	ND (0.50)
2,3,6-Trichlorophenol	ug/L	-	ND (0.50)
2,4,5-Trichlorophenol	ug/L	18	ND (0.50)
2,4,6-Trichlorophenol	ug/L	18	ND (0.50)
2,4-Dichlorophenol	ug/L	0.2	ND (0.30)
2,4-Dimethylphenol	ug/L	10	ND (0.50)
2,4-Dinitrophenol	ug/L	-	ND (1.0)
2,4-Dinitrotoluene	ug/L	4	ND (0.40)
2,6-Dinitrotoluene	ug/L	6	ND (0.40)
2-Chlorophenol	ug/L	7	ND (0.30)
2-Methylnaphthalene	ug/L	2	ND (0.40)
3,3'-Dichlorobenzidine	ug/L	0.6	ND (0.40) J
4-Chloroaniline	ug/L	-	ND (0.40)
Acenaphthene	ug/L	-	ND (0.20)
Acenaphthylene	ug/L	-	ND (0.20)
Anthracene	ug/L	0.0008	ND (0.20)
Benzo(a)anthracene	ug/L	0.0004	ND (0.20)
Benzo(a)pyrene	ug/L	-	ND (0.050)
Benzo(b)fluoranthene	ug/L	-	ND (0.20)
Benzo(g,h,i)perylene	ug/L	0.00002	ND (0.20)
Benzo(k)fluoranthene	ug/L	0.0002	ND (0.20)
bis(2-Chloroethyl)ether	ug/L	200	ND (0.40)
bis(2-Ethylhexyl)phthalate (DEHP)	ug/L	0.6	ND (2.0)
Chrysene	ug/L	0.0001	ND (0.20)

Table 6

Monthly Discharge Chemical Monitoring – Equalization Pond, General Chemistry, Metals, and VOCs/sVOCs
2021 Annual Surface Water Quality Monitoring Report
Lambton Facility
Clean Harbors Canada Inc.

Sample Location:			**EQ Pond**
Sample Date:			**12/14/2021**
Parameters	**Units**	**PWQO**	
Dibenz(a,h)anthracene	ug/L	0.002	ND (0.20)
Diethyl phthalate	ug/L	-	ND (0.20)
Dimethyl phthalate	ug/L	-	ND (0.20)
Fluoranthene	ug/L	0.0008	ND (0.20)
Fluorene	ug/L	0.2	ND (0.20)
Hexachlorobenzene	ug/L	0.0065	ND (0.040)
Hexachlorobutadiene	ug/L	0.009	ND (0.20)
Indeno(1,2,3-cd)pyrene	ug/L	-	ND (0.20)
Naphthalene	ug/L	7	ND (0.20)
Pentachlorophenol	ug/L	0.5	ND (0.50)
Perylene	ug/L	0.00007	ND (0.20)
Phenanthrene	ug/L	0.03	ND (0.20)
Pyrene	ug/L	-	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.
- = Not Applicable

Table 7

Surface Water Characterization – Pond A
2021 Annual Surface Water Quality Monitoring Report
Lambton Facility
Clean Harbors Canada Inc.

Sample Location:			Pond A	Pond A	Pond A
Sample Date:			9/1/2021	10/7/2021	12/14/2021
Parameters	**Units**	**PWQO**			
General Chemistry					
Alkalinity, total (as CaCO3)	mg/L	-	60.4 J	39.6 J	115
Ammonia-N	mg/L	-	ND (0.010) J	0.273 J	0.065
Bromide	mg/L	-	3.53 J	ND (0.10) J	1.22
Chemical oxygen demand (COD)	mg/L	-	12 J	ND (10) J	20
Chloride	mg/L	-	100 J	8.52 J	36.0
Conductivity	umhos/cm	-	912 J	617 J	748
Cyanide (total)	mg/L	0.005	ND (0.0020) J	ND (0.0020) J	ND (0.0020)
Dissolved organic carbon (DOC) (dissolved)	mg/L	-	5.65 J	0.97 J	3.90
Fluoride	mg/L	-	1.40 J	0.626 J	0.891
Hardness	mg/L	-	230 J	273 J	-
Nitrate (as N)	mg/L	-	ND (0.020) J	0.557 J	0.758
Nitrite (as N)	mg/L	-	ND (0.010) J	0.028 J	0.011
pH, lab	s.u.	6.5-8.5	8.19 J	7.83 J	7.95
Phenolics (total)	mg/L	0.001	**0.0104 J**	**0.0103 J**	ND (0.010)
Phosphorus	mg/L	0.01	**0.0172 J**	0.0034 J	**0.0387**
Sulfate	mg/L	-	222 J	254 J	225
Total dissolved solids (TDS)	mg/L	-	511 J	413 J	488
Total kjeldahl nitrogen (TKN)	mg/L	-	0.560 J	0.450 J	0.440
Total suspended solids (TSS)	mg/L	-	5.6 J	ND (3.0) J	15.8
Trihalomethanes	ug/L	-	ND (2.0) J	ND (2.0) J	ND (2.0)
Un-ionized ammonia	mg/L	0.02	ND (0.0014) J	0.00119 J	0.000125
Field Parameters					
pH, field	s.u.	6.5-8.5	8.40	6.96	7.00
Temperature, field	Deg C	-	24.0	20.0	7.9
Metals					
Aluminum	mg/L	0.075	**0.329 J**	**0.087 J**	**1.05**
Antimony	mg/L	0.02	0.00066 J	0.00076 J	0.00058
Arsenic	mg/L	0.005	0.00401 J	0.00068 J	0.00138
Barium	mg/L	-	0.0419 J	0.0489 J	0.0422
Beryllium	mg/L	0.011	ND (0.00010) J	ND (0.00010) J	ND (0.00010)
Bismuth	mg/L	-	ND (0.000050) J	ND (0.000050) J	ND (0.000050)
Boron	mg/L	0.2	0.171 J	0.148 J	0.101
Cadmium	mg/L	0.0002	ND (0.000040) J	ND (0.000060) J	ND (0.00030)
Calcium	mg/L	-	49.2 J	73.5 J	75.3
Chromium VI (hexavalent)	mg/L	0.001	ND (0.00050) J	ND (0.00050) J	0.00085
Cobalt	mg/L	0.0009	0.00038 J	0.00024 J	0.00079
Copper	mg/L	0.005	0.0016 J	ND (0.0010) J	0.0034
Iron	mg/L	0.3	0.288 J	0.093 J	**1.12**
Lead	mg/L	0.005	0.00026 J	ND (0.00010) J	0.00198
Magnesium	mg/L	-	26.1 J	21.7 J	24.2
Manganese	mg/L	-	0.00967 J	0.0229 J	0.0275
Mercury	mg/L	0.0002	ND (0.0000050) J	ND (0.0000050) J	0.0000256
Molybdenum	mg/L	0.04	**0.0810 J**	**0.155 J**	**0.0707**
Nickel	mg/L	0.025	0.00412 J	0.00097 J	0.00461
Potassium	mg/L	-	9.58 J	4.27 J	8.19
Selenium	mg/L	0.1	0.00170 J	0.0211 J	0.00666
Silicon	mg/L	-	1.41 J	1.33 J	3.92
Silver	mg/L	0.0001	ND (0.000050) J	ND (0.000050) J	ND (0.000050)
Sodium	mg/L	-	81.4 J	25.5 J	30.6
Strontium	mg/L	-	0.572 J	1.16 J	0.754
Thallium	mg/L	0.0003	0.000014 J	0.000039 J	0.000075
Tin	mg/L	-	ND (0.00010) J	ND (0.00010) J	ND (0.00010)
Vanadium	mg/L	0.006	0.00124 J	0.00066 J	0.00240
Zinc	mg/L	0.03	0.0086 J	ND (0.0030) J	0.0116
Volatiles					
1,1,1,2-Tetrachloroethane	ug/L	20	ND (0.50) J	ND (0.50) J	ND (0.50)
1,1,1-Trichloroethane	ug/L	10	ND (0.50) J	ND (0.50) J	ND (0.50)
1,1,2,2-Tetrachloroethane	ug/L	70	ND (0.50) J	ND (0.50) J	ND (0.50)
1,1,2-Trichloroethane	ug/L	800	ND (0.50) J	ND (0.50) J	ND (0.50)

Table 7

Surface Water Characterization – Pond A
2021 Annual Surface Water Quality Monitoring Report
Lambton Facility
Clean Harbors Canada Inc.

Sample Location:			**Pond A**	**Pond A**	**Pond A**
Sample Date:			**9/1/2021**	**10/7/2021**	**12/14/2021**
Parameters	**Units**	**PWQO**			
1,1-Dichloroethane	ug/L	200	ND (0.50) J	ND (0.50) J	ND (0.50)
1,1-Dichloroethene	ug/L	40	ND (0.50) J	ND (0.50) J	ND (0.50)
1,2-Dibromoethane (Ethylene dibromide)	ug/L	5	ND (0.20) J	ND (0.20) J	ND (0.20)
1,2-Dichlorobenzene	ug/L	2.5	ND (0.50) J	ND (0.50) J	ND (0.50)
1,2-Dichloroethane	ug/L	100	ND (0.50) J	ND (0.50) J	ND (0.50)
1,2-Dichloropropane	ug/L	0.7	ND (0.50) J	ND (0.50) J	ND (0.50)
1,3-Dichlorobenzene	ug/L	2.5	ND (0.50) J	ND (0.50) J	ND (0.50)
1,4-Dichlorobenzene	ug/L	4	ND (0.50) J	ND (0.50) J	ND (0.50)
2-Butanone (Methyl ethyl ketone) (MEK)	ug/L	400	ND (20) J	ND (20) J	ND (20)
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	ug/L	-	ND (20) J	ND (20) J	ND (20)
Acetone	ug/L	-	ND (20) J	ND (20) J	ND (20)
Benzene	ug/L	100	ND (0.50) J	ND (0.50) J	ND (0.50)
Bromodichloromethane	ug/L	200	ND (1.0) J	ND (1.0) J	ND (1.0)
Bromoform	ug/L	60	ND (1.0) J	ND (1.0) J	ND (1.0)
Bromomethane (Methyl bromide)	ug/L	0.9	ND (0.50) J	ND (0.50) J	ND (0.50)
Carbon tetrachloride	ug/L	-	ND (0.50) J	ND (0.50) J	ND (0.50)
Chlorobenzene	ug/L	15	ND (0.50) J	ND (0.50) J	ND (0.50)
Chloroethane	ug/L	-	ND (1.0) J	ND (1.0) J	ND (1.0)
Chloroform (Trichloromethane)	ug/L	-	ND (1.0) J	ND (1.0) J	ND (1.0)
cis-1,2-Dichloroethene	ug/L	200	ND (0.50) J	ND (0.50) J	ND (0.50)
cis-1,3-Dichloropropene	ug/L	-	ND (0.50) J	ND (0.50) J	ND (0.50)
Dibromochloromethane	ug/L	40	ND (1.0) J	ND (1.0) J	ND (1.0)
Dichlorodifluoromethane (CFC-12)	ug/L	-	ND (1.0) J	ND (1.0) J	ND (1.0)
Ethylbenzene	ug/L	8	ND (0.50) J	ND (0.50) J	ND (0.50)
Hexane	ug/L	-	ND (0.50) J	ND (0.50) J	ND (0.50)
m&p-Xylenes	ug/L	2	ND (1.0) J	ND (1.0) J	ND (1.0)
Methyl tert butyl ether (MTBE)	ug/L	200	ND (0.50) J	ND (0.50) J	ND (0.50)
Methylene chloride	ug/L	100	ND (2.0) J	ND (2.0) J	ND (2.0)
o-Xylene	ug/L	40	ND (0.50) J	ND (0.50) J	ND (0.50)
Styrene	ug/L	4	ND (0.50) J	ND (0.50) J	ND (0.50)
Tetrachloroethene	ug/L	50	ND (0.50) J	ND (0.50) J	ND (0.50)
Toluene	ug/L	0.8	ND (0.50) J	ND (0.50) J	0.55
trans-1,2-Dichloroethene	ug/L	200	ND (0.50) J	ND (0.50) J	ND (0.50)
trans-1,3-Dichloropropene	ug/L	7	ND (0.50) J	ND (0.50) J	ND (0.50)
Trichloroethene	ug/L	20	ND (0.50) J	ND (0.50) J	ND (0.50)
Trichlorofluoromethane (CFC-11)	ug/L	-	ND (1.0) J	ND (1.0) J	ND (1.0)
Vinyl chloride	ug/L	600	ND (0.50) J	ND (0.50) J	ND (0.50)
Xylenes (total)	ug/L	-	ND (1.1) J	ND (1.1) J	ND (1.1)
Semi-Volatiles					
1,2,4-Trichlorobenzene	ug/L	0.5	ND (0.40) J	ND (0.40) J	ND (0.40)
1,2-Dichlorobenzene	ug/L	2.5	ND (0.40) J	ND (0.40) J	ND (0.40)
1,3-Dichlorobenzene	ug/L	2.5	ND (0.40) J	ND (0.40) J	ND (0.40)
1,4-Dichlorobenzene	ug/L	4	ND (0.40) J	ND (0.40) J	ND (0.40)
1-Methylnaphthalene	ug/L	2	ND (0.40) J	ND (0.40) J	ND (0.40)
2,3,4,5-Tetrachlorophenol	ug/L	-	ND (0.50) J	ND (0.50) J	ND (0.50)
2,3,4,6-Tetrachlorophenol	ug/L	-	ND (0.50) J	ND (0.50) J	ND (0.50)
2,3,6-Trichlorophenol	ug/L	-	ND (0.50) J	ND (0.50) J	ND (0.50)
2,4,5-Trichlorophenol	ug/L	18	ND (0.50) J	ND (0.50) J	ND (0.50)
2,4,6-Trichlorophenol	ug/L	18	ND (0.50) J	ND (0.50) J	ND (0.50)
2,4-Dichlorophenol	ug/L	0.2	ND (0.30) J	ND (0.30) J	ND (0.30)
2,4-Dimethylphenol	ug/L	10	ND (0.50) J	ND (0.50) J	ND (0.50)
2,4-Dinitrophenol	ug/L	-	ND (1.0) J	ND (1.0) J	ND (1.0)
2,4-Dinitrotoluene	ug/L	4	ND (0.40) J	ND (0.40) J	ND (0.40)
2,6-Dinitrotoluene	ug/L	6	ND (0.40) J	ND (0.40) J	ND (0.40)
2-Chlorophenol	ug/L	7	ND (0.30) J	ND (0.30) J	ND (0.30)
2-Methylnaphthalene	ug/L	2	ND (0.40) J	ND (0.40) J	ND (0.40)
3,3'-Dichlorobenzidine	ug/L	0.6	ND (0.40) J	ND (0.40) J	ND (0.40) J

Table 7

Surface Water Characterization – Pond A
2021 Annual Surface Water Quality Monitoring Report
Lambton Facility
Clean Harbors Canada Inc.

Sample Location:			**Pond A**	**Pond A**	**Pond A**
Sample Date:			**9/1/2021**	**10/7/2021**	**12/14/2021**
Parameters	**Units**	**PWQO**			
4-Chloroaniline	ug/L	-	ND (0.40) J	ND (0.40) J	ND (0.40)
Acenaphthene	ug/L	-	ND (0.20) J	ND (0.20) J	ND (0.20)
Acenaphthylene	ug/L	-	ND (0.20) J	ND (0.20) J	ND (0.20)
Anthracene	ug/L	0.0008	ND (0.20) J	ND (0.20) J	ND (0.20)
Benzo(a)anthracene	ug/L	0.0004	ND (0.20) J	ND (0.20) J	ND (0.20)
Benzo(a)pyrene	ug/L	-	ND (0.050) J	ND (0.050) J	ND (0.050)
Benzo(b)fluoranthene	ug/L	-	ND (0.20) J	ND (0.20) J	ND (0.20)
Benzo(g,h,i)perylene	ug/L	0.00002	ND (0.20) J	ND (0.20) J	ND (0.20)
Benzo(k)fluoranthene	ug/L	0.0002	ND (0.20) J	ND (0.20) J	ND (0.20)
bis(2-Chloroethyl)ether	ug/L	200	ND (0.40) J	ND (0.40) J	ND (0.40)
bis(2-Ethylhexyl)phthalate (DEHP)	ug/L	0.6	ND (2.0) J	ND (2.0) J	ND (2.0)
Chrysene	ug/L	0.0001	ND (0.20) J	ND (0.20) J	ND (0.20)
Dibenz(a,h)anthracene	ug/L	0.002	ND (0.20) J	ND (0.20) J	ND (0.20)
Diethyl phthalate	ug/L	-	ND (0.20) J	ND (0.20) J	ND (0.20)
Dimethyl phthalate	ug/L	-	ND (0.20) J	ND (0.20) J	ND (0.20)
Fluoranthene	ug/L	0.0008	ND (0.20) J	ND (0.20) J	ND (0.20)
Fluorene	ug/L	0.2	ND (0.20) J	ND (0.20) J	ND (0.20)
Hexachlorobenzene	ug/L	0.0065	ND (0.040) J	ND (0.040) J	ND (0.040)
Hexachlorobutadiene	ug/L	0.009	ND (0.20) J	ND (0.20) J	ND (0.20)
Indeno(1,2,3-cd)pyrene	ug/L	-	ND (0.20) J	ND (0.20) J	ND (0.20)
Naphthalene	ug/L	7	ND (0.20) J	ND (0.20) J	ND (0.20)
Pentachlorophenol	ug/L	0.5	ND (0.50) J	ND (0.50) J	ND (0.50)
Perylene	ug/L	0.00007	ND (0.20) J	ND (0.20) J	ND (0.20)
Phenanthrene	ug/L	0.03	ND (0.20) J	ND (0.20) J	ND (0.20)
Pyrene	ug/L	-	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.
- = Not Applicable

Table 8

Surface Water Characterization – Pond D
2021 Annual Surface Water Quality Monitoring Report
Lambton Facility
Clean Harbors Canada Inc.

Sample Location:			**West Pond**
Sample ID:			**POND D WEST POND**
Sample Date:			**12/14/2021**
Parameters	**Units**	**PWQO**	
General Chemistry			
Alkalinity, total (as CaCO3)	mg/L	-	105
Ammonia-N	mg/L	-	2.87
Bromide	mg/L	-	2.03
Chemical oxygen demand (COD)	mg/L	-	24
Chloride	mg/L	-	66.5
Conductivity	umhos/cm	-	835
Cyanide (total)	mg/L	0.005	ND (0.0020)
Dissolved organic carbon (DOC) (dis	mg/L	-	5.79
Fluoride	mg/L	-	1.05
Hardness	mg/L	-	-
Nitrate (as N)	mg/L	-	0.130
Nitrite (as N)	mg/L	-	ND (0.010)
pH, lab	s.u.	6.5-8.5	8.01
Phenolics (total)	mg/L	0.001	ND (0.010)
Phosphorus	mg/L	0.01	**0.0407**
Sulfate	mg/L	-	219
Total dissolved solids (TDS)	mg/L	-	518
Total kjeldahl nitrogen (TKN)	mg/L	-	3.40
Total suspended solids (TSS)	mg/L	-	16.7
Trihalomethanes	ug/L	-	ND (2.0)
Un-ionized ammonia	mg/L	0.02	0.00554
Field Parameters			
pH, field	s.u.	6.5-8.5	7.00
Temperature, field	Deg C	-	8.0
Metals			
Aluminum	mg/L	0.075	**1.34**
Antimony	mg/L	0.02	0.00046
Arsenic	mg/L	0.005	0.00179
Barium	mg/L	-	0.0443
Beryllium	mg/L	0.011	ND (0.00010)
Bismuth	mg/L	-	ND (0.000050)
Boron	mg/L	0.2	0.131
Cadmium	mg/L	0.0002	ND (0.00020)
Calcium	mg/L	-	71.5
Chromium VI (hexavalent)	mg/L	0.001	ND (0.00050)
Cobalt	mg/L	0.0009	0.00073
Copper	mg/L	0.005	0.0030
Iron	mg/L	0.3	**1.25**
Lead	mg/L	0.005	0.00084
Magnesium	mg/L	-	26.5
Manganese	mg/L	-	0.0226
Mercury	mg/L	0.0002	ND (0.0000050)
Molybdenum	mg/L	0.04	**0.0552**
Nickel	mg/L	0.025	0.00530
Potassium	mg/L	-	7.20
Selenium	mg/L	0.1	0.00275
Silicon	mg/L	-	4.09
Silver	mg/L	0.0001	ND (0.000050)
Sodium	mg/L	-	49.3

Table 8

Surface Water Characterization – Pond D
2021 Annual Surface Water Quality Monitoring Report
Lambton Facility
Clean Harbors Canada Inc.

Sample Location:			**West Pond**
Sample ID:			**POND D WEST POND**
Sample Date:			**12/14/2021**
Parameters	**Units**	**PWQO**	
Strontium	mg/L	-	0.591
Thallium	mg/L	0.0003	0.000036
Tin	mg/L	-	ND (0.00010)
Vanadium	mg/L	0.006	0.00277
Zinc	mg/L	0.03	0.0049
Volatiles			
1,1,1,2-Tetrachloroethane	ug/L	20	ND (0.50)
1,1,1-Trichloroethane	ug/L	10	ND (0.50)
1,1,2,2-Tetrachloroethane	ug/L	70	ND (0.50)
1,1,2-Trichloroethane	ug/L	800	ND (0.50)
1,1-Dichloroethane	ug/L	200	ND (0.50)
1,1-Dichloroethene	ug/L	40	ND (0.50)
1,2-Dibromoethane (Ethylene dibrom	ug/L	5	ND (0.20)
1,2-Dichlorobenzene	ug/L	2.5	ND (0.50)
1,2-Dichloroethane	ug/L	100	ND (0.50)
1,2-Dichloropropane	ug/L	0.7	ND (0.50)
1,3-Dichlorobenzene	ug/L	2.5	ND (0.50)
1,4-Dichlorobenzene	ug/L	4	ND (0.50)
2-Butanone (Methyl ethyl ketone) (M	ug/L	400	ND (20)
4-Methyl-2-pentanone (Methyl isobut	ug/L	-	ND (20)
Acetone	ug/L	-	ND (20)
Benzene	ug/L	100	ND (0.50)
Bromodichloromethane	ug/L	200	ND (1.0)
Bromoform	ug/L	60	ND (1.0)
Bromomethane (Methyl bromide)	ug/L	0.9	ND (0.50)
Carbon tetrachloride	ug/L	-	ND (0.50)
Chlorobenzene	ug/L	15	ND (0.50)
Chloroethane	ug/L	-	ND (1.0)
Chloroform (Trichloromethane)	ug/L	-	ND (1.0)
cis-1,2-Dichloroethene	ug/L	200	ND (0.50)
cis-1,3-Dichloropropene	ug/L	-	ND (0.50)
Dibromochloromethane	ug/L	40	ND (1.0)
Dichlorodifluoromethane (CFC-12)	ug/L	-	ND (1.0)
Ethylbenzene	ug/L	8	ND (0.50)
Hexane	ug/L	-	ND (0.50)
m&p-Xylenes	ug/L	2	ND (1.0)
Methyl tert butyl ether (MTBE)	ug/L	200	ND (0.50)
Methylene chloride	ug/L	100	ND (2.0)
o-Xylene	ug/L	40	ND (0.50)
Styrene	ug/L	4	ND (0.50)
Tetrachloroethene	ug/L	50	ND (0.50)
Toluene	ug/L	0.8	ND (0.50)
trans-1,2-Dichloroethene	ug/L	200	ND (0.50)
trans-1,3-Dichloropropene	ug/L	7	ND (0.50)
Trichloroethene	ug/L	20	ND (0.50)
Trichlorofluoromethane (CFC-11)	ug/L	-	ND (1.0)
Vinyl chloride	ug/L	600	ND (0.50)
Xylenes (total)	ug/L	-	ND (1.1)
Semi-Volatiles			
1,2,4-Trichlorobenzene	ug/L	0.5	ND (0.40)

Table 8

Surface Water Characterization – Pond D
2021 Annual Surface Water Quality Monitoring Report
Lambton Facility
Clean Harbors Canada Inc.

Sample Location:			**West Pond**
Sample ID:			**POND D WEST POND**
Sample Date:			**12/14/2021**
Parameters	**Units**	**PWQO**	
1,2-Dichlorobenzene	ug/L	2.5	ND (0.40)
1,3-Dichlorobenzene	ug/L	2.5	ND (0.40)
1,4-Dichlorobenzene	ug/L	4	ND (0.40)
1-Methylnaphthalene	ug/L	2	ND (0.40)
2,3,4,5-Tetrachlorophenol	ug/L	-	ND (0.50)
2,3,4,6-Tetrachlorophenol	ug/L	-	ND (0.50)
2,3,6-Trichlorophenol	ug/L	-	ND (0.50)
2,4,5-Trichlorophenol	ug/L	18	ND (0.50)
2,4,6-Trichlorophenol	ug/L	18	ND (0.50)
2,4-Dichlorophenol	ug/L	0.2	ND (0.30)
2,4-Dimethylphenol	ug/L	10	ND (0.50)
2,4-Dinitrophenol	ug/L	-	ND (1.0)
2,4-Dinitrotoluene	ug/L	4	ND (0.40)
2,6-Dinitrotoluene	ug/L	6	ND (0.40)
2-Chlorophenol	ug/L	7	ND (0.30)
2-Methylnaphthalene	ug/L	2	ND (0.40)
3,3'-Dichlorobenzidine	ug/L	0.6	ND (0.40) J
4-Chloroaniline	ug/L	-	ND (0.40)
Acenaphthene	ug/L	-	ND (0.20)
Acenaphthylene	ug/L	-	ND (0.20)
Anthracene	ug/L	0.0008	ND (0.20)
Benzo(a)anthracene	ug/L	0.0004	ND (0.20)
Benzo(a)pyrene	ug/L	-	ND (0.050)
Benzo(b)fluoranthene	ug/L	-	ND (0.20)
Benzo(g,h,i)perylene	ug/L	0.00002	ND (0.20)
Benzo(k)fluoranthene	ug/L	0.0002	ND (0.20)
bis(2-Chloroethyl)ether	ug/L	200	ND (0.40)
bis(2-Ethylhexyl)phthalate (DEHP)	ug/L	0.6	ND (2.0)
Chrysene	ug/L	0.0001	ND (0.20)
Dibenz(a,h)anthracene	ug/L	0.002	ND (0.20)
Diethyl phthalate	ug/L	-	ND (0.20)
Dimethyl phthalate	ug/L	-	ND (0.20)
Fluoranthene	ug/L	0.0008	ND (0.20)
Fluorene	ug/L	0.2	ND (0.20)
Hexachlorobenzene	ug/L	0.0065	ND (0.040)
Hexachlorobutadiene	ug/L	0.009	ND (0.20)
Indeno(1,2,3-cd)pyrene	ug/L	-	ND (0.20)
Naphthalene	ug/L	7	ND (0.20)
Pentachlorophenol	ug/L	0.5	ND (0.50)
Perylene	ug/L	0.00007	ND (0.20)
Phenanthrene	ug/L	0.03	ND (0.20)
Pyrene	ug/L	-	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.
- = Not Applicable

Appendices

Appendix A

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

December 9, 2015 Reference No. 044985

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

Dear Ms. Carabott:

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

1. Introduction

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

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

2. Current Surface Water Monitoring Program

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

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

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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

James R. Yardley

JRY/mg/2

cc: Mike Parker, Clean Harbors Canada

Table 1

Current Surface Water Monitoring Program
Lambton Facility, Clean Harbors

		Current Surface Water Sampling Program		
Monitoring Location	**Parameter**	**Daily During Discharge**	**Spring**	**Fall**
EQ Pond Discharge	pH, conductivity, TSS, Total phenols, chloride, sulphate, solvent extractables, COD	■		
	Microtox	■		
	Acute Toxicity - 96 hr - Rainbow Trout		■ consecutive day samples	■ consecutive day samples
	Acute Toxicity - 48 hr - Daphnia Magna		■ consecutive day samples	■ consecutive day samples
	Chronic Toxicity - 7 day - Flathead Minnows		■	
	Chronic Toxicity - 7 day - Ceriodaphnia Dubia		■	
	Free cyanide, nitrite, nitrate, TKN,		■ consecutive day samples	■ consecutive day samples
	Metals		■ consecutive day samples	■ consecutive day samples
EQ Pond	Benthic Invertebrates		■	
	Fish Presence		■	
	Dissolved Oxygen Profile		■	
	Secchi depth profile		■	
Effluent from SWTP	General Chemistry (1)		■	■
	Metals		■	■
	sVOCs		■	■
	Pesticides		■	■
Influent to SWTP	General Chemistry (1)		■	■
	Metals		■	■
	sVOCs		■	■
	Pesticides		■	■
STN6 (off-site background)	General Chemistry (1)		■	■
	Metals		■	■
STN6A (off-site downstream)	General Chemistry (1)		■	■
	Metals		■	■

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

Table 2

Proposed Surface Water Monitoring Program
Lambton Facility, Clean Harbors

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

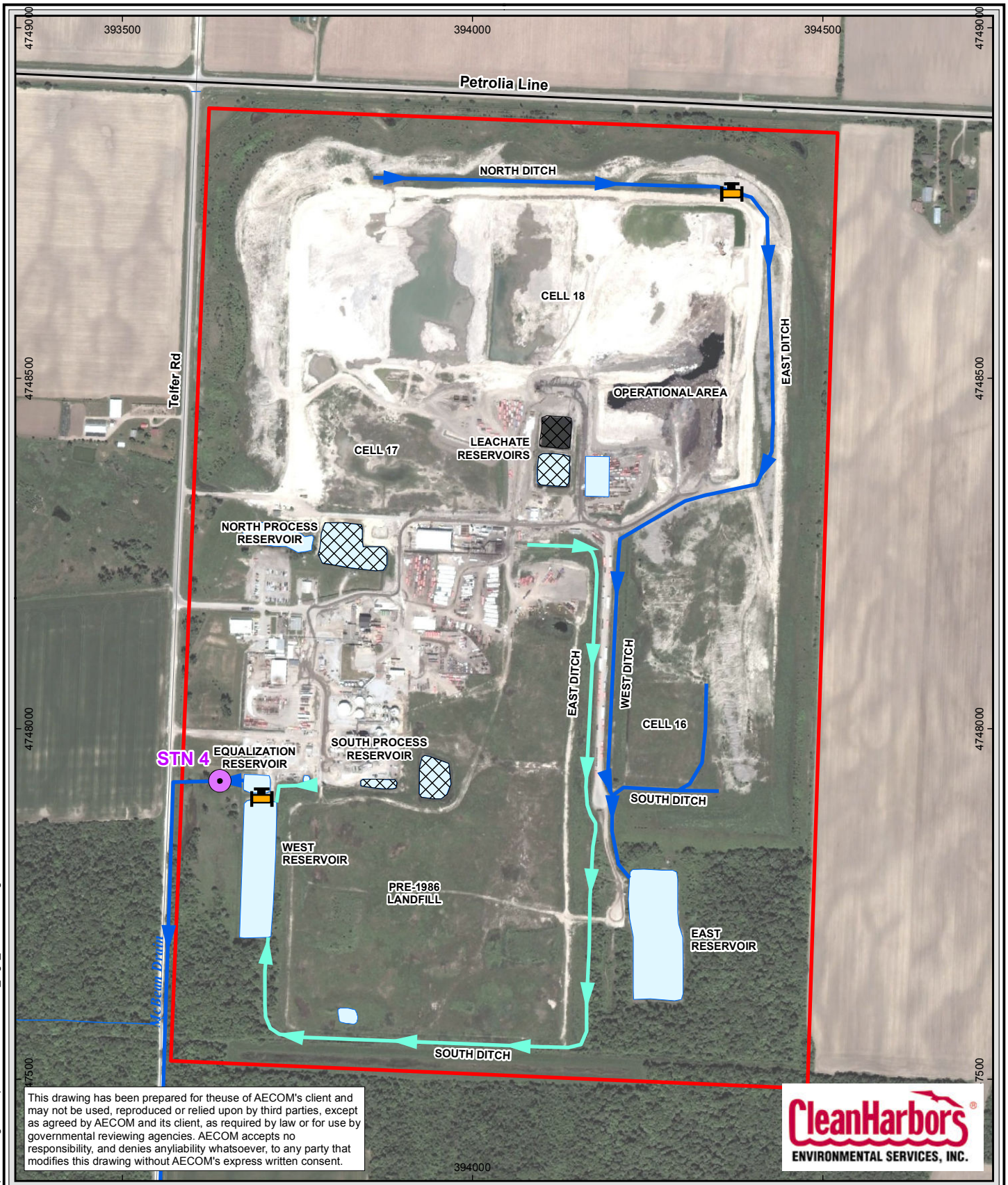
Notes:

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

Surface Water Monitoring Parameters
Lambton Facility, Clean Harbors

Parameter	Analytes
General Chemistry Parameters	Alkalinity (total as CaCO3), 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-Dichlorethene, 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)flouranthene/Benzo(j)fluoranthene, Benzo(g,h,i)perylene, Benzo(k)fluoranthene, bis(2-Chloroethy)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



Basemapping from Ontario Ministry of Natural Resources Orthophotography:

N
W E
S

Metres
0 37.5 75 150 225
1:7,500
UTM Zone 17N, NAD 83

Legend

- Water Quality Station
- Pre-1986 Landfill Ditch System
- Post-1986 Landfill Ditch System
- Pumping Equipment

Water Features

- Non-Impacted/Treated Surface Water Reservoir
- Process Reservoir
- Permanent Stream

Clean Harbors, Lambton, Ontario

Surface Water Management System

October 2014
60316888

AECOM

Figure 3

Path: P:\60272902\000-CADD\050 GIS WIP\Maps\Working\EA Report - 2014\60316888_Fig3_SurfWtrManagement.mxd

Petrolia Line

Petrolia Line

Equalization Reservoir

Kimball Rd

Kimball Rd

Rokeby Line

Telfer Rd

McBean Drain

Waterworks Rd

Norwood Drain

Mandaumin Rd

Mandaumin Rd

Burton Creek

STN 6

STN 6A

Moore Line

Shiloh Line

Mennen Drain

MacDonald Creek

Bear Creek

Waubuno Rd

Path: P:\60272902\000-CADD\050 GIS WIP\Maps\Working\EA Report - 2014\60316888_Fig4_SurfQuality_MonitoringLoc.mxd

Legend

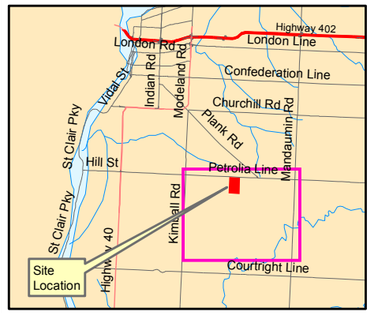
- Supplementary Off-Site Surface Water Monitoring Locations
- Waste Facility

Roads

- Major Road
- Local Road

Water Features

- Intermittent Stream
- Permanent Stream
- Waterbody



Basemapping from Ontario Ministry of Natural Resources Orthophotography:

N W E S

Metres

0 200 400 800 1,200 1,600

1:29,000

UTM Zone 17N, NAD 83

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

Ontario

Ministry of the Environment, Conservation and Parks
Ministère de l'Environnement, de la Protection de la nature et des Parcs

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

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. 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)

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

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 30th) 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.

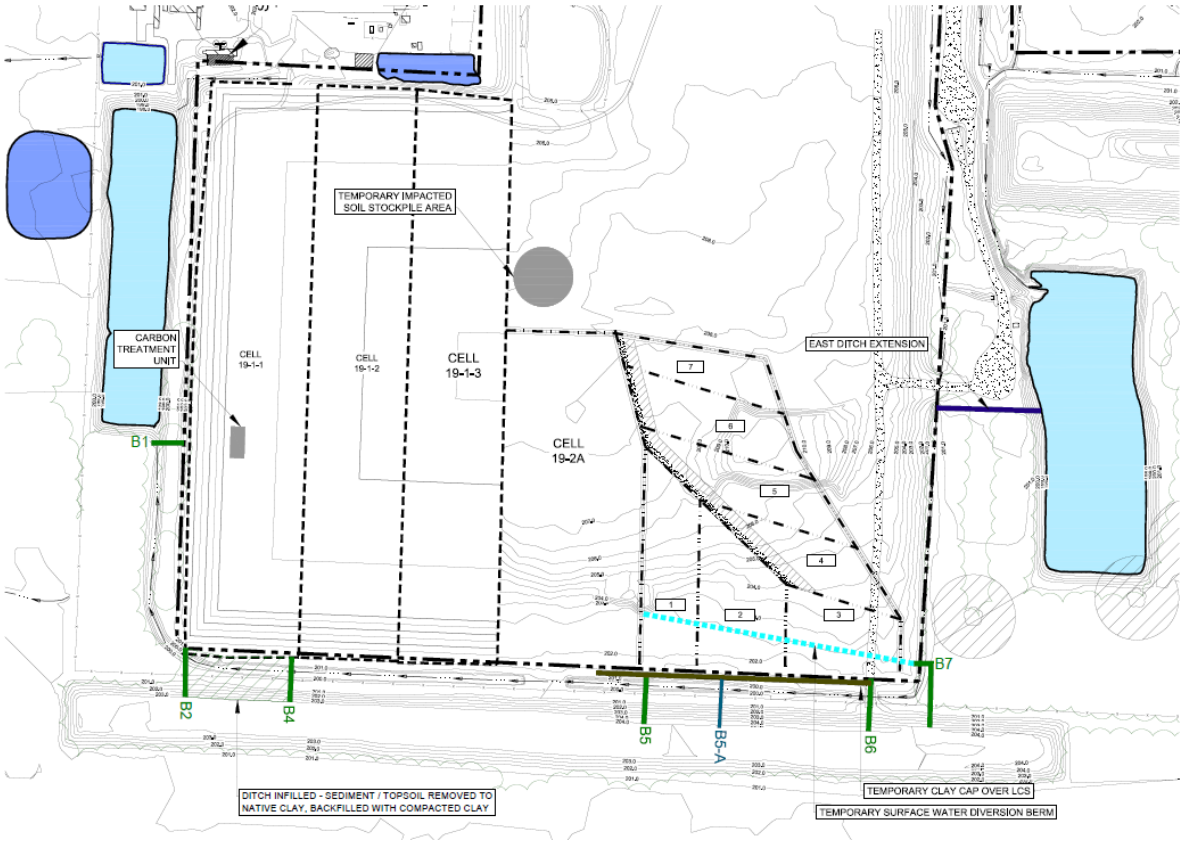
The sand filter has been backwashed for a minimum of two hours (normally requires routine backwash for 15 to 20 minutes to remove sediment from the filter). The SWTP is now ready for return to service. As per normal protocol, the SWTP will be operated in recirculation mode until test samples confirm 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 17th that indicate the VOC levels have significantly reduced since May 7th. 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 temporary 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.

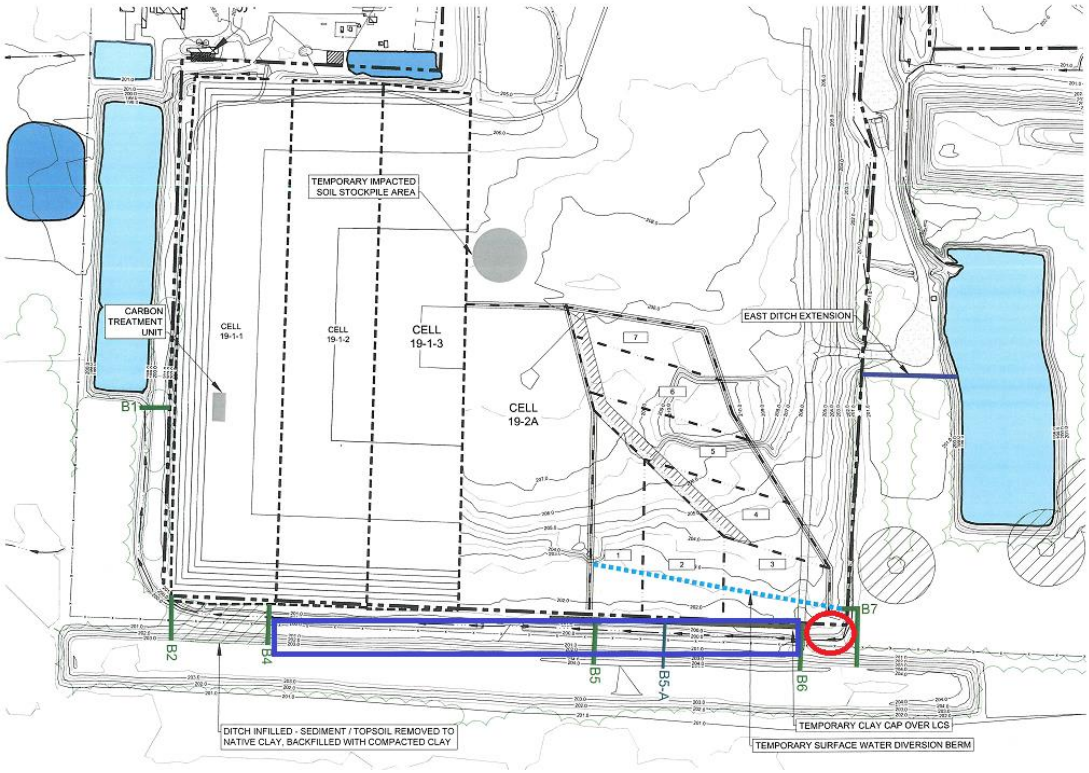
3.1 Between berm B6-B7:

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.



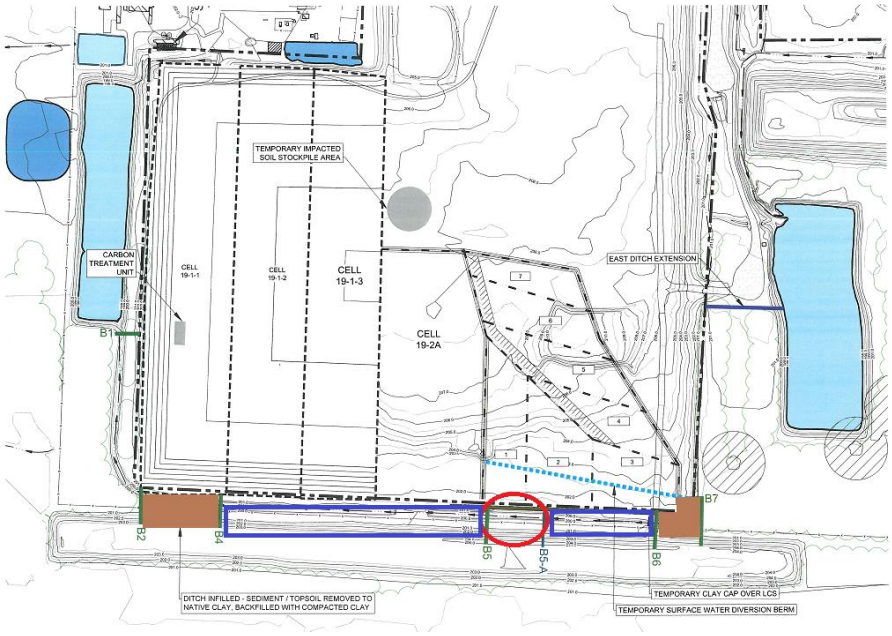
3.2 Between berms B5-B6:

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.

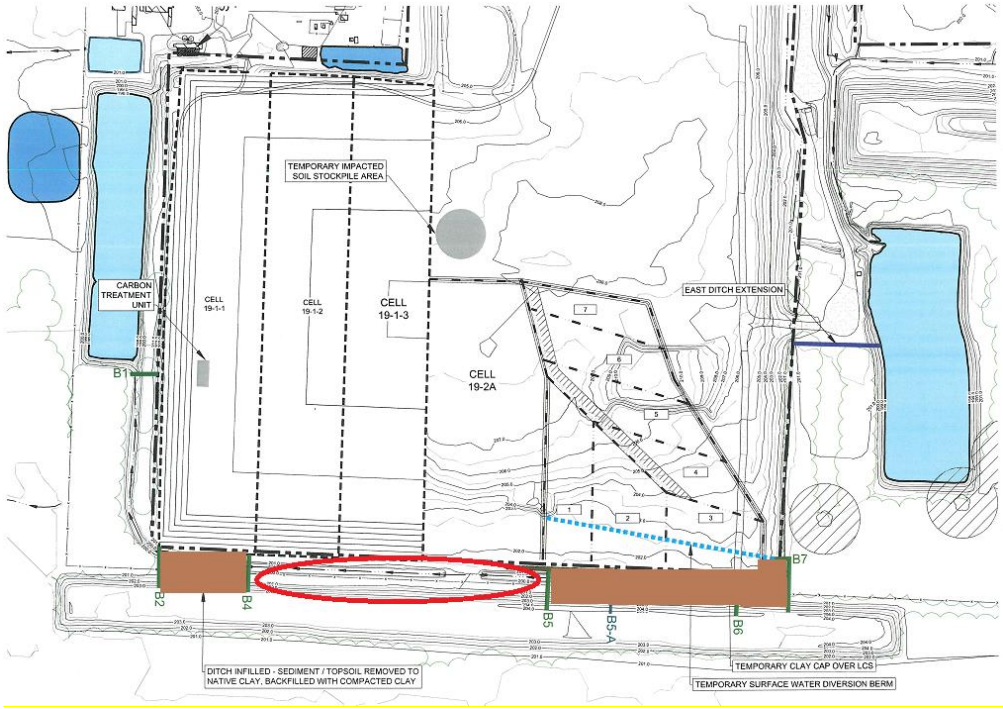


3.3 Between berms B4-B5:

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 it's 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.

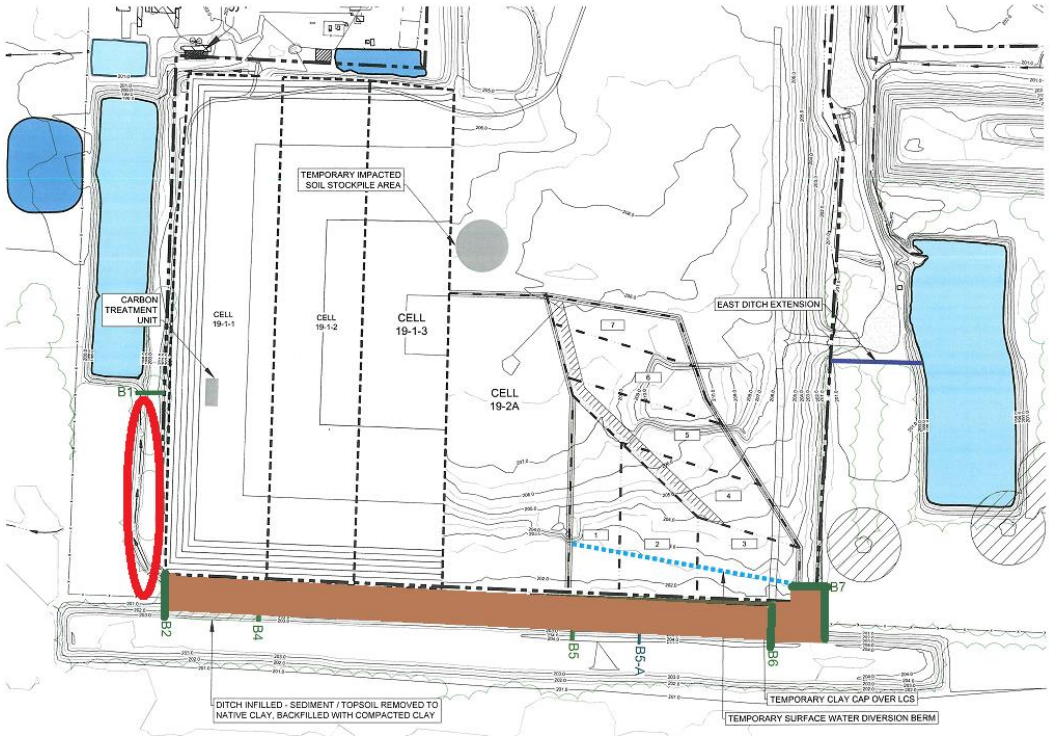
Water from between B4-B5 will be pumped to the mobile carbon filtration system. The water located in the B4-B5 area will be the source water for the temporary water treatment plant. Remediation and infilling of the ditch between berms B4-B5 will occur after remediation is complete between berms B5-B6.

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 14th, 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.

Date and Time (Start of Period)	Sump 3 Volume Pumped (L)	Sump 3 Leachate Elevation (m ASL)	Sump 4 Leachate Elevation (m ASL)
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^2 to be approximately 5,000 m^2/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 is 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 5th 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 5th 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)					
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: Stephanie Berton
455 PHILLIP STREET
WATERLOO ON N2L 3X2

Date Received: 08-OCT-21
Report Date: 20-OCT-21 16:08 (MT)
Version: FINAL

Client Phone: 519-884-0510

Certificate of Analysis

Lab Work Order #: L2649522

Project P.O. #: 73506479
Job Reference: 44985-20
C of C Numbers:
Legal Site Desc:

Rick Hawthorne
Account Manager

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2649522-1 EAST STORM WATER POND Sampled By: CLIENT on 07-OCT-21 @ 11:00 Matrix: WATER							
Field Tests							
pH, Client Supplied	6.96		0.10	pH		12-OCT-21	R5615552
Temperature, Client	20.0		-50	Deg. C		12-OCT-21	R5615552
Physical Tests							
Conductivity	617		1.0	umhos/cm		09-OCT-21	R5615950
Hardness (as CaCO3)	273	HTC	1.3	mg/L		13-OCT-21	
pH	7.83		0.10	pH units		09-OCT-21	R5615950
Total Suspended Solids	<3.0		3.0	mg/L	13-OCT-21	14-OCT-21	R5616490
Total Dissolved Solids	413	DLDS	20	mg/L		10-OCT-21	R5619217
Anions and Nutrients							
Alkalinity, Total (as CaCO3)	39.6		1.0	mg/L		09-OCT-21	R5615950
Unionized ammonia	0.00119		0.000044	mg/L		15-OCT-21	
Ammonia, Total (as N)	0.273		0.010	mg/L		15-OCT-21	R5618036
Bromide (Br)	<0.10		0.10	mg/L		12-OCT-21	R5616387
Chloride (Cl)	8.52		0.50	mg/L		12-OCT-21	R5616387
Fluoride (F)	0.626		0.020	mg/L		12-OCT-21	R5616387
Nitrate (as N)	0.557		0.020	mg/L		12-OCT-21	R5616387
Nitrite (as N)	0.028		0.010	mg/L		12-OCT-21	R5616387
Total Kjeldahl Nitrogen	0.450		0.050	mg/L	13-OCT-21	14-OCT-21	R5617496
Phosphorus, Total	0.0034		0.0030	mg/L	13-OCT-21	14-OCT-21	R5617286
Sulfate (SO4)	254		0.30	mg/L		12-OCT-21	R5616387
Cyanides							
Cyanide, Total	<0.0020		0.0020	mg/L		14-OCT-21	R5617687
Organic / Inorganic Carbon							
Dissolved Carbon Filtration Location	LAB					09-OCT-21	R5615143
Dissolved Organic Carbon	0.97		0.50	mg/L	09-OCT-21	13-OCT-21	R5617055
Total Metals							
Aluminum (Al)-Total	0.087		0.010	mg/L	12-OCT-21	13-OCT-21	R5616339
Antimony (Sb)-Total	0.00076		0.00010	mg/L	12-OCT-21	13-OCT-21	R5616339
Arsenic (As)-Total	0.00068		0.00010	mg/L	12-OCT-21	13-OCT-21	R5616339
Barium (Ba)-Total	0.0489		0.00020	mg/L	12-OCT-21	13-OCT-21	R5616339
Beryllium (Be)-Total	<0.00010		0.00010	mg/L	12-OCT-21	13-OCT-21	R5616339
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	12-OCT-21	13-OCT-21	R5616339
Boron (B)-Total	0.148		0.010	mg/L	12-OCT-21	13-OCT-21	R5616339
Cadmium (Cd)-Total	<0.000060	DLM	0.000060	mg/L	12-OCT-21	13-OCT-21	R5616339
Calcium (Ca)-Total	73.5		0.50	mg/L	12-OCT-21	13-OCT-21	R5616339
Cobalt (Co)-Total	0.00024		0.00010	mg/L	12-OCT-21	13-OCT-21	R5616339
Copper (Cu)-Total	<0.0010		0.0010	mg/L	12-OCT-21	13-OCT-21	R5616339
Iron (Fe)-Total	0.093		0.050	mg/L	12-OCT-21	13-OCT-21	R5616339
Lead (Pb)-Total	<0.00010		0.00010	mg/L	12-OCT-21	13-OCT-21	R5616339
Magnesium (Mg)-Total	21.7		0.050	mg/L	12-OCT-21	13-OCT-21	R5616339
Manganese (Mn)-Total	0.0229		0.00050	mg/L	12-OCT-21	13-OCT-21	R5616339
Mercury (Hg)-Total	<0.0000050		0.0000050	mg/L		14-OCT-21	R5617429

* 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
L2649522-1 EAST STORM WATER POND Sampled By: CLIENT on 07-OCT-21 @ 11:00 Matrix: WATER							
Total Metals							
Molybdenum (Mo)-Total	0.155		0.000050	mg/L	12-OCT-21	13-OCT-21	R5616339
Nickel (Ni)-Total	0.00097		0.00050	mg/L	12-OCT-21	13-OCT-21	R5616339
Potassium (K)-Total	4.27		0.050	mg/L	12-OCT-21	13-OCT-21	R5616339
Selenium (Se)-Total	0.0211		0.000050	mg/L	12-OCT-21	13-OCT-21	R5616339
Silicon (Si)-Total	1.33		0.10	mg/L	12-OCT-21	13-OCT-21	R5616339
Silver (Ag)-Total	<0.000050		0.000050	mg/L	12-OCT-21	13-OCT-21	R5616339
Sodium (Na)-Total	25.5		0.50	mg/L	12-OCT-21	13-OCT-21	R5616339
Strontium (Sr)-Total	1.16		0.0010	mg/L	12-OCT-21	13-OCT-21	R5616339
Thallium (Tl)-Total	0.000039		0.000010	mg/L	12-OCT-21	13-OCT-21	R5616339
Tin (Sn)-Total	<0.00010		0.00010	mg/L	12-OCT-21	13-OCT-21	R5616339
Vanadium (V)-Total	0.00066		0.00050	mg/L	12-OCT-21	13-OCT-21	R5616339
Zinc (Zn)-Total	<0.0030		0.0030	mg/L	12-OCT-21	13-OCT-21	R5616339
Speciated Metals							
Chromium, Hexavalent	<0.00050		0.00050	mg/L		12-OCT-21	R5616213
Aggregate Organics							
COD	<10		10	mg/L		15-OCT-21	R5620356
Phenols (4AAP)	0.0103		0.0010	mg/L		13-OCT-21	R5617387
Volatile Organic Compounds							
Acetone	<20		20	ug/L		13-OCT-21	R5616409
Benzene	<0.50		0.50	ug/L		13-OCT-21	R5616409
Bromodichloromethane	<1.0		1.0	ug/L		13-OCT-21	R5616409
Bromoform	<1.0		1.0	ug/L		13-OCT-21	R5616409
Bromomethane	<0.50		0.50	ug/L		13-OCT-21	R5616409
Carbon tetrachloride	<0.50		0.50	ug/L		13-OCT-21	R5616409
Chlorobenzene	<0.50		0.50	ug/L		13-OCT-21	R5616409
Dibromochloromethane	<1.0		1.0	ug/L		13-OCT-21	R5616409
Chloroethane	<1.0		1.0	ug/L		13-OCT-21	R5616409
Chloroform	<1.0		1.0	ug/L		13-OCT-21	R5616409
1,2-Dibromoethane	<0.20		0.20	ug/L		13-OCT-21	R5616409
1,2-Dichlorobenzene	<0.50		0.50	ug/L		13-OCT-21	R5616409
1,3-Dichlorobenzene	<0.50		0.50	ug/L		13-OCT-21	R5616409
1,4-Dichlorobenzene	<0.50		0.50	ug/L		13-OCT-21	R5616409
Dichlorodifluoromethane	<1.0		1.0	ug/L		13-OCT-21	R5616409
1,1-Dichloroethane	<0.50		0.50	ug/L		13-OCT-21	R5616409
1,2-Dichloroethane	<0.50		0.50	ug/L		13-OCT-21	R5616409
1,1-Dichloroethylene	<0.50		0.50	ug/L		13-OCT-21	R5616409
cis-1,2-Dichloroethylene	<0.50		0.50	ug/L		13-OCT-21	R5616409
trans-1,2-Dichloroethylene	<0.50		0.50	ug/L		13-OCT-21	R5616409
Dichloromethane	<2.0		2.0	ug/L		13-OCT-21	R5616409
1,2-Dichloropropane	<0.50		0.50	ug/L		13-OCT-21	R5616409
cis-1,3-Dichloropropene	<0.50		0.50	ug/L		13-OCT-21	R5616409
trans-1,3-Dichloropropene	<0.50		0.50	ug/L		13-OCT-21	R5616409

* 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
L2649522-1 EAST STORM WATER POND Sampled By: CLIENT on 07-OCT-21 @ 11:00 Matrix: WATER							
Volatile Organic Compounds							
Ethylbenzene	<0.50		0.50	ug/L		13-OCT-21	R5616409
n-Hexane	<0.50		0.50	ug/L		13-OCT-21	R5616409
Methyl Ethyl Ketone	<20		20	ug/L		13-OCT-21	R5616409
Methyl Isobutyl Ketone	<20		20	ug/L		13-OCT-21	R5616409
MTBE	<0.50		0.50	ug/L		13-OCT-21	R5616409
Styrene	<0.50		0.50	ug/L		13-OCT-21	R5616409
1,1,1,2-Tetrachloroethane	<0.50		0.50	ug/L		13-OCT-21	R5616409
1,1,2,2-Tetrachloroethane	<0.50		0.50	ug/L		13-OCT-21	R5616409
Tetrachloroethylene	<0.50		0.50	ug/L		13-OCT-21	R5616409
Toluene	<0.50		0.50	ug/L		13-OCT-21	R5616409
1,1,1-Trichloroethane	<0.50		0.50	ug/L		13-OCT-21	R5616409
1,1,2-Trichloroethane	<0.50		0.50	ug/L		13-OCT-21	R5616409
Trichloroethylene	<0.50		0.50	ug/L		13-OCT-21	R5616409
Trichlorofluoromethane	<1.0		1.0	ug/L		13-OCT-21	R5616409
Vinyl chloride	<0.50		0.50	ug/L		13-OCT-21	R5616409
o-Xylene	<0.50		0.50	ug/L		13-OCT-21	R5616409
m+p-Xylenes	<1.0		1.0	ug/L		13-OCT-21	R5616409
Xylenes (Total)	<1.1		1.1	ug/L		13-OCT-21	
Surrogate: 4-Bromofluorobenzene	95.9		70-130	%		13-OCT-21	R5616409
Surrogate: 1,4-Difluorobenzene	102.7		70-130	%		13-OCT-21	R5616409
Trihalomethanes							
Total THMs	<2.0		2.0	ug/L		13-OCT-21	
Acid Extractables							
2,3,6-Trichlorophenol	<0.50		0.50	ug/L	15-OCT-21	20-OCT-21	R5625208
Semi-Volatile Organics							
Acenaphthene	<0.20		0.20	ug/L	15-OCT-21	20-OCT-21	R5624978
Acenaphthylene	<0.20		0.20	ug/L	15-OCT-21	20-OCT-21	R5624978
Anthracene	<0.20		0.20	ug/L	15-OCT-21	20-OCT-21	R5624978
Benzo(a)anthracene	<0.20		0.20	ug/L	15-OCT-21	20-OCT-21	R5624978
Benzo(a)pyrene	<0.050		0.050	ug/L	15-OCT-21	20-OCT-21	R5624978
Benzo(b)fluoranthene	<0.20		0.20	ug/L	15-OCT-21	20-OCT-21	R5624978
Benzo(ghi)perylene	<0.20		0.20	ug/L	15-OCT-21	20-OCT-21	R5624978
Benzo(k)fluoranthene	<0.20		0.20	ug/L	15-OCT-21	20-OCT-21	R5624978
4-Chloroaniline	<0.40		0.40	ug/L	15-OCT-21	20-OCT-21	R5624978
Bis(2-chloroethyl)ether	<0.40		0.40	ug/L	15-OCT-21	20-OCT-21	R5624978
2-Chlorophenol	<0.30		0.30	ug/L	15-OCT-21	20-OCT-21	R5624978
Chrysene	<0.20		0.20	ug/L	15-OCT-21	20-OCT-21	R5624978
Dibenz(a,h)anthracene	<0.20		0.20	ug/L	15-OCT-21	20-OCT-21	R5624978
1,2-Dichlorobenzene	<0.40		0.40	ug/L	15-OCT-21	20-OCT-21	R5624978
1,3-Dichlorobenzene	<0.40		0.40	ug/L	15-OCT-21	20-OCT-21	R5624978
1,4-Dichlorobenzene	<0.40		0.40	ug/L	15-OCT-21	20-OCT-21	R5624978
3,3-Dichlorobenzidine	<0.40		0.40	ug/L	15-OCT-21	20-OCT-21	R5624978

* 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
L2649522-1 EAST STORM WATER POND Sampled By: CLIENT on 07-OCT-21 @ 11:00 Matrix: WATER							
Semi-Volatile Organics							
2,4-Dichlorophenol	<0.30		0.30	ug/L	15-OCT-21	20-OCT-21	R5624978
Diethylphthalate	<0.20		0.20	ug/L	15-OCT-21	20-OCT-21	R5624978
Dimethylphthalate	<0.20		0.20	ug/L	15-OCT-21	20-OCT-21	R5624978
2,4-Dimethylphenol	<0.50		0.50	ug/L	15-OCT-21	20-OCT-21	R5624978
2,4-Dinitrophenol	<1.0		1.0	ug/L	15-OCT-21	20-OCT-21	R5624978
2,4-Dinitrotoluene	<0.40		0.40	ug/L	15-OCT-21	20-OCT-21	R5624978
2,6-Dinitrotoluene	<0.40		0.40	ug/L	15-OCT-21	20-OCT-21	R5624978
Bis(2-ethylhexyl)phthalate	<2.0		2.0	ug/L	15-OCT-21	20-OCT-21	R5624978
Fluoranthene	<0.20		0.20	ug/L	15-OCT-21	20-OCT-21	R5624978
Fluorene	<0.20		0.20	ug/L	15-OCT-21	20-OCT-21	R5624978
Hexachlorobenzene	<0.040		0.040	ug/L	15-OCT-21	20-OCT-21	R5624978
Hexachlorobutadiene	<0.20		0.20	ug/L	15-OCT-21	20-OCT-21	R5624978
Indeno(1,2,3-cd)pyrene	<0.20		0.20	ug/L	15-OCT-21	20-OCT-21	R5624978
1-Methylnaphthalene	<0.40		0.40	ug/L	15-OCT-21	20-OCT-21	R5624978
2-Methylnaphthalene	<0.40		0.40	ug/L	15-OCT-21	20-OCT-21	R5624978
Naphthalene	<0.20		0.20	ug/L	15-OCT-21	20-OCT-21	R5624978
Pentachlorophenol	<0.50		0.50	ug/L	15-OCT-21	20-OCT-21	R5624978
Perylene	<0.20		0.20	ug/L	15-OCT-21	20-OCT-21	R5624978
Phenanthrene	<0.20		0.20	ug/L	15-OCT-21	20-OCT-21	R5624978
Pyrene	<0.20		0.20	ug/L	15-OCT-21	20-OCT-21	R5624978
2,3,4,5-Tetrachlorophenol	<0.50		0.50	ug/L	15-OCT-21	20-OCT-21	R5624978
2,3,4,6-Tetrachlorophenol	<0.50		0.50	ug/L	15-OCT-21	20-OCT-21	R5624978
1,2,4-Trichlorobenzene	<0.40		0.40	ug/L	15-OCT-21	20-OCT-21	R5624978
2,4,5-Trichlorophenol	<0.50		0.50	ug/L	15-OCT-21	20-OCT-21	R5624978
2,4,6-Trichlorophenol	<0.50		0.50	ug/L	15-OCT-21	20-OCT-21	R5624978
Surrogate: 2-Fluorobiphenyl	105.2		40-130	%	15-OCT-21	20-OCT-21	R5624978
Surrogate: Nitrobenzene d5	119.8		40-130	%	15-OCT-21	20-OCT-21	R5624978
Surrogate: d14-Terphenyl	95.2		40-130	%	15-OCT-21	20-OCT-21	R5624978
Surrogate: 2,4,6-Tribromophenol	110.6		40-130	%	15-OCT-21	20-OCT-21	R5624978
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)
Laboratory Control Sample	2,3,6-Trichlorophenol	LCS-H	L2649522-1
Laboratory Control Sample	2,4-Dinitrophenol	LCS-H	L2649522-1
Comments:	RRQC: Recovery is below ALS control limits. Reported non-detect results for associated samples have not been affected.		
Laboratory Control Sample	Pentachlorophenol	LCS-H	L2649522-1
Comments:	RRQC: Recovery is below ALS control limits. Reported non-detect results for associated samples have not been affected.		
Laboratory Control Sample	Acetone	LCS-H	L2649522-1
Laboratory Control Sample	1,2-Dibromoethane	LCS-L	L2649522-1
Matrix Spike	COD	MS-B	L2649522-1
Matrix Spike	Dissolved Organic Carbon	MS-B	L2649522-1
Laboratory Control Sample	3,3-Dichlorobenzidine	RRQC	L2649522-1
Comments:	RRQC: Recovery is below ALS control limits. Reported non-detect results for associated samples have not been affected.		

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).
LCS-H	Lab Control Sample recovery was above ALS DQO. Non-detected sample results are considered reliable. Other results, if reported, have been qualified.
LCS-L	Lab Control Sample recovery was below ALS DQO. Reference Material and/or Matrix Spike results were acceptable. 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.
RRQC	Refer to report remarks for information regarding this QC result.

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
625-ACID-EXTRA-WT	Water	EPA 8270 Acid Extractables	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)	APHA 2320B

This analysis is carried out using procedures adapted from APHA Method 2320 "Alkalinity". Total alkalinity is determined by potentiometric titration to a pH 4.5 endpoint.

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.

Reference Information

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 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 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 deteremined 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

Reference Information

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

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

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

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

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

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

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

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

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

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

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

Total Kjeldahl Nitrogen is determined using block digestion followed by Flow-injection analysis with fluorescence detection

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

Aqueous samples are analyzed by headspace-GC/MS.

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

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

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

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

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

Chain of Custody Numbers:

GLOSSARY OF REPORT TERMS

Surrogates are compounds that are similar in behaviour to target analyte(s), but that do not normally occur in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery. In reports that display the D.L. column, laboratory objectives for surrogates are listed there.
mg/kg - milligrams per kilogram based on dry weight of sample
mg/kg wwt - milligrams per kilogram based on wet weight of sample
mg/kg lwt - milligrams per kilogram based on lipid weight of sample
mg/L - unit of concentration based on volume, parts per million.
< - Less than.
D.L. - The reporting limit.
N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.
UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.
Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

Quality Control Report

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

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
625-ACID-EXTRA-WT	**Water**							
Batch R5625208								
WG3638188-2 LCS								
2,3,6-Trichlorophenol			132.8	LCS-H	%		50-130	20-OCT-21
WG3638188-1 MB								
2,3,6-Trichlorophenol			<0.20		ug/L		0.2	20-OCT-21
625-WT	**Water**							
Batch R5624978								
WG3638188-2 LCS								
1-Methylnaphthalene			73.5		%		50-140	20-OCT-21
1,2-Dichlorobenzene			68.1		%		40-130	20-OCT-21
1,2,4-Trichlorobenzene			60.2		%		50-130	20-OCT-21
1,3-Dichlorobenzene			60.6		%		50-140	20-OCT-21
1,4-Dichlorobenzene			63.9		%		40-130	20-OCT-21
2-Chlorophenol			86.5		%		65-130	20-OCT-21
2-Methylnaphthalene			75.1		%		50-140	20-OCT-21
2,3,4,5-Tetrachlorophenol			110.9		%		50-130	20-OCT-21
2,3,4,6-Tetrachlorophenol			108.3		%		65-130	20-OCT-21
2,4-Dichlorophenol			92.3		%		65-130	20-OCT-21
2,4-Dimethylphenol			91.9		%		30-130	20-OCT-21
2,4-Dinitrophenol			150.2	LCS-H	%		40-140	20-OCT-21
2,4-Dinitrotoluene			95.2		%		50-140	20-OCT-21
2,4,5-Trichlorophenol			97.7		%		65-130	20-OCT-21
2,4,6-Trichlorophenol			98.2		%		65-130	20-OCT-21
2,6-Dinitrotoluene			82.1		%		50-140	20-OCT-21
3,3-Dichlorobenzidine			32.7	RRQC	%		50-140	20-OCT-21
4-Chloroaniline			44.5		%		30-140	20-OCT-21
Acenaphthene			80.6		%		50-140	20-OCT-21
Acenaphthylene			74.1		%		50-140	20-OCT-21
Anthracene			85.1		%		50-140	20-OCT-21
Benzo(a)anthracene			92.9		%		50-140	20-OCT-21
Benzo(a)pyrene			77.3		%		60-130	20-OCT-21
Benzo(b)fluoranthene			78.1		%		50-140	20-OCT-21
Benzo(ghi)perylene			91.8		%		50-140	20-OCT-21
Benzo(k)fluoranthene			89.8		%		50-140	20-OCT-21
Bis(2-chloroethyl)ether			86.0		%		50-140	20-OCT-21
Bis(2-ethylhexyl)phthalate			106.2		%		50-140	20-OCT-21

Quality Control Report

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

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
625-WT	**Water**							
Batch R5624978								
WG3638188-2 LCS								
Chrysene			88.4		%		50-140	20-OCT-21
Dibenz(a,h)anthracene			91.5		%		50-140	20-OCT-21
Diethylphthalate			95.4		%		50-140	20-OCT-21
Dimethylphthalate			85.0		%		50-140	20-OCT-21
Fluoranthene			86.9		%		50-140	20-OCT-21
Fluorene			88.4		%		50-140	20-OCT-21
Hexachlorobenzene			79.9		%		40-130	20-OCT-21
Hexachlorobutadiene			51.9		%		40-130	20-OCT-21
Indeno(1,2,3-cd)pyrene			80.3		%		50-140	20-OCT-21
Naphthalene			77.8		%		50-140	20-OCT-21
Pentachlorophenol			136.6	LCS-H	%		60-130	20-OCT-21
Perylene			82.4		%		50-140	20-OCT-21
Phenanthrene			86.9		%		50-140	20-OCT-21
Pyrene			81.4		%		50-140	20-OCT-21
COMMENTS: RRQC: Recovery is below ALS control limits. Reported non-detect results for associated samples have not been affected.								
WG3638188-1 MB								
1-Methylnaphthalene			<0.40		ug/L		0.4	20-OCT-21
1,2-Dichlorobenzene			<0.40		ug/L		0.4	20-OCT-21
1,2,4-Trichlorobenzene			<0.40		ug/L		0.4	20-OCT-21
1,3-Dichlorobenzene			<0.40		ug/L		0.4	20-OCT-21
1,4-Dichlorobenzene			<0.40		ug/L		0.4	20-OCT-21
2-Chlorophenol			<0.30		ug/L		0.3	20-OCT-21
2-Methylnaphthalene			<0.40		ug/L		0.4	20-OCT-21
2,3,4,5-Tetrachlorophenol			<0.50		ug/L		0.5	20-OCT-21
2,3,4,6-Tetrachlorophenol			<0.50		ug/L		0.5	20-OCT-21
2,4-Dichlorophenol			<0.30		ug/L		0.3	20-OCT-21
2,4-Dimethylphenol			<0.50		ug/L		0.5	20-OCT-21
2,4-Dinitrophenol			<1.0		ug/L		1	20-OCT-21
2,4-Dinitrotoluene			<1.6		ug/L		1.6	20-OCT-21
2,4,5-Trichlorophenol			<0.50		ug/L		0.5	20-OCT-21
2,4,6-Trichlorophenol			<0.50		ug/L		0.5	20-OCT-21
2,6-Dinitrotoluene			<1.6		ug/L		1.6	20-OCT-21
3,3-Dichlorobenzidine			<0.40		ug/L		0.4	20-OCT-21
4-Chloroaniline			<0.40		ug/L		0.4	20-OCT-21

Quality Control Report

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

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
625-WT	**Water**							
Batch R5624978								
WG3638188-1 MB								
Acenaphthene			<0.20		ug/L		0.2	20-OCT-21
Acenaphthylene			<0.20		ug/L		0.2	20-OCT-21
Anthracene			<0.20		ug/L		0.2	20-OCT-21
Benzo(a)anthracene			<0.20		ug/L		0.2	20-OCT-21
Benzo(a)pyrene			<0.050		ug/L		0.05	20-OCT-21
Benzo(b)fluoranthene			<0.20		ug/L		0.2	20-OCT-21
Benzo(ghi)perylene			<0.20		ug/L		0.2	20-OCT-21
Benzo(k)fluoranthene			<0.20		ug/L		0.2	20-OCT-21
Bis(2-chloroethyl)ether			<0.40		ug/L		0.4	20-OCT-21
Bis(2-ethylhexyl)phthalate			<1.0		ug/L		1	20-OCT-21
Chrysene			<0.20		ug/L		0.2	20-OCT-21
Dibenz(a,h)anthracene			<0.20		ug/L		0.2	20-OCT-21
Diethylphthalate			<0.20		ug/L		0.2	20-OCT-21
Dimethylphthalate			<0.20		ug/L		0.2	20-OCT-21
Fluoranthene			<0.20		ug/L		0.2	20-OCT-21
Fluorene			<0.20		ug/L		0.2	20-OCT-21
Hexachlorobenzene			<0.040		ug/L		0.04	20-OCT-21
Hexachlorobutadiene			<0.20		ug/L		0.2	20-OCT-21
Indeno(1,2,3-cd)pyrene			<0.20		ug/L		0.2	20-OCT-21
Naphthalene			<0.20		ug/L		0.2	20-OCT-21
Pentachlorophenol			<0.50		ug/L		0.5	20-OCT-21
Perylene			<0.20		ug/L		0.2	20-OCT-21
Phenanthrene			<0.20		ug/L		0.2	20-OCT-21
Pyrene			<0.20		ug/L		0.2	20-OCT-21
Surrogate: 2-Fluorobiphenyl			86.5		%		40-130	20-OCT-21
Surrogate: 2,4,6-Tribromophenol			86.2		%		40-130	20-OCT-21
Surrogate: Nitrobenzene d5			84.8		%		40-130	20-OCT-21
Surrogate: d14-Terphenyl			113.1		%		40-130	20-OCT-21
ALK-WT	**Water**							
Batch R5615950								
WG3635053-4 DUP		**WG3635053-3**						
Alkalinity, Total (as CaCO3)		81.6	82.2		mg/L	0.8	20	09-OCT-21
WG3635053-2 LCS								
Alkalinity, Total (as CaCO3)			104.1		%		85-115	09-OCT-21

Quality Control Report

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

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
ALK-WT	**Water**							
Batch R5615950								
WG3635053-1 MB								
Alkalinity, Total (as CaCO3)			<2.0		mg/L		2	09-OCT-21
BR-IC-N-WT	**Water**							
Batch R5616387								
WG3635915-19 DUP		**WG3635915-18**						
Bromide (Br)		<0.10	<0.10	RPD-NA	mg/L	N/A	20	12-OCT-21
WG3635915-17 LCS								
Bromide (Br)			99.5		%		85-115	12-OCT-21
WG3635915-16 MB								
Bromide (Br)			<0.10		mg/L		0.1	12-OCT-21
WG3635915-20 MS		**WG3635915-18**						
Bromide (Br)			100.8		%		75-125	12-OCT-21
CL-IC-N-WT	**Water**							
Batch R5616387								
WG3635915-19 DUP		**WG3635915-18**						
Chloride (Cl)		25.0	25.0		mg/L	0.2	20	12-OCT-21
WG3635915-17 LCS								
Chloride (Cl)			101.4		%		90-110	12-OCT-21
WG3635915-16 MB								
Chloride (Cl)			<0.50		mg/L		0.5	12-OCT-21
WG3635915-20 MS		**WG3635915-18**						
Chloride (Cl)			102.1		%		75-125	12-OCT-21
CN-TOT-WT	**Water**							
Batch R5617687								
WG3637721-19 DUP		**WG3637721-18**						
Cyanide, Total		<0.0020	<0.0020	RPD-NA	mg/L	N/A	20	14-OCT-21
WG3637721-17 LCS								
Cyanide, Total			95.9		%		80-120	14-OCT-21
WG3637721-16 MB								
Cyanide, Total			<0.0020		mg/L		0.002	14-OCT-21
WG3637721-20 MS		**WG3637721-18**						
Cyanide, Total			87.7		%		70-130	14-OCT-21
COD-T-WT	**Water**							

Quality Control Report

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

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
COD-T-WT	**Water**							
Batch R5620356								
WG3638599-7 DUP		**L2649422-1**						
COD		235	234		mg/L	0.3	20	15-OCT-21
WG3638599-6 LCS								
COD			100.5		%		85-115	15-OCT-21
WG3638599-5 MB								
COD			<10		mg/L		10	15-OCT-21
WG3638599-8 MS		**L2649422-1**						
COD			N/A	MS-B	%		-	15-OCT-21
CR-CR6-IC-WT	**Water**							
Batch R5616213								
WG3635936-4 DUP		**WG3635936-3**						
Chromium, Hexavalent		0.00093	0.00094		mg/L	1.6	20	12-OCT-21
WG3635936-2 LCS								
Chromium, Hexavalent			97.6		%		80-120	12-OCT-21
WG3635936-1 MB								
Chromium, Hexavalent			<0.00050		mg/L		0.0005	12-OCT-21
WG3635936-5 MS		**WG3635936-3**						
Chromium, Hexavalent			99.1		%		70-130	12-OCT-21
DOC-WT	**Water**							
Batch R5617055								
WG3635061-3 DUP		**L2649475-1**						
Dissolved Organic Carbon		12.6	12.7		mg/L	0.3	20	13-OCT-21
WG3635061-2 LCS								
Dissolved Organic Carbon			90.7		%		80-120	13-OCT-21
WG3635061-1 MB								
Dissolved Organic Carbon			<0.50		mg/L		0.5	13-OCT-21
WG3635061-4 MS		**L2649475-1**						
Dissolved Organic Carbon			N/A	MS-B	%		-	13-OCT-21
EC-WT	**Water**							
Batch R5615950								
WG3635053-4 DUP		**WG3635053-3**						
Conductivity		166	165		umhos/cm	0.2	10	09-OCT-21
WG3635053-2 LCS								
Conductivity			97.7		%		90-110	09-OCT-21
WG3635053-1 MB								
Conductivity			<2.0		umhos/cm		2	09-OCT-21
F-IC-N-WT	**Water**							

Quality Control Report

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

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
F-IC-N-WT	**Water**							
Batch R5616387								
WG3635915-19 DUP		**WG3635915-18**						
Fluoride (F)		0.061	0.061		mg/L	0.9	20	12-OCT-21
WG3635915-17 LCS								
Fluoride (F)			103.4		%		90-110	12-OCT-21
WG3635915-16 MB								
Fluoride (F)			<0.020		mg/L		0.02	12-OCT-21
WG3635915-20 MS		**WG3635915-18**						
Fluoride (F)			100.3		%		75-125	12-OCT-21
HG-T-CVAA-WT	**Water**							
Batch R5617429								
WG3635752-4 DUP		**WG3635752-3**						
Mercury (Hg)-Total		<0.0000050	<0.000005C	RPD-NA	mg/L	N/A	20	14-OCT-21
WG3635752-2 LCS								
Mercury (Hg)-Total			104.0		%		80-120	14-OCT-21
WG3635752-1 MB								
Mercury (Hg)-Total			<0.000005C		mg/L		0.000005	14-OCT-21
WG3635752-6 MS		**WG3635752-5**						
Mercury (Hg)-Total			95.7		%		70-130	14-OCT-21
MET-T-CCMS-WT	**Water**							
Batch R5616339								
WG3636045-4 DUP		**WG3636045-3**						
Aluminum (Al)-Total		<0.0050	<0.0050	RPD-NA	mg/L	N/A	20	13-OCT-21
Antimony (Sb)-Total		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	13-OCT-21
Arsenic (As)-Total		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	13-OCT-21
Barium (Ba)-Total		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	13-OCT-21
Beryllium (Be)-Total		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	13-OCT-21
Bismuth (Bi)-Total		<0.000050	<0.000050	RPD-NA	mg/L	N/A	20	13-OCT-21
Boron (B)-Total		<0.010	<0.010	RPD-NA	mg/L	N/A	20	13-OCT-21
Cadmium (Cd)-Total		<0.0000050	<0.000005C	RPD-NA	mg/L	N/A	20	13-OCT-21
Calcium (Ca)-Total		<0.050	<0.050	RPD-NA	mg/L	N/A	20	13-OCT-21
Cobalt (Co)-Total		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	13-OCT-21
Copper (Cu)-Total		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	13-OCT-21
Iron (Fe)-Total		<0.010	<0.010	RPD-NA	mg/L	N/A	20	13-OCT-21
Lead (Pb)-Total		<0.000050	<0.000050	RPD-NA	mg/L	N/A	20	13-OCT-21
Magnesium (Mg)-Total		<0.0050	<0.0050	RPD-NA	mg/L	N/A	20	13-OCT-21
Manganese (Mn)-Total		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	13-OCT-21

Quality Control Report

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

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-WT	**Water**							
Batch R5616339								
WG3636045-4 DUP		**WG3636045-3**						
Molybdenum (Mo)-Total		<0.000050	<0.000050	RPD-NA	mg/L	N/A	20	13-OCT-21
Nickel (Ni)-Total		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	13-OCT-21
Potassium (K)-Total		<0.050	<0.050	RPD-NA	mg/L	N/A	20	13-OCT-21
Selenium (Se)-Total		<0.000050	<0.000050	RPD-NA	mg/L	N/A	20	13-OCT-21
Silicon (Si)-Total		<0.10	<0.10	RPD-NA	mg/L	N/A	20	13-OCT-21
Silver (Ag)-Total		<0.000050	<0.000050	RPD-NA	mg/L	N/A	20	13-OCT-21
Sodium (Na)-Total		<0.050	<0.050	RPD-NA	mg/L	N/A	20	13-OCT-21
Strontium (Sr)-Total		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	13-OCT-21
Thallium (Tl)-Total		<0.000010	<0.000010	RPD-NA	mg/L	N/A	20	13-OCT-21
Tin (Sn)-Total		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	13-OCT-21
Vanadium (V)-Total		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	13-OCT-21
Zinc (Zn)-Total		<0.0030	<0.0030	RPD-NA	mg/L	N/A	20	13-OCT-21
WG3636045-2 LCS								
Aluminum (Al)-Total			98.9		%		80-120	13-OCT-21
Antimony (Sb)-Total			99.6		%		80-120	13-OCT-21
Arsenic (As)-Total			100.7		%		80-120	13-OCT-21
Barium (Ba)-Total			102.7		%		80-120	13-OCT-21
Beryllium (Be)-Total			98.9		%		80-120	13-OCT-21
Bismuth (Bi)-Total			99.6		%		80-120	13-OCT-21
Boron (B)-Total			95.1		%		80-120	13-OCT-21
Cadmium (Cd)-Total			99.7		%		80-120	13-OCT-21
Calcium (Ca)-Total			99.9		%		80-120	13-OCT-21
Cobalt (Co)-Total			100.4		%		80-120	13-OCT-21
Copper (Cu)-Total			99.7		%		80-120	13-OCT-21
Iron (Fe)-Total			100.4		%		80-120	13-OCT-21
Lead (Pb)-Total			100.8		%		80-120	13-OCT-21
Magnesium (Mg)-Total			100.3		%		80-120	13-OCT-21
Manganese (Mn)-Total			99.5		%		80-120	13-OCT-21
Molybdenum (Mo)-Total			101.6		%		80-120	13-OCT-21
Nickel (Ni)-Total			99.7		%		80-120	13-OCT-21
Potassium (K)-Total			100.7		%		80-120	13-OCT-21
Selenium (Se)-Total			100.1		%		80-120	13-OCT-21
Silicon (Si)-Total			102.9		%		60-140	13-OCT-21

Quality Control Report

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

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-WT	**Water**							
Batch R5616339								
WG3636045-2 LCS								
Silver (Ag)-Total			103.1		%		80-120	13-OCT-21
Sodium (Na)-Total			99.3		%		80-120	13-OCT-21
Strontium (Sr)-Total			102.7		%		80-120	13-OCT-21
Thallium (Tl)-Total			100.4		%		80-120	13-OCT-21
Tin (Sn)-Total			100.2		%		80-120	13-OCT-21
Vanadium (V)-Total			101.1		%		80-120	13-OCT-21
Zinc (Zn)-Total			97.2		%		80-120	13-OCT-21
WG3636045-1 MB								
Aluminum (Al)-Total			<0.0050		mg/L		0.005	13-OCT-21
Antimony (Sb)-Total			<0.00010		mg/L		0.0001	13-OCT-21
Arsenic (As)-Total			<0.00010		mg/L		0.0001	13-OCT-21
Barium (Ba)-Total			<0.00010		mg/L		0.0001	13-OCT-21
Beryllium (Be)-Total			<0.00010		mg/L		0.0001	13-OCT-21
Bismuth (Bi)-Total			<0.000050		mg/L		0.00005	13-OCT-21
Boron (B)-Total			<0.010		mg/L		0.01	13-OCT-21
Cadmium (Cd)-Total			<0.000005(		mg/L		0.000005	13-OCT-21
Calcium (Ca)-Total			<0.050		mg/L		0.05	13-OCT-21
Cobalt (Co)-Total			<0.00010		mg/L		0.0001	13-OCT-21
Copper (Cu)-Total			<0.00050		mg/L		0.0005	13-OCT-21
Iron (Fe)-Total			<0.010		mg/L		0.01	13-OCT-21
Lead (Pb)-Total			<0.000050		mg/L		0.00005	13-OCT-21
Magnesium (Mg)-Total			<0.0050		mg/L		0.005	13-OCT-21
Manganese (Mn)-Total			<0.00050		mg/L		0.0005	13-OCT-21
Molybdenum (Mo)-Total			<0.000050		mg/L		0.00005	13-OCT-21
Nickel (Ni)-Total			<0.00050		mg/L		0.0005	13-OCT-21
Potassium (K)-Total			<0.050		mg/L		0.05	13-OCT-21
Selenium (Se)-Total			<0.000050		mg/L		0.00005	13-OCT-21
Silicon (Si)-Total			<0.10		mg/L		0.1	13-OCT-21
Silver (Ag)-Total			<0.000050		mg/L		0.00005	13-OCT-21
Sodium (Na)-Total			<0.050		mg/L		0.05	13-OCT-21
Strontium (Sr)-Total			<0.0010		mg/L		0.001	13-OCT-21
Thallium (Tl)-Total			<0.000010		mg/L		0.00001	13-OCT-21
Tin (Sn)-Total			<0.00010		mg/L		0.0001	13-OCT-21
Vanadium (V)-Total			<0.00050		mg/L		0.0005	13-OCT-21

Quality Control Report

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

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-WT	**Water**							
Batch R5616339								
WG3636045-1 MB								
Zinc (Zn)-Total			<0.0030		mg/L		0.003	13-OCT-21
WG3636045-5 MS		**WG3636045-6**						
Aluminum (Al)-Total			107.9		%		70-130	13-OCT-21
Antimony (Sb)-Total			104.4		%		70-130	13-OCT-21
Arsenic (As)-Total			108.1		%		70-130	13-OCT-21
Barium (Ba)-Total			107.7		%		70-130	13-OCT-21
Beryllium (Be)-Total			103.0		%		70-130	13-OCT-21
Bismuth (Bi)-Total			105.1		%		70-130	13-OCT-21
Boron (B)-Total			99.1		%		70-130	13-OCT-21
Cadmium (Cd)-Total			106.0		%		70-130	13-OCT-21
Calcium (Ca)-Total			103.6		%		70-130	13-OCT-21
Cobalt (Co)-Total			109.2		%		70-130	13-OCT-21
Copper (Cu)-Total			108.4		%		70-130	13-OCT-21
Iron (Fe)-Total			109.5		%		70-130	13-OCT-21
Lead (Pb)-Total			106.0		%		70-130	13-OCT-21
Magnesium (Mg)-Total			107.0		%		70-130	13-OCT-21
Manganese (Mn)-Total			105.2		%		70-130	13-OCT-21
Molybdenum (Mo)-Total			107.2		%		70-130	13-OCT-21
Nickel (Ni)-Total			108.8		%		70-130	13-OCT-21
Potassium (K)-Total			107.8		%		70-130	13-OCT-21
Selenium (Se)-Total			103.9		%		70-130	13-OCT-21
Silicon (Si)-Total			105.1		%		70-130	13-OCT-21
Silver (Ag)-Total			107.8		%		70-130	13-OCT-21
Sodium (Na)-Total			107.0		%		70-130	13-OCT-21
Strontium (Sr)-Total			107.4		%		70-130	13-OCT-21
Thallium (Tl)-Total			105.8		%		70-130	13-OCT-21
Tin (Sn)-Total			105.3		%		70-130	13-OCT-21
Vanadium (V)-Total			109.4		%		70-130	13-OCT-21
Zinc (Zn)-Total			100.6		%		70-130	13-OCT-21
NH3-F-WT	**Water**							
Batch R5618036								
WG3636200-3 DUP		**L2650165-1**						
Ammonia, Total (as N)		0.070	0.070		mg/L	0.3	20	15-OCT-21
WG3636200-2 LCS								

Quality Control Report

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

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
NH3-F-WT	**Water**							
Batch R5618036								
WG3636200-2 LCS								
Ammonia, Total (as N)			107.3		%		85-115	14-OCT-21
WG3636200-1 MB								
Ammonia, Total (as N)			<0.010		mg/L		0.01	14-OCT-21
WG3636200-4 MS		**L2650165-1**						
Ammonia, Total (as N)			101.5		%		75-125	15-OCT-21
NO2-IC-WT	**Water**							
Batch R5616387								
WG3635915-19 DUP		**WG3635915-18**						
Nitrite (as N)		0.016	0.016		mg/L	0.4	20	12-OCT-21
WG3635915-17 LCS								
Nitrite (as N)			101.8		%		90-110	12-OCT-21
WG3635915-16 MB								
Nitrite (as N)			<0.010		mg/L		0.01	12-OCT-21
WG3635915-20 MS		**WG3635915-18**						
Nitrite (as N)			104.3		%		75-125	12-OCT-21
NO3-IC-WT	**Water**							
Batch R5616387								
WG3635915-19 DUP		**WG3635915-18**						
Nitrate (as N)		0.213	0.213		mg/L	0.0	20	12-OCT-21
WG3635915-17 LCS								
Nitrate (as N)			101.1		%		90-110	12-OCT-21
WG3635915-16 MB								
Nitrate (as N)			<0.020		mg/L		0.02	12-OCT-21
WG3635915-20 MS		**WG3635915-18**						
Nitrate (as N)			102.7		%		75-125	12-OCT-21
P-T-COL-WT	**Water**							
Batch R5617286								
WG3636599-3 DUP		**L2649522-1**						
Phosphorus, Total		0.0034	<0.0030	RPD-NA	mg/L	N/A	20	14-OCT-21
WG3636599-2 LCS								
Phosphorus, Total			96.2		%		80-120	14-OCT-21
WG3636599-1 MB								
Phosphorus, Total			<0.0030		mg/L		0.003	14-OCT-21
WG3636599-4 MS		**L2649522-1**						
Phosphorus, Total			91.0		%		70-130	14-OCT-21
PH-WT	**Water**							

Quality Control Report

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

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PH-WT	**Water**							
Batch R5615950								
WG3635053-4 DUP		**WG3635053-3**						
pH		7.61	7.66	J	pH units	0.05	0.2	09-OCT-21
WG3635053-2 LCS								
pH			7.01		pH units		6.9-7.1	09-OCT-21
PHENOLS-4AAP-WT	**Water**							
Batch R5617387								
WG3636767-3 DUP		**L2648890-3**						
Phenols (4AAP)		0.0024	0.0025		mg/L	3.3	20	13-OCT-21
WG3636767-2 LCS								
Phenols (4AAP)			98.4		%		85-115	13-OCT-21
WG3636767-1 MB								
Phenols (4AAP)			<0.0010		mg/L		0.001	13-OCT-21
WG3636767-4 MS		**L2648890-3**						
Phenols (4AAP)			99.9		%		75-125	13-OCT-21
SO4-IC-N-WT	**Water**							
Batch R5616387								
WG3635915-19 DUP		**WG3635915-18**						
Sulfate (SO4)		15.3	15.2		mg/L	0.3	20	12-OCT-21
WG3635915-17 LCS								
Sulfate (SO4)			102.9		%		90-110	12-OCT-21
WG3635915-16 MB								
Sulfate (SO4)			<0.30		mg/L		0.3	12-OCT-21
WG3635915-20 MS		**WG3635915-18**						
Sulfate (SO4)			103.9		%		75-125	12-OCT-21
SOLIDS-TDS-WT	**Water**							
Batch R5619217								
WG3635168-3 DUP		**L2649312-17**						
Total Dissolved Solids		216	220		mg/L	1.8	20	10-OCT-21
WG3635168-2 LCS								
Total Dissolved Solids			98.7		%		85-115	10-OCT-21
WG3635168-1 MB								
Total Dissolved Solids			<10		mg/L		10	10-OCT-21
SOLIDS-TSS-WT	**Water**							
Batch R5616490								
WG3635169-3 DUP		**WG3635169-4**						
Total Suspended Solids		14700	14600		mg/L	0.1	20	14-OCT-21
WG3635169-2 LCS								

Quality Control Report

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

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
SOLIDS-TSS-WT	**Water**							
Batch R5616490								
WG3635169-2 LCS								
Total Suspended Solids			98.2		%		85-115	14-OCT-21
WG3635169-1 MB								
Total Suspended Solids			<3.0		mg/L		3	14-OCT-21
TKN-F-WT	**Water**							
Batch R5617496								
WG3636194-3 DUP		**L2649622-2**						
Total Kjeldahl Nitrogen		0.290	0.320		mg/L	9.8	20	14-OCT-21
WG3636194-2 LCS								
Total Kjeldahl Nitrogen			108.5		%		75-125	14-OCT-21
WG3636194-1 MB								
Total Kjeldahl Nitrogen			0.050		mg/L		0.05	14-OCT-21
WG3636194-4 MS		**L2649622-2**						
Total Kjeldahl Nitrogen			108.0		%		70-130	14-OCT-21
VOC-ROU-HS-WT	**Water**							
Batch R5616409								
WG3636166-4 DUP		**WG3636166-3**						
1,1,1,2-Tetrachloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	13-OCT-21
1,1,2,2-Tetrachloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	13-OCT-21
1,1,1-Trichloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	13-OCT-21
1,1,2-Trichloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	13-OCT-21
1,2-Dibromoethane		<0.20	<0.20	RPD-NA	ug/L	N/A	30	13-OCT-21
1,1-Dichloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	13-OCT-21
1,1-Dichloroethylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	13-OCT-21
1,2-Dichlorobenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	13-OCT-21
1,2-Dichloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	13-OCT-21
1,2-Dichloropropane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	13-OCT-21
1,3-Dichlorobenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	13-OCT-21
1,4-Dichlorobenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	13-OCT-21
Acetone		<20	<20	RPD-NA	ug/L	N/A	30	13-OCT-21
Benzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	13-OCT-21
Bromodichloromethane		<1.0	<1.0	RPD-NA	ug/L	N/A	30	13-OCT-21
Bromoform		<1.0	<1.0	RPD-NA	ug/L	N/A	30	13-OCT-21
Bromomethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	13-OCT-21
Carbon tetrachloride		<0.20	<0.20	RPD-NA	ug/L	N/A	30	13-OCT-21

Quality Control Report

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

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-ROU-HS-WT	**Water**							
Batch R5616409								
WG3636166-4 DUP		**WG3636166-3**						
Chlorobenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	13-OCT-21
Chloroethane		<1.0	<1.0	RPD-NA	ug/L	N/A	30	13-OCT-21
Chloroform		<1.0	<1.0	RPD-NA	ug/L	N/A	30	13-OCT-21
cis-1,2-Dichloroethylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	13-OCT-21
cis-1,3-Dichloropropene		<0.30	<0.30	RPD-NA	ug/L	N/A	30	13-OCT-21
Dibromochloromethane		<1.0	<1.0	RPD-NA	ug/L	N/A	30	13-OCT-21
Dichlorodifluoromethane		<1.0	<1.0	RPD-NA	ug/L	N/A	30	13-OCT-21
Dichloromethane		<2.0	<2.0	RPD-NA	ug/L	N/A	30	13-OCT-21
Ethylbenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	13-OCT-21
m+p-Xylenes		<0.40	<0.40	RPD-NA	ug/L	N/A	30	13-OCT-21
Methyl Ethyl Ketone		<20	<20	RPD-NA	ug/L	N/A	30	13-OCT-21
Methyl Isobutyl Ketone		<20	<20	RPD-NA	ug/L	N/A	30	13-OCT-21
n-Hexane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	13-OCT-21
MTBE		<0.50	<0.50	RPD-NA	ug/L	N/A	30	13-OCT-21
o-Xylene		<0.30	<0.30	RPD-NA	ug/L	N/A	30	13-OCT-21
Styrene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	13-OCT-21
Tetrachloroethylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	13-OCT-21
Toluene		<0.40	<0.40	RPD-NA	ug/L	N/A	30	13-OCT-21
trans-1,2-Dichloroethylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	13-OCT-21
trans-1,3-Dichloropropene		<0.30	<0.30	RPD-NA	ug/L	N/A	30	13-OCT-21
Trichloroethylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	13-OCT-21
Trichlorofluoromethane		<1.0	<1.0	RPD-NA	ug/L	N/A	30	13-OCT-21
Vinyl chloride		<0.50	<0.50	RPD-NA	ug/L	N/A	30	13-OCT-21
WG3636166-1 LCS								
1,1,1,2-Tetrachloroethane			96.4		%		70-130	13-OCT-21
1,1,2,2-Tetrachloroethane			113.0		%		70-130	13-OCT-21
1,1,1-Trichloroethane			98.5		%		70-130	13-OCT-21
1,1,2-Trichloroethane			74.5		%		70-130	13-OCT-21
1,2-Dibromoethane			46.4	LCS-L	%		70-130	13-OCT-21
1,1-Dichloroethane			107.0		%		70-130	13-OCT-21
1,1-Dichloroethylene			111.8		%		70-130	13-OCT-21
1,2-Dichlorobenzene			99.3		%		70-130	13-OCT-21
1,2-Dichloroethane			107.1		%		70-130	13-OCT-21

Quality Control Report

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

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-ROU-HS-WT	**Water**							
Batch R5616409								
WG3636166-1 LCS								
1,2-Dichloropropane			99.8		%		70-130	13-OCT-21
1,3-Dichlorobenzene			96.4		%		70-130	13-OCT-21
1,4-Dichlorobenzene			99.9		%		70-130	13-OCT-21
Acetone			179.1	LCS-H	%		60-140	13-OCT-21
Benzene			106.2		%		70-130	13-OCT-21
Bromodichloromethane			117.6		%		70-130	13-OCT-21
Bromoform			117.6		%		70-130	13-OCT-21
Bromomethane			118.1		%		60-140	13-OCT-21
Carbon tetrachloride			99.4		%		70-130	13-OCT-21
Chlorobenzene			103.6		%		70-130	13-OCT-21
Chloroethane			103.3		%		70-130	13-OCT-21
Chloroform			79.3		%		70-130	13-OCT-21
cis-1,2-Dichloroethylene			83.6		%		70-130	13-OCT-21
cis-1,3-Dichloropropene			106.3		%		70-130	13-OCT-21
Dibromochloromethane			101.9		%		70-130	13-OCT-21
Dichlorodifluoromethane			124.8		%		50-140	13-OCT-21
Dichloromethane			115.6		%		70-130	13-OCT-21
Ethylbenzene			102.1		%		70-130	13-OCT-21
m+p-Xylenes			105.3		%		70-130	13-OCT-21
Methyl Ethyl Ketone			119.5		%		60-140	13-OCT-21
Methyl Isobutyl Ketone			112.7		%		50-150	13-OCT-21
n-Hexane			108.6		%		70-130	13-OCT-21
MTBE			99.4		%		70-130	13-OCT-21
o-Xylene			99.3		%		70-130	13-OCT-21
Styrene			93.8		%		70-130	13-OCT-21
Tetrachloroethylene			113.4		%		70-130	13-OCT-21
Toluene			99.7		%		70-130	13-OCT-21
trans-1,2-Dichloroethylene			113.6		%		70-130	13-OCT-21
trans-1,3-Dichloropropene			108.0		%		70-130	13-OCT-21
Trichloroethylene			106.9		%		70-130	13-OCT-21
Trichlorofluoromethane			116.8		%		60-140	13-OCT-21
Vinyl chloride			100.8		%		60-140	13-OCT-21
WG3636166-2 MB								
1,1,1,2-Tetrachloroethane			<0.50		ug/L		0.5	13-OCT-21

Quality Control Report

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

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-ROU-HS-WT	**Water**							
Batch R5616409								
WG3636166-2 MB								
1,1,2,2-Tetrachloroethane			<0.50		ug/L		0.5	13-OCT-21
1,1,1-Trichloroethane			<0.50		ug/L		0.5	13-OCT-21
1,1,2-Trichloroethane			<0.50		ug/L		0.5	13-OCT-21
1,2-Dibromoethane			<0.20		ug/L		0.2	13-OCT-21
1,1-Dichloroethane			<0.50		ug/L		0.5	13-OCT-21
1,1-Dichloroethylene			<0.50		ug/L		0.5	13-OCT-21
1,2-Dichlorobenzene			<0.50		ug/L		0.5	13-OCT-21
1,2-Dichloroethane			<0.50		ug/L		0.5	13-OCT-21
1,2-Dichloropropane			<0.50		ug/L		0.5	13-OCT-21
1,3-Dichlorobenzene			<0.50		ug/L		0.5	13-OCT-21
1,4-Dichlorobenzene			<0.50		ug/L		0.5	13-OCT-21
Acetone			<20		ug/L		20	13-OCT-21
Benzene			<0.50		ug/L		0.5	13-OCT-21
Bromodichloromethane			<1.0		ug/L		1	13-OCT-21
Bromoform			<1.0		ug/L		1	13-OCT-21
Bromomethane			<0.50		ug/L		0.5	13-OCT-21
Carbon tetrachloride			<0.20		ug/L		0.2	13-OCT-21
Chlorobenzene			<0.50		ug/L		0.5	13-OCT-21
Chloroethane			<1.0		ug/L		1	13-OCT-21
Chloroform			<1.0		ug/L		1	13-OCT-21
cis-1,2-Dichloroethylene			<0.50		ug/L		0.5	13-OCT-21
cis-1,3-Dichloropropene			<0.30		ug/L		0.3	13-OCT-21
Dibromochloromethane			<1.0		ug/L		1	13-OCT-21
Dichlorodifluoromethane			<1.0		ug/L		1	13-OCT-21
Dichloromethane			<2.0		ug/L		2	13-OCT-21
Ethylbenzene			<0.50		ug/L		0.5	13-OCT-21
m+p-Xylenes			<0.40		ug/L		0.4	13-OCT-21
Methyl Ethyl Ketone			<20		ug/L		20	13-OCT-21
Methyl Isobutyl Ketone			<20		ug/L		20	13-OCT-21
n-Hexane			<0.50		ug/L		0.5	13-OCT-21
MTBE			<0.50		ug/L		0.5	13-OCT-21
o-Xylene			<0.30		ug/L		0.3	13-OCT-21
Styrene			<0.50		ug/L		0.5	13-OCT-21

Quality Control Report

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

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-ROU-HS-WT	**Water**							
Batch R5616409								
WG3636166-2 MB								
Tetrachloroethylene			<0.50		ug/L		0.5	13-OCT-21
Toluene			<0.40		ug/L		0.4	13-OCT-21
trans-1,2-Dichloroethylene			<0.50		ug/L		0.5	13-OCT-21
trans-1,3-Dichloropropene			<0.30		ug/L		0.3	13-OCT-21
Trichloroethylene			<0.50		ug/L		0.5	13-OCT-21
Trichlorofluoromethane			<1.0		ug/L		1	13-OCT-21
Vinyl chloride			<0.50		ug/L		0.5	13-OCT-21
Surrogate: 1,4-Difluorobenzene			102.7		%		70-130	13-OCT-21
Surrogate: 4-Bromofluorobenzene			97.4		%		70-130	13-OCT-21
WG3636166-5 MS		**WG3636166-3**						
1,1,1,2-Tetrachloroethane			95.6		%		50-150	13-OCT-21
1,1,2,2-Tetrachloroethane			88.8		%		50-150	13-OCT-21
1,1,1-Trichloroethane			106.0		%		50-150	13-OCT-21
1,1,2-Trichloroethane			89.7		%		50-150	13-OCT-21
1,2-Dibromoethane			88.3		%		50-150	13-OCT-21
1,1-Dichloroethane			109.9		%		50-150	13-OCT-21
1,1-Dichloroethylene			99.9		%		50-150	13-OCT-21
1,2-Dichlorobenzene			96.4		%		50-150	13-OCT-21
1,2-Dichloroethane			93.8		%		50-150	13-OCT-21
1,2-Dichloropropane			91.1		%		50-150	13-OCT-21
1,3-Dichlorobenzene			97.6		%		50-150	13-OCT-21
1,4-Dichlorobenzene			99.5		%		50-150	13-OCT-21
Acetone			91.0		%		50-150	13-OCT-21
Benzene			97.9		%		50-150	13-OCT-21
Bromodichloromethane			108.4		%		50-150	13-OCT-21
Bromoform			96.6		%		50-150	13-OCT-21
Bromomethane			99.95		%		50-150	13-OCT-21
Carbon tetrachloride			105.8		%		50-150	13-OCT-21
Chlorobenzene			96.8		%		50-150	13-OCT-21
Chloroethane			89.7		%		50-150	13-OCT-21
Chloroform			98.8		%		50-150	13-OCT-21
cis-1,2-Dichloroethylene			96.6		%		50-150	13-OCT-21
cis-1,3-Dichloropropene			97.2		%		50-150	13-OCT-21
Dibromochloromethane			94.9		%		50-150	13-OCT-21

Quality Control Report

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

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-ROU-HS-WT	**Water**							
Batch R5616409								
WG3636166-5 MS		**WG3636166-3**						
Dichlorodifluoromethane			88.8		%		50-150	13-OCT-21
Dichloromethane			103.0		%		50-150	13-OCT-21
Ethylbenzene			94.3		%		50-150	13-OCT-21
m+p-Xylenes			97.6		%		50-150	13-OCT-21
Methyl Ethyl Ketone			86.0		%		50-150	13-OCT-21
Methyl Isobutyl Ketone			80.9		%		50-150	13-OCT-21
n-Hexane			95.8		%		50-150	13-OCT-21
MTBE			96.1		%		50-150	13-OCT-21
o-Xylene			93.8		%		50-150	13-OCT-21
Styrene			91.1		%		50-150	13-OCT-21
Tetrachloroethylene			104.5		%		50-150	13-OCT-21
Toluene			91.2		%		50-150	13-OCT-21
trans-1,2-Dichloroethylene			104.3		%		50-150	13-OCT-21
trans-1,3-Dichloropropene			90.8		%		50-150	13-OCT-21
Trichloroethylene			101.1		%		50-150	13-OCT-21
Trichlorofluoromethane			103.2		%		50-150	13-OCT-21
Vinyl chloride			83.5		%		50-150	13-OCT-21

Quality Control Report

Workorder: L2649522 Report Date: 20-OCT-21

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

Legend:

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

Sample Parameter Qualifier Definitions:

Qualifier	Description
J	Duplicate results and limits are expressed in terms of absolute difference.
LCS-H	Lab Control Sample recovery was above ALS DQO. Non-detected sample results are considered reliable. Other results, if reported, have been qualified.
LCS-L	Lab Control Sample recovery was below ALS DQO. Reference Material and/or Matrix Spike results were acceptable. 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.
RRQC	Refer to report remarks for information regarding this QC result.

Hold Time Exceedances:

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

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

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

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

Chain of Custody (COC) / Analytical Request Form

L2649522-COFC

800 668 9878

www.als

Affix ALS barcode label here
(lab use only)

COC Number: 14 -

Page 1 of 1

Report To		Report Format / Distribution		Select Service Level Below (Rush Turnaround Time (TAT) is not available for all tests)
Company:	GHD LIMITED	Select Report Format:	☑ PDF ☑ EXCEL ☑ EDD (DIGITAL)	R ☑ Regular (Standard TAT if received by 3 pm - business days)
Contact:	Laura Ermeta	Quality Control (QC) Report with Report	☑ Yes ☐ No	P ☐ Priority (2-4 bus. days if received by 3pm) 50% surcharge - contact ALS to confirm TAT
Address:	455 Phillip St N2L 3X2	☐ Criteria on Report - provide details below if box checked		E ☐ Emergency (1-2 bus. days if received by 3pm) 100% surcharge - contact ALS to confirm TAT
		Select Distribution:	☑ EMAIL ☐ MAIL ☐ FAX	E2 ☐ Same day or weekend emergency - contact ALS to confirm TAT and surcharge
Phone:	519-884-0510	Email 1 or Fax	laura.ermeta@ghd.com	Specify Date Required for E2,E or P:
		Email 2	See PO	

Invoice To		Invoice Distribution	
	Same as Report To ☑ Yes ☐ No	Select Invoice Distribution:	☑ EMAIL ☐ MAIL ☑ FAX
	Copy of Invoice with Report ☐ Yes ☐ No	Email 1 or Fax	laura.ermeta@ghd.com
Company:	GHD LIMITED	Email 2	
Contact:	Laura Ermeta		

Project Information		Oil and Gas Required Fields (client use)	
ALS Quote #:		Approver ID:	Cost Center:
Job #:	44985-20	GL Account:	Routing Code:
PO / AFE:	73506479	Activity Code:	
LSD:		Location:	

ALS Lab Work Order # (lab use only): L2649522 **ALS Contact:** Rick H **Sampler:**

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	ALK, Conductivity, pH, TDS, TSS, Phenols	Br, NO2, NO3, SO4, Cl, F (ANIONS-IC-6-WT)	DOC (DOC-WT), COD, TKN, TP	Total CN (CN-TOT-WT)	Un-ionized NH3 (NH3,ETL-NH3-UNION-CL)	Total Metals (MET-T-CCMSS-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~~			Water	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~				
	~~West Storm Water Pond~~			Water	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~				
	East Storm Water Pond	07/Oct/21	11:00	Water	R	R	R	R	R	R	R	R	R	R		20	6.96	

Drinking Water (DW) Samples[1] (client use)	Special Instructions / Specify Criteria to add on report (client Use)
Are samples taken from a Regulated DW System? ☐ Yes ☑ No Are samples for human drinking water use? ☐ Yes ☐ No	**Please fill in Client Supplied temperature and pH for Unionized NH3 calculation**

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen	☐	SIF Observations	Yes ☐	No ☐	
Ice packs	Yes ☒	No ☐	Custody seal intact	Yes ☐	No ☐
Cooling Initiated	☐				

INITIAL COOLER TEMPERATURES °C			FINAL COOLER TEMPERATURES °C		
			16.1		

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by: R Tobin	Date: Oct 07/21	Time: 11:30	Received by	Date	Time	Received by: HP	Date: 10/8/21	Time: 10:00

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

NA-FM-0326e v09 Front/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: STEPHANIE BERTON
455 PHILLIP STREET
WATERLOO ON N2L 3X2

Date Received: 15-DEC-21
Report Date: 21-DEC-21 14:53 (MT)
Version: FINAL

Client Phone: 519-884-0510

Certificate of Analysis

Lab Work Order #: L2672706

Project P.O. #: 73506479-1
Job Reference: 44985-20-21
C of C Numbers:
Legal Site Desc:

Rick Hawthorne
Account Manager

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2672706-1 EQ POND DISCHARGE Sampled By: CLIENT on 14-DEC-21 @ 10:00 Matrix: WATER							
Field Tests							
pH, Client Supplied	8.00		0.10	pH		20-DEC-21	R5681008
Temperature, Client	7.5		-50	Deg. C		20-DEC-21	R5681008
Physical Tests							
Conductivity	842		1.0	umhos/cm		16-DEC-21	R5680423
pH	8.11		0.10	pH units		16-DEC-21	R5680423
Total Suspended Solids	5.1		3.0	mg/L	16-DEC-21	17-DEC-21	R5680221
Total Dissolved Solids	497	DLDS	20	mg/L		16-DEC-21	R5680322
Anions and Nutrients							
Alkalinity, Total (as CaCO3)	96.0		1.0	mg/L		16-DEC-21	R5680423
Unionized ammonia	0.00300		0.00018	mg/L		20-DEC-21	
Ammonia, Total (as N)	0.164		0.010	mg/L		17-DEC-21	R5680138
Bromide (Br)	2.56		0.10	mg/L		16-DEC-21	R5680160
Chloride (Cl)	86.8		0.50	mg/L		16-DEC-21	R5680160
Fluoride (F)	0.879		0.020	mg/L		16-DEC-21	R5680160
Nitrate (as N)	0.151		0.020	mg/L		16-DEC-21	R5680160
Nitrite (as N)	<0.010		0.010	mg/L		16-DEC-21	R5680160
Total Kjeldahl Nitrogen	0.520		0.050	mg/L	16-DEC-21	16-DEC-21	R5679970
Phosphorus, Total	0.0109		0.0030	mg/L	15-DEC-21	16-DEC-21	R5679596
Sulfate (SO4)	186		0.30	mg/L		16-DEC-21	R5680160
Cyanides							
Cyanide, Total	<0.0020		0.0020	mg/L		16-DEC-21	R5679977
Organic / Inorganic Carbon							
Dissolved Carbon Filtration Location	LAB					15-DEC-21	R5679378
Dissolved Organic Carbon	4.59		0.50	mg/L	15-DEC-21	16-DEC-21	R5680212
Total Metals							
Aluminum (Al)-Total	0.063		0.010	mg/L	15-DEC-21	15-DEC-21	R5679467
Antimony (Sb)-Total	0.00043		0.00010	mg/L	15-DEC-21	15-DEC-21	R5679467
Arsenic (As)-Total	0.00106		0.00010	mg/L	15-DEC-21	15-DEC-21	R5679467
Barium (Ba)-Total	0.0419		0.00020	mg/L	15-DEC-21	15-DEC-21	R5679467
Beryllium (Be)-Total	<0.00010		0.00010	mg/L	15-DEC-21	15-DEC-21	R5679467
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	15-DEC-21	15-DEC-21	R5679467
Boron (B)-Total	0.141		0.010	mg/L	15-DEC-21	15-DEC-21	R5679467
Cadmium (Cd)-Total	<0.000030	DLM	0.000030	mg/L	15-DEC-21	15-DEC-21	R5679467
Calcium (Ca)-Total	59.5		0.50	mg/L	15-DEC-21	15-DEC-21	R5679467
Cobalt (Co)-Total	<0.00010		0.00010	mg/L	15-DEC-21	15-DEC-21	R5679467
Copper (Cu)-Total	<0.0010		0.0010	mg/L	15-DEC-21	15-DEC-21	R5679467
Iron (Fe)-Total	0.068		0.050	mg/L	15-DEC-21	15-DEC-21	R5679467
Lead (Pb)-Total	0.00018		0.00010	mg/L	15-DEC-21	15-DEC-21	R5679467
Magnesium (Mg)-Total	25.6		0.050	mg/L	15-DEC-21	15-DEC-21	R5679467
Manganese (Mn)-Total	0.0116		0.00050	mg/L	15-DEC-21	15-DEC-21	R5679467
Mercury (Hg)-Total	<0.0000050		0.0000050	mg/L		16-DEC-21	R5679778
Molybdenum (Mo)-Total	0.0507		0.000050	mg/L	15-DEC-21	15-DEC-21	R5679467

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ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2672706-1 EQ POND DISCHARGE Sampled By: CLIENT on 14-DEC-21 @ 10:00 Matrix: WATER							
Total Metals							
Nickel (Ni)-Total	0.00329		0.00050	mg/L	15-DEC-21	15-DEC-21	R5679467
Potassium (K)-Total	10.8		0.050	mg/L	15-DEC-21	15-DEC-21	R5679467
Selenium (Se)-Total	0.000918		0.000050	mg/L	15-DEC-21	15-DEC-21	R5679467
Silicon (Si)-Total	0.79		0.10	mg/L	15-DEC-21	15-DEC-21	R5679467
Silver (Ag)-Total	<0.000050		0.000050	mg/L	15-DEC-21	15-DEC-21	R5679467
Sodium (Na)-Total	59.8		0.50	mg/L	15-DEC-21	15-DEC-21	R5679467
Strontium (Sr)-Total	0.535		0.0010	mg/L	15-DEC-21	15-DEC-21	R5679467
Thallium (Tl)-Total	0.000019		0.000010	mg/L	15-DEC-21	15-DEC-21	R5679467
Tin (Sn)-Total	<0.00010		0.00010	mg/L	15-DEC-21	15-DEC-21	R5679467
Vanadium (V)-Total	<0.00050		0.00050	mg/L	15-DEC-21	15-DEC-21	R5679467
Zinc (Zn)-Total	<0.0030		0.0030	mg/L	15-DEC-21	15-DEC-21	R5679467
Speciated Metals							
Chromium, Hexavalent	<0.00050		0.00050	mg/L		15-DEC-21	R5679786
Aggregate Organics							
COD	14		10	mg/L		15-DEC-21	R5679455
Phenols (4AAP)	0.0056	RRV	0.0010	mg/L		17-DEC-21	R5679409
Volatile Organic Compounds							
Acetone	<20		20	ug/L		16-DEC-21	R5679591
Benzene	<0.50		0.50	ug/L		16-DEC-21	R5679591
Bromodichloromethane	<1.0		1.0	ug/L		16-DEC-21	R5679591
Bromoform	<1.0		1.0	ug/L		16-DEC-21	R5679591
Bromomethane	<0.50		0.50	ug/L		16-DEC-21	R5679591
Carbon tetrachloride	<0.50		0.50	ug/L		16-DEC-21	R5679591
Chlorobenzene	<0.50		0.50	ug/L		16-DEC-21	R5679591
Dibromochloromethane	<1.0		1.0	ug/L		16-DEC-21	R5679591
Chloroethane	<1.0		1.0	ug/L		16-DEC-21	R5679591
Chloroform	<1.0		1.0	ug/L		16-DEC-21	R5679591
1,2-Dibromoethane	<0.20		0.20	ug/L		16-DEC-21	R5679591
1,2-Dichlorobenzene	<0.50		0.50	ug/L		16-DEC-21	R5679591
1,3-Dichlorobenzene	<0.50		0.50	ug/L		16-DEC-21	R5679591
1,4-Dichlorobenzene	<0.50		0.50	ug/L		16-DEC-21	R5679591
Dichlorodifluoromethane	<1.0		1.0	ug/L		16-DEC-21	R5679591
1,1-Dichloroethane	<0.50		0.50	ug/L		16-DEC-21	R5679591
1,2-Dichloroethane	<0.50		0.50	ug/L		16-DEC-21	R5679591
1,1-Dichloroethylene	<0.50		0.50	ug/L		16-DEC-21	R5679591
cis-1,2-Dichloroethylene	<0.50		0.50	ug/L		16-DEC-21	R5679591
trans-1,2-Dichloroethylene	<0.50		0.50	ug/L		16-DEC-21	R5679591
Dichloromethane	<2.0		2.0	ug/L		16-DEC-21	R5679591
1,2-Dichloropropane	<0.50		0.50	ug/L		16-DEC-21	R5679591
cis-1,3-Dichloropropene	<0.50		0.50	ug/L		16-DEC-21	R5679591
trans-1,3-Dichloropropene	<0.50		0.50	ug/L		16-DEC-21	R5679591
Ethylbenzene	<0.50		0.50	ug/L		16-DEC-21	R5679591

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Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2672706-1 EQ POND DISCHARGE Sampled By: CLIENT on 14-DEC-21 @ 10:00 Matrix: WATER							
Volatile Organic Compounds							
n-Hexane	<0.50		0.50	ug/L		16-DEC-21	R5679591
Methyl Ethyl Ketone	<20		20	ug/L		16-DEC-21	R5679591
Methyl Isobutyl Ketone	<20		20	ug/L		16-DEC-21	R5679591
MTBE	<0.50		0.50	ug/L		16-DEC-21	R5679591
Styrene	<0.50		0.50	ug/L		16-DEC-21	R5679591
1,1,1,2-Tetrachloroethane	<0.50		0.50	ug/L		16-DEC-21	R5679591
1,1,2,2-Tetrachloroethane	<0.50		0.50	ug/L		16-DEC-21	R5679591
Tetrachloroethylene	<0.50		0.50	ug/L		16-DEC-21	R5679591
Toluene	<0.50		0.50	ug/L		16-DEC-21	R5679591
1,1,1-Trichloroethane	<0.50		0.50	ug/L		16-DEC-21	R5679591
1,1,2-Trichloroethane	<0.50		0.50	ug/L		16-DEC-21	R5679591
Trichloroethylene	<0.50		0.50	ug/L		16-DEC-21	R5679591
Trichlorofluoromethane	<1.0		1.0	ug/L		16-DEC-21	R5679591
Vinyl chloride	<0.50		0.50	ug/L		16-DEC-21	R5679591
o-Xylene	<0.50		0.50	ug/L		16-DEC-21	R5679591
m+p-Xylenes	<1.0		1.0	ug/L		16-DEC-21	R5679591
Xylenes (Total)	<1.1		1.1	ug/L		16-DEC-21	
Surrogate: 4-Bromofluorobenzene	94.3		70-130	%		16-DEC-21	R5679591
Surrogate: 1,4-Difluorobenzene	99.7		70-130	%		16-DEC-21	R5679591
Trihalomethanes							
Total THMs	<2.0		2.0	ug/L		16-DEC-21	
Acid Extractables							
2,3,6-Trichlorophenol	<0.50		0.50	ug/L	17-DEC-21	21-DEC-21	R5681758
Surrogate: 2,4,6-Tribromophenol	136.3		40-150	%	17-DEC-21	21-DEC-21	R5681758
Semi-Volatile Organics							
Acenaphthene	<0.20		0.20	ug/L	17-DEC-21	18-DEC-21	R5680780
Acenaphthylene	<0.20		0.20	ug/L	17-DEC-21	18-DEC-21	R5680780
Anthracene	<0.20		0.20	ug/L	17-DEC-21	18-DEC-21	R5680780
Benzo(a)anthracene	<0.20		0.20	ug/L	17-DEC-21	18-DEC-21	R5680780
Benzo(a)pyrene	<0.050		0.050	ug/L	17-DEC-21	18-DEC-21	R5680780
Benzo(b)fluoranthene	<0.20		0.20	ug/L	17-DEC-21	18-DEC-21	R5680780
Benzo(ghi)perylene	<0.20		0.20	ug/L	17-DEC-21	18-DEC-21	R5680780
Benzo(k)fluoranthene	<0.20		0.20	ug/L	17-DEC-21	18-DEC-21	R5680780
4-Chloroaniline	<0.40		0.40	ug/L	17-DEC-21	18-DEC-21	R5680780
Bis(2-chloroethyl)ether	<0.40		0.40	ug/L	17-DEC-21	18-DEC-21	R5680780
2-Chlorophenol	<0.30		0.30	ug/L	17-DEC-21	18-DEC-21	R5680780
Chrysene	<0.20		0.20	ug/L	17-DEC-21	18-DEC-21	R5680780
Dibenz(a,h)anthracene	<0.20		0.20	ug/L	17-DEC-21	18-DEC-21	R5680780
1,2-Dichlorobenzene	<0.40		0.40	ug/L	17-DEC-21	18-DEC-21	R5680780
1,3-Dichlorobenzene	<0.40		0.40	ug/L	17-DEC-21	18-DEC-21	R5680780
1,4-Dichlorobenzene	<0.40		0.40	ug/L	17-DEC-21	18-DEC-21	R5680780
3,3-Dichlorobenzidine	<0.40		0.40	ug/L	17-DEC-21	18-DEC-21	R5680780

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Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2672706-1 EQ POND DISCHARGE Sampled By: CLIENT on 14-DEC-21 @ 10:00 Matrix: WATER							
Semi-Volatile Organics							
2,4-Dichlorophenol	<0.30		0.30	ug/L	17-DEC-21	18-DEC-21	R5680780
Diethylphthalate	<0.20		0.20	ug/L	17-DEC-21	18-DEC-21	R5680780
Dimethylphthalate	<0.20		0.20	ug/L	17-DEC-21	18-DEC-21	R5680780
2,4-Dimethylphenol	<0.50		0.50	ug/L	17-DEC-21	18-DEC-21	R5680780
2,4-Dinitrophenol	<1.0		1.0	ug/L	17-DEC-21	18-DEC-21	R5680780
2,4-Dinitrotoluene	<0.40		0.40	ug/L	17-DEC-21	18-DEC-21	R5680780
2,6-Dinitrotoluene	<0.40		0.40	ug/L	17-DEC-21	18-DEC-21	R5680780
Bis(2-ethylhexyl)phthalate	<2.0		2.0	ug/L	17-DEC-21	18-DEC-21	R5680780
Fluoranthene	<0.20		0.20	ug/L	17-DEC-21	18-DEC-21	R5680780
Fluorene	<0.20		0.20	ug/L	17-DEC-21	18-DEC-21	R5680780
Hexachlorobenzene	<0.040		0.040	ug/L	17-DEC-21	18-DEC-21	R5680780
Hexachlorobutadiene	<0.20		0.20	ug/L	17-DEC-21	18-DEC-21	R5680780
Indeno(1,2,3-cd)pyrene	<0.20		0.20	ug/L	17-DEC-21	18-DEC-21	R5680780
1-Methylnaphthalene	<0.40		0.40	ug/L	17-DEC-21	18-DEC-21	R5680780
2-Methylnaphthalene	<0.40		0.40	ug/L	17-DEC-21	18-DEC-21	R5680780
Naphthalene	<0.20		0.20	ug/L	17-DEC-21	18-DEC-21	R5680780
Pentachlorophenol	<0.50		0.50	ug/L	17-DEC-21	18-DEC-21	R5680780
Perylene	<0.20		0.20	ug/L	17-DEC-21	18-DEC-21	R5680780
Phenanthrene	<0.20		0.20	ug/L	17-DEC-21	18-DEC-21	R5680780
Pyrene	<0.20		0.20	ug/L	17-DEC-21	18-DEC-21	R5680780
2,3,4,5-Tetrachlorophenol	<0.50		0.50	ug/L	17-DEC-21	18-DEC-21	R5680780
2,3,4,6-Tetrachlorophenol	<0.50		0.50	ug/L	17-DEC-21	18-DEC-21	R5680780
1,2,4-Trichlorobenzene	<0.40		0.40	ug/L	17-DEC-21	18-DEC-21	R5680780
2,4,5-Trichlorophenol	<0.50		0.50	ug/L	17-DEC-21	18-DEC-21	R5680780
2,4,6-Trichlorophenol	<0.50		0.50	ug/L	17-DEC-21	18-DEC-21	R5680780
Surrogate: 2-Fluorobiphenyl	87.4		40-130	%	17-DEC-21	18-DEC-21	R5680780
Surrogate: Nitrobenzene d5	90.2		40-130	%	17-DEC-21	18-DEC-21	R5680780
Surrogate: d14-Terphenyl	82.3		40-130	%	17-DEC-21	18-DEC-21	R5680780
L2672706-2 POND D WEST POND Sampled By: CLIENT on 14-DEC-21 @ 10:00 Matrix: WATER							
Field Tests							
pH, Client Supplied	7.00		0.10	pH		20-DEC-21	R5681008
Temperature, Client	8.0		-50	Deg. C		20-DEC-21	R5681008
Physical Tests							
Conductivity	835		1.0	umhos/cm		16-DEC-21	R5680423
pH	8.01		0.10	pH units		16-DEC-21	R5680423
Total Suspended Solids	16.7		3.0	mg/L	16-DEC-21	17-DEC-21	R5680221
Total Dissolved Solids	518	DLDS	20	mg/L		16-DEC-21	R5680322
Anions and Nutrients							
Alkalinity, Total (as CaCO3)	105		1.0	mg/L		16-DEC-21	R5680423
Unionized ammonia	0.00554		0.00019	mg/L		20-DEC-21	

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ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2672706-2 POND D WEST POND Sampled By: CLIENT on 14-DEC-21 @ 10:00 Matrix: WATER							
Anions and Nutrients							
Ammonia, Total (as N)	2.87	DLHC	0.10	mg/L		17-DEC-21	R5680138
Bromide (Br)	2.03		0.10	mg/L		16-DEC-21	R5680160
Chloride (Cl)	66.5		0.50	mg/L		16-DEC-21	R5680160
Fluoride (F)	1.05		0.020	mg/L		16-DEC-21	R5680160
Nitrate (as N)	0.130		0.020	mg/L		16-DEC-21	R5680160
Nitrite (as N)	<0.010		0.010	mg/L		16-DEC-21	R5680160
Total Kjeldahl Nitrogen	3.40		0.050	mg/L	16-DEC-21	16-DEC-21	R5679970
Phosphorus, Total	0.0407		0.0030	mg/L	15-DEC-21	16-DEC-21	R5679596
Sulfate (SO4)	219		0.30	mg/L		16-DEC-21	R5680160
Cyanides							
Cyanide, Total	<0.0020		0.0020	mg/L		16-DEC-21	R5679977
Organic / Inorganic Carbon							
Dissolved Carbon Filtration Location	LAB					15-DEC-21	R5679378
Dissolved Organic Carbon	5.79		0.50	mg/L	15-DEC-21	16-DEC-21	R5680212
Total Metals							
Aluminum (Al)-Total	1.34		0.010	mg/L	15-DEC-21	15-DEC-21	R5679467
Antimony (Sb)-Total	0.00046		0.00010	mg/L	15-DEC-21	15-DEC-21	R5679467
Arsenic (As)-Total	0.00179		0.00010	mg/L	15-DEC-21	15-DEC-21	R5679467
Barium (Ba)-Total	0.0443		0.00020	mg/L	15-DEC-21	15-DEC-21	R5679467
Beryllium (Be)-Total	<0.00010		0.00010	mg/L	15-DEC-21	15-DEC-21	R5679467
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	15-DEC-21	15-DEC-21	R5679467
Boron (B)-Total	0.131		0.010	mg/L	15-DEC-21	15-DEC-21	R5679467
Cadmium (Cd)-Total	<0.00020	DLM	0.00020	mg/L	15-DEC-21	15-DEC-21	R5679467
Calcium (Ca)-Total	71.5		0.50	mg/L	15-DEC-21	15-DEC-21	R5679467
Cobalt (Co)-Total	0.00073		0.00010	mg/L	15-DEC-21	15-DEC-21	R5679467
Copper (Cu)-Total	0.0030		0.0010	mg/L	15-DEC-21	15-DEC-21	R5679467
Iron (Fe)-Total	1.25		0.050	mg/L	15-DEC-21	15-DEC-21	R5679467
Lead (Pb)-Total	0.00084		0.00010	mg/L	15-DEC-21	15-DEC-21	R5679467
Magnesium (Mg)-Total	26.5		0.050	mg/L	15-DEC-21	15-DEC-21	R5679467
Manganese (Mn)-Total	0.0226		0.00050	mg/L	15-DEC-21	15-DEC-21	R5679467
Mercury (Hg)-Total	<0.0000050		0.0000050	mg/L		16-DEC-21	R5679778
Molybdenum (Mo)-Total	0.0552		0.000050	mg/L	15-DEC-21	15-DEC-21	R5679467
Nickel (Ni)-Total	0.00530		0.00050	mg/L	15-DEC-21	15-DEC-21	R5679467
Potassium (K)-Total	7.20		0.050	mg/L	15-DEC-21	15-DEC-21	R5679467
Selenium (Se)-Total	0.00275		0.000050	mg/L	15-DEC-21	15-DEC-21	R5679467
Silicon (Si)-Total	4.09		0.10	mg/L	15-DEC-21	15-DEC-21	R5679467
Silver (Ag)-Total	<0.000050		0.000050	mg/L	15-DEC-21	15-DEC-21	R5679467
Sodium (Na)-Total	49.3		0.50	mg/L	15-DEC-21	15-DEC-21	R5679467
Strontium (Sr)-Total	0.591		0.0010	mg/L	15-DEC-21	15-DEC-21	R5679467
Thallium (Tl)-Total	0.000036		0.000010	mg/L	15-DEC-21	15-DEC-21	R5679467
Tin (Sn)-Total	<0.00010		0.00010	mg/L	15-DEC-21	15-DEC-21	R5679467
Vanadium (V)-Total	0.00277		0.00050	mg/L	15-DEC-21	15-DEC-21	R5679467

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Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2672706-2 POND D WEST POND Sampled By: CLIENT on 14-DEC-21 @ 10:00 Matrix: WATER							
Total Metals							
Zinc (Zn)-Total	0.0049		0.0030	mg/L	15-DEC-21	15-DEC-21	R5679467
Speciated Metals							
Chromium, Hexavalent	<0.00050		0.00050	mg/L		15-DEC-21	R5679786
Aggregate Organics							
COD	24		10	mg/L		15-DEC-21	R5679455
Phenols (4AAP)	<0.010	DLM	0.010	mg/L		15-DEC-21	R5679409
Volatile Organic Compounds							
Acetone	<20		20	ug/L		16-DEC-21	R5679591
Benzene	<0.50		0.50	ug/L		16-DEC-21	R5679591
Bromodichloromethane	<1.0		1.0	ug/L		16-DEC-21	R5679591
Bromoform	<1.0		1.0	ug/L		16-DEC-21	R5679591
Bromomethane	<0.50		0.50	ug/L		16-DEC-21	R5679591
Carbon tetrachloride	<0.50		0.50	ug/L		16-DEC-21	R5679591
Chlorobenzene	<0.50		0.50	ug/L		16-DEC-21	R5679591
Dibromochloromethane	<1.0		1.0	ug/L		16-DEC-21	R5679591
Chloroethane	<1.0		1.0	ug/L		16-DEC-21	R5679591
Chloroform	<1.0		1.0	ug/L		16-DEC-21	R5679591
1,2-Dibromoethane	<0.20		0.20	ug/L		16-DEC-21	R5679591
1,2-Dichlorobenzene	<0.50		0.50	ug/L		16-DEC-21	R5679591
1,3-Dichlorobenzene	<0.50		0.50	ug/L		16-DEC-21	R5679591
1,4-Dichlorobenzene	<0.50		0.50	ug/L		16-DEC-21	R5679591
Dichlorodifluoromethane	<1.0		1.0	ug/L		16-DEC-21	R5679591
1,1-Dichloroethane	<0.50		0.50	ug/L		16-DEC-21	R5679591
1,2-Dichloroethane	<0.50		0.50	ug/L		16-DEC-21	R5679591
1,1-Dichloroethylene	<0.50		0.50	ug/L		16-DEC-21	R5679591
cis-1,2-Dichloroethylene	<0.50		0.50	ug/L		16-DEC-21	R5679591
trans-1,2-Dichloroethylene	<0.50		0.50	ug/L		16-DEC-21	R5679591
Dichloromethane	<2.0		2.0	ug/L		16-DEC-21	R5679591
1,2-Dichloropropane	<0.50		0.50	ug/L		16-DEC-21	R5679591
cis-1,3-Dichloropropene	<0.50		0.50	ug/L		16-DEC-21	R5679591
trans-1,3-Dichloropropene	<0.50		0.50	ug/L		16-DEC-21	R5679591
Ethylbenzene	<0.50		0.50	ug/L		16-DEC-21	R5679591
n-Hexane	<0.50		0.50	ug/L		16-DEC-21	R5679591
Methyl Ethyl Ketone	<20		20	ug/L		16-DEC-21	R5679591
Methyl Isobutyl Ketone	<20		20	ug/L		16-DEC-21	R5679591
MTBE	<0.50		0.50	ug/L		16-DEC-21	R5679591
Styrene	<0.50		0.50	ug/L		16-DEC-21	R5679591
1,1,1,2-Tetrachloroethane	<0.50		0.50	ug/L		16-DEC-21	R5679591
1,1,2,2-Tetrachloroethane	<0.50		0.50	ug/L		16-DEC-21	R5679591
Tetrachloroethylene	<0.50		0.50	ug/L		16-DEC-21	R5679591
Toluene	<0.50		0.50	ug/L		16-DEC-21	R5679591
1,1,1-Trichloroethane	<0.50		0.50	ug/L		16-DEC-21	R5679591

* 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
L2672706-2 POND D WEST POND Sampled By: CLIENT on 14-DEC-21 @ 10:00 Matrix: WATER							
Volatile Organic Compounds							
1,1,2-Trichloroethane	<0.50		0.50	ug/L		16-DEC-21	R5679591
Trichloroethylene	<0.50		0.50	ug/L		16-DEC-21	R5679591
Trichlorofluoromethane	<1.0		1.0	ug/L		16-DEC-21	R5679591
Vinyl chloride	<0.50		0.50	ug/L		16-DEC-21	R5679591
o-Xylene	<0.50		0.50	ug/L		16-DEC-21	R5679591
m+p-Xylenes	<1.0		1.0	ug/L		16-DEC-21	R5679591
Xylenes (Total)	<1.1		1.1	ug/L		16-DEC-21	
Surrogate: 4-Bromofluorobenzene	92.1		70-130	%		16-DEC-21	R5679591
Surrogate: 1,4-Difluorobenzene	99.7		70-130	%		16-DEC-21	R5679591
Trihalomethanes							
Total THMs	<2.0		2.0	ug/L		16-DEC-21	
Acid Extractables							
2,3,6-Trichlorophenol	<0.50		0.50	ug/L	17-DEC-21	21-DEC-21	R5681758
Semi-Volatile Organics							
Acenaphthene	<0.20		0.20	ug/L	17-DEC-21	18-DEC-21	R5680780
Acenaphthylene	<0.20		0.20	ug/L	17-DEC-21	18-DEC-21	R5680780
Anthracene	<0.20		0.20	ug/L	17-DEC-21	18-DEC-21	R5680780
Benzo(a)anthracene	<0.20		0.20	ug/L	17-DEC-21	18-DEC-21	R5680780
Benzo(a)pyrene	<0.050		0.050	ug/L	17-DEC-21	18-DEC-21	R5680780
Benzo(b)fluoranthene	<0.20		0.20	ug/L	17-DEC-21	18-DEC-21	R5680780
Benzo(ghi)perylene	<0.20		0.20	ug/L	17-DEC-21	18-DEC-21	R5680780
Benzo(k)fluoranthene	<0.20		0.20	ug/L	17-DEC-21	18-DEC-21	R5680780
4-Chloroaniline	<0.40		0.40	ug/L	17-DEC-21	18-DEC-21	R5680780
Bis(2-chloroethyl)ether	<0.40		0.40	ug/L	17-DEC-21	18-DEC-21	R5680780
2-Chlorophenol	<0.30		0.30	ug/L	17-DEC-21	18-DEC-21	R5680780
Chrysene	<0.20		0.20	ug/L	17-DEC-21	18-DEC-21	R5680780
Dibenz(a,h)anthracene	<0.20		0.20	ug/L	17-DEC-21	18-DEC-21	R5680780
1,2-Dichlorobenzene	<0.40		0.40	ug/L	17-DEC-21	18-DEC-21	R5680780
1,3-Dichlorobenzene	<0.40		0.40	ug/L	17-DEC-21	18-DEC-21	R5680780
1,4-Dichlorobenzene	<0.40		0.40	ug/L	17-DEC-21	18-DEC-21	R5680780
3,3-Dichlorobenzidine	<0.40		0.40	ug/L	17-DEC-21	18-DEC-21	R5680780
2,4-Dichlorophenol	<0.30		0.30	ug/L	17-DEC-21	18-DEC-21	R5680780
Diethylphthalate	<0.20		0.20	ug/L	17-DEC-21	18-DEC-21	R5680780
Dimethylphthalate	<0.20		0.20	ug/L	17-DEC-21	18-DEC-21	R5680780
2,4-Dimethylphenol	<0.50		0.50	ug/L	17-DEC-21	18-DEC-21	R5680780
2,4-Dinitrophenol	<1.0		1.0	ug/L	17-DEC-21	18-DEC-21	R5680780
2,4-Dinitrotoluene	<0.40		0.40	ug/L	17-DEC-21	18-DEC-21	R5680780
2,6-Dinitrotoluene	<0.40		0.40	ug/L	17-DEC-21	18-DEC-21	R5680780
Bis(2-ethylhexyl)phthalate	<2.0		2.0	ug/L	17-DEC-21	18-DEC-21	R5680780
Fluoranthene	<0.20		0.20	ug/L	17-DEC-21	18-DEC-21	R5680780
Fluorene	<0.20		0.20	ug/L	17-DEC-21	18-DEC-21	R5680780
Hexachlorobenzene	<0.040		0.040	ug/L	17-DEC-21	18-DEC-21	R5680780

* 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
L2672706-2 POND D WEST POND Sampled By: CLIENT on 14-DEC-21 @ 10:00 Matrix: WATER							
Semi-Volatile Organics							
Hexachlorobutadiene	<0.20		0.20	ug/L	17-DEC-21	18-DEC-21	R5680780
Indeno(1,2,3-cd)pyrene	<0.20		0.20	ug/L	17-DEC-21	18-DEC-21	R5680780
1-Methylnaphthalene	<0.40		0.40	ug/L	17-DEC-21	18-DEC-21	R5680780
2-Methylnaphthalene	<0.40		0.40	ug/L	17-DEC-21	18-DEC-21	R5680780
Naphthalene	<0.20		0.20	ug/L	17-DEC-21	18-DEC-21	R5680780
Pentachlorophenol	<0.50		0.50	ug/L	17-DEC-21	18-DEC-21	R5680780
Perylene	<0.20		0.20	ug/L	17-DEC-21	18-DEC-21	R5680780
Phenanthrene	<0.20		0.20	ug/L	17-DEC-21	18-DEC-21	R5680780
Pyrene	<0.20		0.20	ug/L	17-DEC-21	18-DEC-21	R5680780
2,3,4,5-Tetrachlorophenol	<0.50		0.50	ug/L	17-DEC-21	18-DEC-21	R5680780
2,3,4,6-Tetrachlorophenol	<0.50		0.50	ug/L	17-DEC-21	18-DEC-21	R5680780
1,2,4-Trichlorobenzene	<0.40		0.40	ug/L	17-DEC-21	18-DEC-21	R5680780
2,4,5-Trichlorophenol	<0.50		0.50	ug/L	17-DEC-21	18-DEC-21	R5680780
2,4,6-Trichlorophenol	<0.50		0.50	ug/L	17-DEC-21	18-DEC-21	R5680780
Surrogate: 2-Fluorobiphenyl	99.2		40-130	%	17-DEC-21	18-DEC-21	R5680780
Surrogate: Nitrobenzene d5	103.9		40-130	%	17-DEC-21	18-DEC-21	R5680780
Surrogate: d14-Terphenyl	100.4		40-130	%	17-DEC-21	18-DEC-21	R5680780
L2672706-3 POND A EAST POND Sampled By: CLIENT on 14-DEC-21 @ 10:00 Matrix: WATER							
Field Tests							
pH, Client Supplied	7.00		0.10	pH		20-DEC-21	R5681008
Temperature, Client	7.9		-50	Deg. C		20-DEC-21	R5681008
Physical Tests							
Conductivity	748		1.0	umhos/cm		16-DEC-21	R5680423
pH	7.95		0.10	pH units		16-DEC-21	R5680423
Total Suspended Solids	15.8		3.0	mg/L	16-DEC-21	17-DEC-21	R5680221
Total Dissolved Solids	488	DLDS	20	mg/L		16-DEC-21	R5680322
Anions and Nutrients							
Alkalinity, Total (as CaCO3)	115		1.0	mg/L		16-DEC-21	R5680423
Unionized ammonia	0.000125		0.000019	mg/L		20-DEC-21	
Ammonia, Total (as N)	0.065		0.010	mg/L		17-DEC-21	R5680138
Bromide (Br)	1.22		0.10	mg/L		16-DEC-21	R5680160
Chloride (Cl)	36.0		0.50	mg/L		16-DEC-21	R5680160
Fluoride (F)	0.891		0.020	mg/L		16-DEC-21	R5680160
Nitrate (as N)	0.758		0.020	mg/L		16-DEC-21	R5680160
Nitrite (as N)	0.011		0.010	mg/L		16-DEC-21	R5680160
Total Kjeldahl Nitrogen	0.440		0.050	mg/L	16-DEC-21	16-DEC-21	R5679970
Phosphorus, Total	0.0387		0.0030	mg/L	15-DEC-21	16-DEC-21	R5679596
Sulfate (SO4)	225		0.30	mg/L		16-DEC-21	R5680160
Cyanides							
Cyanide, Total	<0.0020		0.0020	mg/L		16-DEC-21	R5679977

* 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
L2672706-3 POND A EAST POND Sampled By: CLIENT on 14-DEC-21 @ 10:00 Matrix: WATER							
Cyanides							
Organic / Inorganic Carbon							
Dissolved Carbon Filtration Location	LAB					15-DEC-21	R5679378
Dissolved Organic Carbon	3.90		0.50	mg/L	15-DEC-21	16-DEC-21	R5680212
Total Metals							
Aluminum (Al)-Total	1.05		0.010	mg/L	15-DEC-21	15-DEC-21	R5679467
Antimony (Sb)-Total	0.00058		0.00010	mg/L	15-DEC-21	15-DEC-21	R5679467
Arsenic (As)-Total	0.00138		0.00010	mg/L	15-DEC-21	15-DEC-21	R5679467
Barium (Ba)-Total	0.0422		0.00020	mg/L	15-DEC-21	15-DEC-21	R5679467
Beryllium (Be)-Total	<0.00010		0.00010	mg/L	15-DEC-21	15-DEC-21	R5679467
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	15-DEC-21	15-DEC-21	R5679467
Boron (B)-Total	0.101		0.010	mg/L	15-DEC-21	15-DEC-21	R5679467
Cadmium (Cd)-Total	<0.00030	DLM	0.00030	mg/L	15-DEC-21	15-DEC-21	R5679467
Calcium (Ca)-Total	75.3		0.50	mg/L	15-DEC-21	15-DEC-21	R5679467
Cobalt (Co)-Total	0.00079		0.00010	mg/L	15-DEC-21	15-DEC-21	R5679467
Copper (Cu)-Total	0.0034		0.0010	mg/L	15-DEC-21	15-DEC-21	R5679467
Iron (Fe)-Total	1.12		0.050	mg/L	15-DEC-21	15-DEC-21	R5679467
Lead (Pb)-Total	0.00198		0.00010	mg/L	15-DEC-21	15-DEC-21	R5679467
Magnesium (Mg)-Total	24.2		0.050	mg/L	15-DEC-21	15-DEC-21	R5679467
Manganese (Mn)-Total	0.0275		0.00050	mg/L	15-DEC-21	15-DEC-21	R5679467
Mercury (Hg)-Total	0.0000256		0.0000050	mg/L		16-DEC-21	R5679778
Molybdenum (Mo)-Total	0.0707		0.000050	mg/L	15-DEC-21	15-DEC-21	R5679467
Nickel (Ni)-Total	0.00461		0.00050	mg/L	15-DEC-21	15-DEC-21	R5679467
Potassium (K)-Total	8.19		0.050	mg/L	15-DEC-21	15-DEC-21	R5679467
Selenium (Se)-Total	0.00666		0.000050	mg/L	15-DEC-21	15-DEC-21	R5679467
Silicon (Si)-Total	3.92		0.10	mg/L	15-DEC-21	15-DEC-21	R5679467
Silver (Ag)-Total	<0.000050		0.000050	mg/L	15-DEC-21	15-DEC-21	R5679467
Sodium (Na)-Total	30.6		0.50	mg/L	15-DEC-21	15-DEC-21	R5679467
Strontium (Sr)-Total	0.754		0.0010	mg/L	15-DEC-21	15-DEC-21	R5679467
Thallium (Tl)-Total	0.000075		0.000010	mg/L	15-DEC-21	15-DEC-21	R5679467
Tin (Sn)-Total	<0.00010		0.00010	mg/L	15-DEC-21	15-DEC-21	R5679467
Vanadium (V)-Total	0.00240		0.00050	mg/L	15-DEC-21	15-DEC-21	R5679467
Zinc (Zn)-Total	0.0116		0.0030	mg/L	15-DEC-21	15-DEC-21	R5679467
Speciated Metals							
Chromium, Hexavalent	0.00085		0.00050	mg/L		15-DEC-21	R5679786
Aggregate Organics							
COD	20		10	mg/L		15-DEC-21	R5679455
Phenols (4AAP)	<0.010	DLM	0.010	mg/L		15-DEC-21	R5679409
Volatile Organic Compounds							
Acetone	<20		20	ug/L		16-DEC-21	R5679591
Benzene	<0.50		0.50	ug/L		16-DEC-21	R5679591
Bromodichloromethane	<1.0		1.0	ug/L		16-DEC-21	R5679591
Bromoform	<1.0		1.0	ug/L		16-DEC-21	R5679591

* 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
L2672706-3 POND A EAST POND Sampled By: CLIENT on 14-DEC-21 @ 10:00 Matrix: WATER							
Volatile Organic Compounds							
Bromomethane	<0.50		0.50	ug/L		16-DEC-21	R5679591
Carbon tetrachloride	<0.50		0.50	ug/L		16-DEC-21	R5679591
Chlorobenzene	<0.50		0.50	ug/L		16-DEC-21	R5679591
Dibromochloromethane	<1.0		1.0	ug/L		16-DEC-21	R5679591
Chloroethane	<1.0		1.0	ug/L		16-DEC-21	R5679591
Chloroform	<1.0		1.0	ug/L		16-DEC-21	R5679591
1,2-Dibromoethane	<0.20		0.20	ug/L		16-DEC-21	R5679591
1,2-Dichlorobenzene	<0.50		0.50	ug/L		16-DEC-21	R5679591
1,3-Dichlorobenzene	<0.50		0.50	ug/L		16-DEC-21	R5679591
1,4-Dichlorobenzene	<0.50		0.50	ug/L		16-DEC-21	R5679591
Dichlorodifluoromethane	<1.0		1.0	ug/L		16-DEC-21	R5679591
1,1-Dichloroethane	<0.50		0.50	ug/L		16-DEC-21	R5679591
1,2-Dichloroethane	<0.50		0.50	ug/L		16-DEC-21	R5679591
1,1-Dichloroethylene	<0.50		0.50	ug/L		16-DEC-21	R5679591
cis-1,2-Dichloroethylene	<0.50		0.50	ug/L		16-DEC-21	R5679591
trans-1,2-Dichloroethylene	<0.50		0.50	ug/L		16-DEC-21	R5679591
Dichloromethane	<2.0		2.0	ug/L		16-DEC-21	R5679591
1,2-Dichloropropane	<0.50		0.50	ug/L		16-DEC-21	R5679591
cis-1,3-Dichloropropene	<0.50		0.50	ug/L		16-DEC-21	R5679591
trans-1,3-Dichloropropene	<0.50		0.50	ug/L		16-DEC-21	R5679591
Ethylbenzene	<0.50		0.50	ug/L		16-DEC-21	R5679591
n-Hexane	<0.50		0.50	ug/L		16-DEC-21	R5679591
Methyl Ethyl Ketone	<20		20	ug/L		16-DEC-21	R5679591
Methyl Isobutyl Ketone	<20		20	ug/L		16-DEC-21	R5679591
MTBE	<0.50		0.50	ug/L		16-DEC-21	R5679591
Styrene	<0.50		0.50	ug/L		16-DEC-21	R5679591
1,1,1,2-Tetrachloroethane	<0.50		0.50	ug/L		16-DEC-21	R5679591
1,1,2,2-Tetrachloroethane	<0.50		0.50	ug/L		16-DEC-21	R5679591
Tetrachloroethylene	<0.50		0.50	ug/L		16-DEC-21	R5679591
Toluene	0.55		0.50	ug/L		16-DEC-21	R5679591
1,1,1-Trichloroethane	<0.50		0.50	ug/L		16-DEC-21	R5679591
1,1,2-Trichloroethane	<0.50		0.50	ug/L		16-DEC-21	R5679591
Trichloroethylene	<0.50		0.50	ug/L		16-DEC-21	R5679591
Trichlorofluoromethane	<1.0		1.0	ug/L		16-DEC-21	R5679591
Vinyl chloride	<0.50		0.50	ug/L		16-DEC-21	R5679591
o-Xylene	<0.50		0.50	ug/L		16-DEC-21	R5679591
m+p-Xylenes	<1.0		1.0	ug/L		16-DEC-21	R5679591
Xylenes (Total)	<1.1		1.1	ug/L		16-DEC-21	
Surrogate: 4-Bromofluorobenzene	91.1		70-130	%		16-DEC-21	R5679591
Surrogate: 1,4-Difluorobenzene	99.6		70-130	%		16-DEC-21	R5679591
Trihalomethanes							

* 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
L2672706-3 POND A EAST POND Sampled By: CLIENT on 14-DEC-21 @ 10:00 Matrix: WATER							
Trihalomethanes							
Total THMs	<2.0		2.0	ug/L		16-DEC-21	
Acid Extractables							
2,3,6-Trichlorophenol	<0.50		0.50	ug/L	17-DEC-21	21-DEC-21	R5681758
Surrogate: 2,4,6-Tribromophenol	136.1		40-150	%	17-DEC-21	21-DEC-21	R5681758
Semi-Volatile Organics							
Acenaphthene	<0.20		0.20	ug/L	17-DEC-21	21-DEC-21	R5680780
Acenaphthylene	<0.20		0.20	ug/L	17-DEC-21	21-DEC-21	R5680780
Anthracene	<0.20		0.20	ug/L	17-DEC-21	21-DEC-21	R5680780
Benzo(a)anthracene	<0.20		0.20	ug/L	17-DEC-21	21-DEC-21	R5680780
Benzo(a)pyrene	<0.050		0.050	ug/L	17-DEC-21	21-DEC-21	R5680780
Benzo(b)fluoranthene	<0.20		0.20	ug/L	17-DEC-21	21-DEC-21	R5680780
Benzo(ghi)perylene	<0.20		0.20	ug/L	17-DEC-21	21-DEC-21	R5680780
Benzo(k)fluoranthene	<0.20		0.20	ug/L	17-DEC-21	21-DEC-21	R5680780
4-Chloroaniline	<0.40		0.40	ug/L	17-DEC-21	21-DEC-21	R5680780
Bis(2-chloroethyl)ether	<0.40		0.40	ug/L	17-DEC-21	21-DEC-21	R5680780
2-Chlorophenol	<0.30		0.30	ug/L	17-DEC-21	21-DEC-21	R5680780
Chrysene	<0.20		0.20	ug/L	17-DEC-21	21-DEC-21	R5680780
Dibenz(a,h)anthracene	<0.20		0.20	ug/L	17-DEC-21	21-DEC-21	R5680780
1,2-Dichlorobenzene	<0.40		0.40	ug/L	17-DEC-21	21-DEC-21	R5680780
1,3-Dichlorobenzene	<0.40		0.40	ug/L	17-DEC-21	21-DEC-21	R5680780
1,4-Dichlorobenzene	<0.40		0.40	ug/L	17-DEC-21	21-DEC-21	R5680780
3,3-Dichlorobenzidine	<0.40		0.40	ug/L	17-DEC-21	21-DEC-21	R5680780
2,4-Dichlorophenol	<0.30		0.30	ug/L	17-DEC-21	21-DEC-21	R5680780
Diethylphthalate	<0.20		0.20	ug/L	17-DEC-21	21-DEC-21	R5680780
Dimethylphthalate	<0.20		0.20	ug/L	17-DEC-21	21-DEC-21	R5680780
2,4-Dimethylphenol	<0.50		0.50	ug/L	17-DEC-21	21-DEC-21	R5680780
2,4-Dinitrophenol	<1.0		1.0	ug/L	17-DEC-21	21-DEC-21	R5680780
2,4-Dinitrotoluene	<0.40		0.40	ug/L	17-DEC-21	21-DEC-21	R5680780
2,6-Dinitrotoluene	<0.40		0.40	ug/L	17-DEC-21	21-DEC-21	R5680780
Bis(2-ethylhexyl)phthalate	<2.0		2.0	ug/L	17-DEC-21	21-DEC-21	R5680780
Fluoranthene	<0.20		0.20	ug/L	17-DEC-21	21-DEC-21	R5680780
Fluorene	<0.20		0.20	ug/L	17-DEC-21	21-DEC-21	R5680780
Hexachlorobenzene	<0.040		0.040	ug/L	17-DEC-21	21-DEC-21	R5680780
Hexachlorobutadiene	<0.20		0.20	ug/L	17-DEC-21	21-DEC-21	R5680780
Indeno(1,2,3-cd)pyrene	<0.20		0.20	ug/L	17-DEC-21	21-DEC-21	R5680780
1-Methylnaphthalene	<0.40		0.40	ug/L	17-DEC-21	21-DEC-21	R5680780
2-Methylnaphthalene	<0.40		0.40	ug/L	17-DEC-21	21-DEC-21	R5680780
Naphthalene	<0.20		0.20	ug/L	17-DEC-21	21-DEC-21	R5680780
Pentachlorophenol	<0.50		0.50	ug/L	17-DEC-21	21-DEC-21	R5680780
Perylene	<0.20		0.20	ug/L	17-DEC-21	21-DEC-21	R5680780
Phenanthrene	<0.20		0.20	ug/L	17-DEC-21	21-DEC-21	R5680780

* 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
L2672706-3 POND A EAST POND Sampled By: CLIENT on 14-DEC-21 @ 10:00 Matrix: WATER							
Semi-Volatile Organics							
Pyrene	<0.20		0.20	ug/L	17-DEC-21	21-DEC-21	R5680780
2,3,4,5-Tetrachlorophenol	<0.50		0.50	ug/L	17-DEC-21	21-DEC-21	R5680780
2,3,4,6-Tetrachlorophenol	<0.50		0.50	ug/L	17-DEC-21	21-DEC-21	R5680780
1,2,4-Trichlorobenzene	<0.40		0.40	ug/L	17-DEC-21	21-DEC-21	R5680780
2,4,5-Trichlorophenol	<0.50		0.50	ug/L	17-DEC-21	21-DEC-21	R5680780
2,4,6-Trichlorophenol	<0.50		0.50	ug/L	17-DEC-21	21-DEC-21	R5680780
Surrogate: 2-Fluorobiphenyl	87.6		40-130	%	17-DEC-21	21-DEC-21	R5680780
Surrogate: Nitrobenzene d5	89.3		40-130	%	17-DEC-21	21-DEC-21	R5680780
Surrogate: d14-Terphenyl	90.6		40-130	%	17-DEC-21	21-DEC-21	R5680780

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

Reference Information

QC Samples with Qualifiers & Comments:

QC Type Description	Parameter	Qualifier	Applies to Sample Number(s)
Matrix Spike	Bromide (Br)	MS-B	L2672706-1, -2, -3
Matrix Spike	Fluoride (F)	MS-B	L2672706-1, -2, -3
Matrix Spike	Aluminum (Al)-Total	MS-B	L2672706-1, -2, -3
Matrix Spike	Barium (Ba)-Total	MS-B	L2672706-1, -2, -3
Matrix Spike	Boron (B)-Total	MS-B	L2672706-1, -2, -3
Matrix Spike	Calcium (Ca)-Total	MS-B	L2672706-1, -2, -3
Matrix Spike	Iron (Fe)-Total	MS-B	L2672706-1, -2, -3
Matrix Spike	Magnesium (Mg)-Total	MS-B	L2672706-1, -2, -3
Matrix Spike	Manganese (Mn)-Total	MS-B	L2672706-1, -2, -3
Matrix Spike	Molybdenum (Mo)-Total	MS-B	L2672706-1, -2, -3
Matrix Spike	Potassium (K)-Total	MS-B	L2672706-1, -2, -3
Matrix Spike	Silicon (Si)-Total	MS-B	L2672706-1, -2, -3
Matrix Spike	Sodium (Na)-Total	MS-B	L2672706-1, -2, -3
Matrix Spike	Strontium (Sr)-Total	MS-B	L2672706-1, -2, -3
Matrix Spike	Sulfate (SO4)	MS-B	L2672706-1, -2, -3
Laboratory Control Sample	2,4-Dinitrophenol	RRQC	L2672706-1, -2, -3
Comments:	RRQC: Recovery is outside ALS control limits. Associated non-detect sample results have not been affected.		
Laboratory Control Sample	3,3-Dichlorobenzidine	RRQC	L2672706-1, -2, -3
Comments:	RRQC: Recovery is outside ALS control limits. Associated non-detect sample results have not been affected.		
Laboratory Control Sample	Pentachlorophenol	RRQC	L2672706-1, -2, -3
Comments:	RRQC: Recovery is outside ALS control limits. Associated non-detect sample results have not been affected.		

Sample Parameter Qualifier key listed:

Qualifier	Description
DLDS	Detection Limit Raised: Dilution required due to high Dissolved Solids / Electrical Conductivity.
DLHC	Detection Limit Raised: Dilution required due to high concentration of test analyte(s).
DLM	Detection Limit Adjusted due to sample matrix effects (e.g. chemical interference, colour, turbidity).
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.
RRQC	Refer to report remarks for information regarding this QC result.
RRV	Reported Result Verified By Repeat Analysis

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)	APHA 2320B
This analysis is carried out using procedures adapted from APHA Method 2320 "Alkalinity". Total alkalinity is determined by potentiometric titration to a pH 4.5 endpoint.			
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

Reference Information

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.

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.

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 deteremined colourimetrically after persulphate digestion of the sample.

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

Reference Information

PH-WT	Water	pH	APHA 4500 H-Electrode

Water samples are analyzed directly by a calibrated pH meter.

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

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

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

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

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

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

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

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

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

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

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

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

Total Kjeldahl Nitrogen is determined using block digestion followed by Flow-injection analysis with fluorescence detection

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

Aqueous samples are analyzed by headspace-GC/MS.

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

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

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

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

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

Chain of Custody Numbers:

GLOSSARY OF REPORT TERMS

Surrogates are compounds that are similar in behaviour to target analyte(s), but that do not normally occur in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery. In reports that display the D.L. column, laboratory objectives for surrogates are listed there.
mg/kg - milligrams per kilogram based on dry weight of sample
mg/kg wwt - milligrams per kilogram based on wet weight of sample
mg/kg lwt - milligrams per kilogram based on lipid weight of sample
mg/L - unit of concentration based on volume, parts per million.
< - Less than.
D.L. - The reporting limit.
N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.
UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.
Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

Quality Control Report

Workorder: L2672706 Report Date: 21-DEC-21

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

Contact: STEPHANIE BERTON

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
625-ACID-EXTRA-WT	**Water**							
Batch R5681758								
WG3676263-2 LCS								
2,3,6-Trichlorophenol			84.6		%		50-130	21-DEC-21
WG3676263-1 MB								
2,3,6-Trichlorophenol			<0.20		ug/L		0.2	21-DEC-21
Surrogate: 2,4,6-Tribromophenol			117.0		%		40-150	21-DEC-21
625-WT	**Water**							
Batch R5680780								
WG3676263-2 LCS								
1-Methylnaphthalene			85.4		%		50-140	18-DEC-21
1,2-Dichlorobenzene			84.6		%		40-130	18-DEC-21
1,2,4-Trichlorobenzene			75.6		%		50-130	18-DEC-21
1,3-Dichlorobenzene			75.6		%		50-140	18-DEC-21
1,4-Dichlorobenzene			79.7		%		40-130	18-DEC-21
2-Chlorophenol			96.7		%		65-130	18-DEC-21
2-Methylnaphthalene			93.2		%		50-140	18-DEC-21
2,3,4,5-Tetrachlorophenol			128.6		%		50-130	18-DEC-21
2,3,4,6-Tetrachlorophenol			128.3		%		65-130	18-DEC-21
2,4-Dichlorophenol			104.7		%		65-130	18-DEC-21
2,4-Dimethylphenol			103.9		%		30-130	18-DEC-21
2,4-Dinitrophenol			219.8	RRQC	%		40-140	18-DEC-21
2,4-Dinitrotoluene			110.3		%		50-140	18-DEC-21
2,4,5-Trichlorophenol			109.7		%		65-130	18-DEC-21
2,4,6-Trichlorophenol			105.9		%		65-130	18-DEC-21
2,6-Dinitrotoluene			108.6		%		50-140	18-DEC-21
3,3-Dichlorobenzidine			36.6	RRQC	%		50-140	18-DEC-21
4-Chloroaniline			54.8		%		30-140	18-DEC-21
Acenaphthene			96.7		%		50-140	18-DEC-21
Acenaphthylene			91.6		%		50-140	18-DEC-21
Anthracene			103.9		%		50-140	18-DEC-21
Benzo(a)anthracene			103.3		%		50-140	18-DEC-21
Benzo(a)pyrene			90.4		%		60-130	18-DEC-21
Benzo(b)fluoranthene			107.8		%		50-140	18-DEC-21
Benzo(ghi)perylene			91.8		%		50-140	18-DEC-21
Benzo(k)fluoranthene			98.9		%		50-140	18-DEC-21
Bis(2-chloroethyl)ether			107.3		%		50-140	18-DEC-21

Quality Control Report

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

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
625-WT	**Water**							
Batch R5680780								
WG3676263-2 LCS								
Bis(2-ethylhexyl)phthalate			82.8		%		50-140	18-DEC-21
Chrysene			104.4		%		50-140	18-DEC-21
Dibenz(a,h)anthracene			95.8		%		50-140	18-DEC-21
Diethylphthalate			103.3		%		50-140	18-DEC-21
Dimethylphthalate			99.6		%		50-140	18-DEC-21
Fluoranthene			80.2		%		50-140	18-DEC-21
Fluorene			103.7		%		50-140	18-DEC-21
Hexachlorobenzene			96.4		%		40-130	18-DEC-21
Hexachlorobutadiene			64.0		%		40-130	18-DEC-21
Indeno(1,2,3-cd)pyrene			91.5		%		50-140	18-DEC-21
Naphthalene			94.3		%		50-140	18-DEC-21
Pentachlorophenol			180.7	RRQC	%		60-130	18-DEC-21
Perylene			104.1		%		50-140	18-DEC-21
Phenanthrene			105.5		%		50-140	18-DEC-21
Pyrene			79.2		%		50-140	18-DEC-21
COMMENTS: RRQC: Recovery is outside ALS control limits. Associated non-detect sample results have not been affected.								
WG3676263-1 MB								
1-Methylnaphthalene			<0.40		ug/L		0.4	18-DEC-21
1,2-Dichlorobenzene			<0.40		ug/L		0.4	18-DEC-21
1,2,4-Trichlorobenzene			<0.40		ug/L		0.4	18-DEC-21
1,3-Dichlorobenzene			<0.40		ug/L		0.4	18-DEC-21
1,4-Dichlorobenzene			<0.40		ug/L		0.4	18-DEC-21
2-Chlorophenol			<0.30		ug/L		0.3	18-DEC-21
2-Methylnaphthalene			<0.40		ug/L		0.4	18-DEC-21
2,3,4,5-Tetrachlorophenol			<0.50		ug/L		0.5	18-DEC-21
2,3,4,6-Tetrachlorophenol			<0.50		ug/L		0.5	18-DEC-21
2,4-Dichlorophenol			<0.30		ug/L		0.3	18-DEC-21
2,4-Dimethylphenol			<0.50		ug/L		0.5	18-DEC-21
2,4-Dinitrophenol			<1.0		ug/L		1	18-DEC-21
2,4-Dinitrotoluene			<0.40		ug/L		0.4	18-DEC-21
2,4,5-Trichlorophenol			<0.50		ug/L		0.5	18-DEC-21
2,4,6-Trichlorophenol			<0.50		ug/L		0.5	18-DEC-21
2,6-Dinitrotoluene			<0.40		ug/L		0.4	18-DEC-21
3,3-Dichlorobenzidine			<0.40		ug/L		0.4	18-DEC-21

Quality Control Report

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

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
625-WT	**Water**							
Batch R5680780								
WG3676263-1 MB								
4-Chloroaniline			<0.40		ug/L		0.4	18-DEC-21
Acenaphthene			<0.20		ug/L		0.2	18-DEC-21
Acenaphthylene			<0.20		ug/L		0.2	18-DEC-21
Anthracene			<0.20		ug/L		0.2	18-DEC-21
Benzo(a)anthracene			<0.20		ug/L		0.2	18-DEC-21
Benzo(a)pyrene			<0.050		ug/L		0.05	18-DEC-21
Benzo(b)fluoranthene			<0.20		ug/L		0.2	18-DEC-21
Benzo(ghi)perylene			<0.20		ug/L		0.2	18-DEC-21
Benzo(k)fluoranthene			<0.20		ug/L		0.2	18-DEC-21
Bis(2-chloroethyl)ether			<0.40		ug/L		0.4	18-DEC-21
Bis(2-ethylhexyl)phthalate			<1.0		ug/L		1	18-DEC-21
Chrysene			<0.20		ug/L		0.2	18-DEC-21
Dibenz(a,h)anthracene			<0.20		ug/L		0.2	18-DEC-21
Diethylphthalate			<0.20		ug/L		0.2	18-DEC-21
Dimethylphthalate			<0.20		ug/L		0.2	18-DEC-21
Fluoranthene			<0.20		ug/L		0.2	18-DEC-21
Fluorene			<0.20		ug/L		0.2	18-DEC-21
Hexachlorobenzene			<0.040		ug/L		0.04	18-DEC-21
Hexachlorobutadiene			<0.20		ug/L		0.2	18-DEC-21
Indeno(1,2,3-cd)pyrene			<0.20		ug/L		0.2	18-DEC-21
Naphthalene			<0.20		ug/L		0.2	18-DEC-21
Pentachlorophenol			<0.50		ug/L		0.5	18-DEC-21
Perylene			<0.20		ug/L		0.2	18-DEC-21
Phenanthrene			<0.20		ug/L		0.2	18-DEC-21
Pyrene			<0.20		ug/L		0.2	18-DEC-21
Surrogate: 2-Fluorobiphenyl			80.1		%		40-130	18-DEC-21
Surrogate: Nitrobenzene d5			84.8		%		40-130	18-DEC-21
Surrogate: d14-Terphenyl			78.0		%		40-130	18-DEC-21
ALK-WT	**Water**							
Batch R5680423								
WG3675904-4 DUP		**WG3675904-3**						
Alkalinity, Total (as CaCO3)		96.0	98.4		mg/L	2.5	20	16-DEC-21
WG3675904-2 LCS								
Alkalinity, Total (as CaCO3)			92.7		%		85-115	16-DEC-21

Quality Control Report

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

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
ALK-WT	**Water**							
Batch R5680423								
WG3675904-1 MB								
Alkalinity, Total (as CaCO3)			<2.0		mg/L		2	16-DEC-21
BR-IC-N-WT	**Water**							
Batch R5680160								
WG3675993-10 DUP		**WG3675993-8**						
Bromide (Br)		2.07	2.07		mg/L	0.2	20	16-DEC-21
WG3675993-7 LCS								
Bromide (Br)			98.3		%		85-115	16-DEC-21
WG3675993-6 MB								
Bromide (Br)			<0.10		mg/L		0.1	16-DEC-21
WG3675993-9 MS		**WG3675993-8**						
Bromide (Br)			N/A	MS-B	%		-	16-DEC-21
CL-IC-N-WT	**Water**							
Batch R5680160								
WG3675993-10 DUP		**WG3675993-8**						
Chloride (Cl)		66.5	66.5		mg/L	0.0	20	16-DEC-21
WG3675993-7 LCS								
Chloride (Cl)			102.6		%		90-110	16-DEC-21
WG3675993-6 MB								
Chloride (Cl)			<0.50		mg/L		0.5	16-DEC-21
WG3675993-9 MS		**WG3675993-8**						
Chloride (Cl)			101.5		%		75-125	16-DEC-21
CN-TOT-WT	**Water**							
Batch R5679977								
WG3675748-3 DUP		**WG3675748-5**						
Cyanide, Total		<0.0020	<0.0020	RPD-NA	mg/L	N/A	20	16-DEC-21
WG3675748-2 LCS								
Cyanide, Total			103.2		%		80-120	16-DEC-21
WG3675748-1 MB								
Cyanide, Total			<0.0020		mg/L		0.002	16-DEC-21
WG3675748-4 MS		**WG3675748-5**						
Cyanide, Total			100.6		%		70-130	16-DEC-21
COD-T-WT	**Water**							

Quality Control Report

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

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
COD-T-WT	**Water**							
Batch R5679455								
WG3675459-3 DUP		**L2671418-8**						
COD		42	42		mg/L	1.0	20	15-DEC-21
WG3675459-2 LCS								
COD			103.9		%		85-115	15-DEC-21
WG3675459-1 MB								
COD			<10		mg/L		10	15-DEC-21
WG3675459-4 MS		**L2671418-8**						
COD			107.1		%		75-125	15-DEC-21
CR-CR6-IC-WT	**Water**							
Batch R5679786								
WG3675666-4 DUP		**WG3675666-3**						
Chromium, Hexavalent		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	15-DEC-21
WG3675666-2 LCS								
Chromium, Hexavalent			97.9		%		80-120	15-DEC-21
WG3675666-1 MB								
Chromium, Hexavalent			<0.00050		mg/L		0.0005	15-DEC-21
WG3675666-5 MS		**WG3675666-3**						
Chromium, Hexavalent			96.9		%		70-130	15-DEC-21
DOC-WT	**Water**							
Batch R5680212								
WG3675427-3 DUP		**WG3675427-5**						
Dissolved Organic Carbon		4.18	3.97		mg/L	5.0	20	16-DEC-21
WG3675427-2 LCS								
Dissolved Organic Carbon			101.9		%		80-120	16-DEC-21
WG3675427-1 MB								
Dissolved Organic Carbon			<0.50		mg/L		0.5	16-DEC-21
WG3675427-4 MS		**WG3675427-5**						
Dissolved Organic Carbon			108.2		%		70-130	16-DEC-21
EC-WT	**Water**							
Batch R5680423								
WG3675904-4 DUP		**WG3675904-3**						
Conductivity		842	842		umhos/cm	0.0	10	16-DEC-21
WG3675904-2 LCS								
Conductivity			100.3		%		90-110	16-DEC-21
WG3675904-1 MB								
Conductivity			<1.0		umhos/cm		1	16-DEC-21
F-IC-N-WT	**Water**							

Quality Control Report

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

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
F-IC-N-WT	**Water**							
Batch R5680160								
WG3675993-10 DUP		**WG3675993-8**						
Fluoride (F)		1.05	1.04		mg/L	0.2	20	16-DEC-21
WG3675993-7 LCS								
Fluoride (F)			102.8		%		90-110	16-DEC-21
WG3675993-6 MB								
Fluoride (F)			<0.020		mg/L		0.02	16-DEC-21
WG3675993-9 MS		**WG3675993-8**						
Fluoride (F)			N/A	MS-B	%		-	16-DEC-21
HG-T-CVAA-WT	**Water**							
Batch R5679778								
WG3675742-3 DUP		**L2668939-1**						
Mercury (Hg)-Total		<0.0000050	<0.000005(	RPD-NA	mg/L	N/A	20	16-DEC-21
WG3675742-2 LCS								
Mercury (Hg)-Total			90.5		%		80-120	16-DEC-21
WG3675742-1 MB								
Mercury (Hg)-Total			<0.000005(		mg/L		0.000005	16-DEC-21
WG3675742-4 MS		**L2672706-1**						
Mercury (Hg)-Total			87.7		%		70-130	16-DEC-21
MET-T-CCMS-WT	**Water**							
Batch R5679467								
WG3675460-4 DUP		**WG3675460-3**						
Aluminum (Al)-Total		0.0634	0.0555		mg/L	13	20	15-DEC-21
Antimony (Sb)-Total		0.00043	0.00044		mg/L	1.4	20	15-DEC-21
Arsenic (As)-Total		0.00106	0.00102		mg/L	3.3	20	15-DEC-21
Barium (Ba)-Total		0.0419	0.0419		mg/L	0.2	20	15-DEC-21
Beryllium (Be)-Total		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	15-DEC-21
Bismuth (Bi)-Total		<0.000050	<0.000050	RPD-NA	mg/L	N/A	20	15-DEC-21
Boron (B)-Total		0.141	0.140		mg/L	0.6	20	15-DEC-21
Cadmium (Cd)-Total		0.0000201	0.0000182		mg/L	9.9	20	15-DEC-21
Calcium (Ca)-Total		59.5	60.4		mg/L	1.5	20	15-DEC-21
Cobalt (Co)-Total		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	15-DEC-21
Copper (Cu)-Total		0.00061	0.00056		mg/L	8.2	20	15-DEC-21
Iron (Fe)-Total		0.068	0.064		mg/L	5.1	20	15-DEC-21
Lead (Pb)-Total		0.000179	0.000169		mg/L	6.2	20	15-DEC-21
Magnesium (Mg)-Total		25.6	25.1		mg/L	1.8	20	15-DEC-21
Manganese (Mn)-Total		0.0116	0.0112		mg/L	2.9	20	15-DEC-21

Quality Control Report

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

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-WT	**Water**							
Batch R5679467								
WG3675460-4 DUP		**WG3675460-3**						
Molybdenum (Mo)-Total		0.0507	0.0515		mg/L	1.6	20	15-DEC-21
Nickel (Ni)-Total		0.00329	0.00317		mg/L	3.6	20	15-DEC-21
Potassium (K)-Total		10.8	10.6		mg/L	1.7	20	15-DEC-21
Selenium (Se)-Total		0.000918	0.000855		mg/L	7.1	20	15-DEC-21
Silicon (Si)-Total		0.79	0.78		mg/L	1.3	20	15-DEC-21
Silver (Ag)-Total		<0.000050	<0.000050	RPD-NA	mg/L	N/A	20	15-DEC-21
Sodium (Na)-Total		59.8	60.1		mg/L	0.6	20	15-DEC-21
Strontium (Sr)-Total		0.535	0.528		mg/L	1.2	20	15-DEC-21
Thallium (Tl)-Total		0.000019	0.000019		mg/L	3.2	20	15-DEC-21
Tin (Sn)-Total		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	15-DEC-21
Vanadium (V)-Total		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	15-DEC-21
Zinc (Zn)-Total		<0.0030	<0.0030	RPD-NA	mg/L	N/A	20	15-DEC-21
WG3675460-2 LCS								
Aluminum (Al)-Total			95.3		%		80-120	15-DEC-21
Antimony (Sb)-Total			98.7		%		80-120	15-DEC-21
Arsenic (As)-Total			96.9		%		80-120	15-DEC-21
Barium (Ba)-Total			97.8		%		80-120	15-DEC-21
Beryllium (Be)-Total			93.6		%		80-120	15-DEC-21
Bismuth (Bi)-Total			94.5		%		80-120	15-DEC-21
Boron (B)-Total			89.0		%		80-120	15-DEC-21
Cadmium (Cd)-Total			96.8		%		80-120	15-DEC-21
Calcium (Ca)-Total			94.1		%		80-120	15-DEC-21
Cobalt (Co)-Total			93.1		%		80-120	15-DEC-21
Copper (Cu)-Total			93.0		%		80-120	15-DEC-21
Iron (Fe)-Total			92.4		%		80-120	15-DEC-21
Lead (Pb)-Total			94.5		%		80-120	15-DEC-21
Magnesium (Mg)-Total			101.6		%		80-120	15-DEC-21
Manganese (Mn)-Total			94.9		%		80-120	15-DEC-21
Molybdenum (Mo)-Total			96.3		%		80-120	15-DEC-21
Nickel (Ni)-Total			91.8		%		80-120	15-DEC-21
Potassium (K)-Total			90.4		%		80-120	15-DEC-21
Selenium (Se)-Total			98.0		%		80-120	15-DEC-21
Silicon (Si)-Total			94.2		%		60-140	15-DEC-21

Quality Control Report

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

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-WT	**Water**							
Batch R5679467								
WG3675460-2 LCS								
Silver (Ag)-Total			91.8		%		80-120	15-DEC-21
Sodium (Na)-Total			96.8		%		80-120	15-DEC-21
Strontium (Sr)-Total			95.3		%		80-120	15-DEC-21
Thallium (Tl)-Total			97.2		%		80-120	15-DEC-21
Tin (Sn)-Total			93.8		%		80-120	15-DEC-21
Vanadium (V)-Total			94.0		%		80-120	15-DEC-21
Zinc (Zn)-Total			92.9		%		80-120	15-DEC-21
WG3675460-1 MB								
Aluminum (Al)-Total			<0.0050		mg/L		0.005	15-DEC-21
Antimony (Sb)-Total			<0.00010		mg/L		0.0001	15-DEC-21
Arsenic (As)-Total			<0.00010		mg/L		0.0001	15-DEC-21
Barium (Ba)-Total			<0.00010		mg/L		0.0001	15-DEC-21
Beryllium (Be)-Total			<0.00010		mg/L		0.0001	15-DEC-21
Bismuth (Bi)-Total			<0.000050		mg/L		0.00005	15-DEC-21
Boron (B)-Total			<0.010		mg/L		0.01	15-DEC-21
Cadmium (Cd)-Total			<0.000005(		mg/L		0.000005	15-DEC-21
Calcium (Ca)-Total			<0.050		mg/L		0.05	15-DEC-21
Cobalt (Co)-Total			<0.00010		mg/L		0.0001	15-DEC-21
Copper (Cu)-Total			<0.00050		mg/L		0.0005	15-DEC-21
Iron (Fe)-Total			<0.010		mg/L		0.01	15-DEC-21
Lead (Pb)-Total			<0.000050		mg/L		0.00005	15-DEC-21
Magnesium (Mg)-Total			<0.0050		mg/L		0.005	15-DEC-21
Manganese (Mn)-Total			<0.00050		mg/L		0.0005	15-DEC-21
Molybdenum (Mo)-Total			<0.000050		mg/L		0.00005	15-DEC-21
Nickel (Ni)-Total			<0.00050		mg/L		0.0005	15-DEC-21
Potassium (K)-Total			<0.050		mg/L		0.05	15-DEC-21
Selenium (Se)-Total			<0.000050		mg/L		0.00005	15-DEC-21
Silicon (Si)-Total			<0.10		mg/L		0.1	15-DEC-21
Silver (Ag)-Total			<0.000050		mg/L		0.00005	15-DEC-21
Sodium (Na)-Total			<0.050		mg/L		0.05	15-DEC-21
Strontium (Sr)-Total			<0.0010		mg/L		0.001	15-DEC-21
Thallium (Tl)-Total			<0.000010		mg/L		0.00001	15-DEC-21
Tin (Sn)-Total			<0.00010		mg/L		0.0001	15-DEC-21
Vanadium (V)-Total			<0.00050		mg/L		0.0005	15-DEC-21

Quality Control Report

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

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-WT	**Water**							
Batch R5679467								
WG3675460-1 MB								
Zinc (Zn)-Total			<0.0030		mg/L		0.003	15-DEC-21
WG3675460-5 MS		**WG3675460-6**						
Aluminum (Al)-Total			N/A	MS-B	%		-	15-DEC-21
Antimony (Sb)-Total			97.4		%		70-130	15-DEC-21
Arsenic (As)-Total			104.1		%		70-130	15-DEC-21
Barium (Ba)-Total			N/A	MS-B	%		-	15-DEC-21
Beryllium (Be)-Total			96.1		%		70-130	15-DEC-21
Bismuth (Bi)-Total			95.1		%		70-130	15-DEC-21
Boron (B)-Total			N/A	MS-B	%		-	15-DEC-21
Cadmium (Cd)-Total			95.3		%		70-130	15-DEC-21
Calcium (Ca)-Total			N/A	MS-B	%		-	15-DEC-21
Cobalt (Co)-Total			98.6		%		70-130	15-DEC-21
Copper (Cu)-Total			96.7		%		70-130	15-DEC-21
Iron (Fe)-Total			N/A	MS-B	%		-	15-DEC-21
Lead (Pb)-Total			95.1		%		70-130	15-DEC-21
Magnesium (Mg)-Total			N/A	MS-B	%		-	15-DEC-21
Manganese (Mn)-Total			N/A	MS-B	%		-	15-DEC-21
Molybdenum (Mo)-Total			N/A	MS-B	%		-	15-DEC-21
Nickel (Ni)-Total			97.8		%		70-130	15-DEC-21
Potassium (K)-Total			N/A	MS-B	%		-	15-DEC-21
Selenium (Se)-Total			102.4		%		70-130	15-DEC-21
Silicon (Si)-Total			N/A	MS-B	%		-	15-DEC-21
Silver (Ag)-Total			90.7		%		70-130	15-DEC-21
Sodium (Na)-Total			N/A	MS-B	%		-	15-DEC-21
Strontium (Sr)-Total			N/A	MS-B	%		-	15-DEC-21
Thallium (Tl)-Total			96.1		%		70-130	15-DEC-21
Tin (Sn)-Total			92.5		%		70-130	15-DEC-21
Vanadium (V)-Total			100.9		%		70-130	15-DEC-21
Zinc (Zn)-Total			95.0		%		70-130	15-DEC-21
NH3-F-WT	**Water**							
Batch R5680138								
WG3675337-3 DUP		**WG3675337-5**						
Ammonia, Total (as N)		<0.010	<0.010	RPD-NA	mg/L	N/A	20	16-DEC-21
WG3675337-2 LCS								

Quality Control Report

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

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
NH3-F-WT	**Water**							
Batch R5680138								
WG3675337-2 LCS								
Ammonia, Total (as N)			96.2		%		85-115	16-DEC-21
WG3675337-1 MB								
Ammonia, Total (as N)			<0.010		mg/L		0.01	16-DEC-21
WG3675337-4 MS		**WG3675337-5**						
Ammonia, Total (as N)			100.5		%		75-125	16-DEC-21
NO2-IC-WT	**Water**							
Batch R5680160								
WG3675993-10 DUP		**WG3675993-8**						
Nitrite (as N)		<0.010	<0.010	RPD-NA	mg/L	N/A	20	16-DEC-21
WG3675993-7 LCS								
Nitrite (as N)			102.5		%		90-110	16-DEC-21
WG3675993-6 MB								
Nitrite (as N)			<0.010		mg/L		0.01	16-DEC-21
WG3675993-9 MS		**WG3675993-8**						
Nitrite (as N)			103.5		%		75-125	16-DEC-21
NO3-IC-WT	**Water**							
Batch R5680160								
WG3675993-10 DUP		**WG3675993-8**						
Nitrate (as N)		0.130	0.130		mg/L	0.3	20	16-DEC-21
WG3675993-7 LCS								
Nitrate (as N)			102.5		%		90-110	16-DEC-21
WG3675993-6 MB								
Nitrate (as N)			<0.020		mg/L		0.02	16-DEC-21
WG3675993-9 MS		**WG3675993-8**						
Nitrate (as N)			102.4		%		75-125	16-DEC-21
P-T-COL-WT	**Water**							
Batch R5679596								
WG3675438-3 DUP		**L2672518-1**						
Phosphorus, Total		<0.0030	0.0058	RPD-NA	mg/L	N/A	20	16-DEC-21
WG3675438-2 LCS								
Phosphorus, Total			97.7		%		80-120	16-DEC-21
WG3675438-1 MB								
Phosphorus, Total			<0.0030		mg/L		0.003	16-DEC-21
WG3675438-4 MS		**L2672518-1**						
Phosphorus, Total			103.9		%		70-130	16-DEC-21
PH-WT	**Water**							

Quality Control Report

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

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PH-WT	**Water**							
Batch R5680423								
WG3675904-4 DUP		**WG3675904-3**						
pH		8.11	8.08	J	pH units	0.03	0.2	16-DEC-21
WG3675904-2 LCS								
pH			7.00		pH units		6.9-7.1	16-DEC-21
PHENOLS-4AAP-WT	**Water**							
Batch R5679409								
WG3675451-3 DUP		**L2672560-1**						
Phenols (4AAP)		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	15-DEC-21
WG3675451-2 LCS								
Phenols (4AAP)			100.3		%		85-115	15-DEC-21
WG3675451-1 MB								
Phenols (4AAP)			<0.0010		mg/L		0.001	15-DEC-21
WG3675451-4 MS		**L2672560-1**						
Phenols (4AAP)			107.9		%		75-125	15-DEC-21
SO4-IC-N-WT	**Water**							
Batch R5680160								
WG3675993-10 DUP		**WG3675993-8**						
Sulfate (SO4)		218	218		mg/L	0.0	20	16-DEC-21
WG3675993-7 LCS								
Sulfate (SO4)			104.0		%		90-110	16-DEC-21
WG3675993-6 MB								
Sulfate (SO4)			<0.30		mg/L		0.3	16-DEC-21
WG3675993-9 MS		**WG3675993-8**						
Sulfate (SO4)			N/A	MS-B	%		-	16-DEC-21
SOLIDS-TDS-WT	**Water**							
Batch R5680322								
WG3675874-3 DUP		**L2671662-6**						
Total Dissolved Solids		1840	1820		mg/L	1.5	20	16-DEC-21
WG3675874-2 LCS								
Total Dissolved Solids			99.8		%		85-115	16-DEC-21
WG3675874-1 MB								
Total Dissolved Solids			<10		mg/L		10	16-DEC-21
SOLIDS-TSS-WT	**Water**							
Batch R5680221								
WG3676144-3 DUP		**L2673154-1**						
Total Suspended Solids		<3.0	<3.0	RPD-NA	mg/L	N/A	20	17-DEC-21
WG3676144-2 LCS								

Quality Control Report

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

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
SOLIDS-TSS-WT	**Water**							
Batch R5680221								
WG3676144-2 LCS								
Total Suspended Solids			97.5		%		85-115	17-DEC-21
WG3676144-1 MB								
Total Suspended Solids			<3.0		mg/L		3	17-DEC-21
TKN-F-WT	**Water**							
Batch R5679970								
WG3675335-3 DUP		**L2672563-4**						
Total Kjeldahl Nitrogen		0.220	0.250		mg/L	13	20	16-DEC-21
WG3675335-2 LCS								
Total Kjeldahl Nitrogen			110.3		%		75-125	16-DEC-21
WG3675335-1 MB								
Total Kjeldahl Nitrogen			<0.050		mg/L		0.05	16-DEC-21
WG3675335-4 MS		**L2672563-4**						
Total Kjeldahl Nitrogen			124.0		%		70-130	16-DEC-21
VOC-ROU-HS-WT	**Water**							
Batch R5679591								
WG3675336-4 DUP		**WG3675336-3**						
1,1,1,2-Tetrachloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	16-DEC-21
1,1,2,2-Tetrachloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	16-DEC-21
1,1,1-Trichloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	16-DEC-21
1,1,2-Trichloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	16-DEC-21
1,2-Dibromoethane		<0.20	<0.20	RPD-NA	ug/L	N/A	30	16-DEC-21
1,1-Dichloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	16-DEC-21
1,1-Dichloroethylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	16-DEC-21
1,2-Dichlorobenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	16-DEC-21
1,2-Dichloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	16-DEC-21
1,2-Dichloropropane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	16-DEC-21
1,3-Dichlorobenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	16-DEC-21
1,4-Dichlorobenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	16-DEC-21
Acetone		<20	<20	RPD-NA	ug/L	N/A	30	16-DEC-21
Benzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	16-DEC-21
Bromodichloromethane		<1.0	<1.0	RPD-NA	ug/L	N/A	30	16-DEC-21
Bromoform		<1.0	<1.0	RPD-NA	ug/L	N/A	30	16-DEC-21
Bromomethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	16-DEC-21
Carbon tetrachloride		<0.20	<0.20	RPD-NA	ug/L	N/A	30	16-DEC-21

Quality Control Report

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

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-ROU-HS-WT	**Water**							
Batch R5679591								
WG3675336-4 DUP		**WG3675336-3**						
Chlorobenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	16-DEC-21
Chloroethane		<1.0	<1.0	RPD-NA	ug/L	N/A	30	16-DEC-21
Chloroform		<1.0	<1.0	RPD-NA	ug/L	N/A	30	16-DEC-21
cis-1,2-Dichloroethylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	16-DEC-21
cis-1,3-Dichloropropene		<0.30	<0.30	RPD-NA	ug/L	N/A	30	16-DEC-21
Dibromochloromethane		<1.0	<1.0	RPD-NA	ug/L	N/A	30	16-DEC-21
Dichlorodifluoromethane		<1.0	<1.0	RPD-NA	ug/L	N/A	30	16-DEC-21
Dichloromethane		<2.0	<2.0	RPD-NA	ug/L	N/A	30	16-DEC-21
Ethylbenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	16-DEC-21
m+p-Xylenes		<0.40	<0.40	RPD-NA	ug/L	N/A	30	16-DEC-21
Methyl Ethyl Ketone		<20	<20	RPD-NA	ug/L	N/A	30	16-DEC-21
Methyl Isobutyl Ketone		<20	<20	RPD-NA	ug/L	N/A	30	16-DEC-21
n-Hexane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	16-DEC-21
MTBE		<0.50	<0.50	RPD-NA	ug/L	N/A	30	16-DEC-21
o-Xylene		<0.30	<0.30	RPD-NA	ug/L	N/A	30	16-DEC-21
Styrene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	16-DEC-21
Tetrachloroethylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	16-DEC-21
Toluene		<0.40	<0.40	RPD-NA	ug/L	N/A	30	16-DEC-21
trans-1,2-Dichloroethylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	16-DEC-21
trans-1,3-Dichloropropene		<0.30	<0.30	RPD-NA	ug/L	N/A	30	16-DEC-21
Trichloroethylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	16-DEC-21
Trichlorofluoromethane		<1.0	<1.0	RPD-NA	ug/L	N/A	30	16-DEC-21
Vinyl chloride		<0.50	<0.50	RPD-NA	ug/L	N/A	30	16-DEC-21
WG3675336-1 LCS								
1,1,1,2-Tetrachloroethane			99.6		%		70-130	16-DEC-21
1,1,2,2-Tetrachloroethane			103.3		%		70-130	16-DEC-21
1,1,1-Trichloroethane			105.8		%		70-130	16-DEC-21
1,1,2-Trichloroethane			96.6		%		70-130	16-DEC-21
1,2-Dibromoethane			97.3		%		70-130	16-DEC-21
1,1-Dichloroethane			97.0		%		70-130	16-DEC-21
1,1-Dichloroethylene			111.8		%		70-130	16-DEC-21
1,2-Dichlorobenzene			102.6		%		70-130	16-DEC-21
1,2-Dichloroethane			111.2		%		70-130	16-DEC-21

Quality Control Report

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

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-ROU-HS-WT	**Water**							
Batch R5679591								
WG3675336-1 LCS								
1,2-Dichloropropane			107.4		%		70-130	16-DEC-21
1,3-Dichlorobenzene			111.0		%		70-130	16-DEC-21
1,4-Dichlorobenzene			110.0		%		70-130	16-DEC-21
Acetone			120.5		%		60-140	16-DEC-21
Benzene			102.9		%		70-130	16-DEC-21
Bromodichloromethane			120.0		%		70-130	16-DEC-21
Bromoform			98.4		%		70-130	16-DEC-21
Bromomethane			108.5		%		60-140	16-DEC-21
Carbon tetrachloride			103.9		%		70-130	16-DEC-21
Chlorobenzene			103.8		%		70-130	16-DEC-21
Chloroethane			101.4		%		70-130	16-DEC-21
Chloroform			106.3		%		70-130	16-DEC-21
cis-1,2-Dichloroethylene			104.6		%		70-130	16-DEC-21
cis-1,3-Dichloropropene			114.7		%		70-130	16-DEC-21
Dibromochloromethane			97.1		%		70-130	16-DEC-21
Dichlorodifluoromethane			116.5		%		50-140	16-DEC-21
Dichloromethane			111.4		%		70-130	16-DEC-21
Ethylbenzene			101.8		%		70-130	16-DEC-21
m+p-Xylenes			109.7		%		70-130	16-DEC-21
Methyl Ethyl Ketone			113.2		%		60-140	16-DEC-21
Methyl Isobutyl Ketone			108.1		%		50-150	16-DEC-21
n-Hexane			111.0		%		70-130	16-DEC-21
MTBE			105.0		%		70-130	16-DEC-21
o-Xylene			106.4		%		70-130	16-DEC-21
Styrene			108.5		%		70-130	16-DEC-21
Tetrachloroethylene			92.5		%		70-130	16-DEC-21
Toluene			95.6		%		70-130	16-DEC-21
trans-1,2-Dichloroethylene			112.9		%		70-130	16-DEC-21
trans-1,3-Dichloropropene			102.4		%		70-130	16-DEC-21
Trichloroethylene			100.5		%		70-130	16-DEC-21
Trichlorofluoromethane			104.6		%		60-140	16-DEC-21
Vinyl chloride			98.8		%		60-140	16-DEC-21
WG3675336-2 MB								
1,1,1,2-Tetrachloroethane			<0.50		ug/L		0.5	16-DEC-21

Quality Control Report

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

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-ROU-HS-WT	**Water**							
Batch R5679591								
WG3675336-2 MB								
1,1,2,2-Tetrachloroethane			<0.50		ug/L		0.5	16-DEC-21
1,1,1-Trichloroethane			<0.50		ug/L		0.5	16-DEC-21
1,1,2-Trichloroethane			<0.50		ug/L		0.5	16-DEC-21
1,2-Dibromoethane			<0.20		ug/L		0.2	16-DEC-21
1,1-Dichloroethane			<0.50		ug/L		0.5	16-DEC-21
1,1-Dichloroethylene			<0.50		ug/L		0.5	16-DEC-21
1,2-Dichlorobenzene			<0.50		ug/L		0.5	16-DEC-21
1,2-Dichloroethane			<0.50		ug/L		0.5	16-DEC-21
1,2-Dichloropropane			<0.50		ug/L		0.5	16-DEC-21
1,3-Dichlorobenzene			<0.50		ug/L		0.5	16-DEC-21
1,4-Dichlorobenzene			<0.50		ug/L		0.5	16-DEC-21
Acetone			<20		ug/L		20	16-DEC-21
Benzene			<0.50		ug/L		0.5	16-DEC-21
Bromodichloromethane			<1.0		ug/L		1	16-DEC-21
Bromoform			<1.0		ug/L		1	16-DEC-21
Bromomethane			<0.50		ug/L		0.5	16-DEC-21
Carbon tetrachloride			<0.20		ug/L		0.2	16-DEC-21
Chlorobenzene			<0.50		ug/L		0.5	16-DEC-21
Chloroethane			<1.0		ug/L		1	16-DEC-21
Chloroform			<1.0		ug/L		1	16-DEC-21
cis-1,2-Dichloroethylene			<0.50		ug/L		0.5	16-DEC-21
cis-1,3-Dichloropropene			<0.30		ug/L		0.3	16-DEC-21
Dibromochloromethane			<1.0		ug/L		1	16-DEC-21
Dichlorodifluoromethane			<1.0		ug/L		1	16-DEC-21
Dichloromethane			<2.0		ug/L		2	16-DEC-21
Ethylbenzene			<0.50		ug/L		0.5	16-DEC-21
m+p-Xylenes			<0.40		ug/L		0.4	16-DEC-21
Methyl Ethyl Ketone			<20		ug/L		20	16-DEC-21
Methyl Isobutyl Ketone			<20		ug/L		20	16-DEC-21
n-Hexane			<0.50		ug/L		0.5	16-DEC-21
MTBE			<0.50		ug/L		0.5	16-DEC-21
o-Xylene			<0.30		ug/L		0.3	16-DEC-21
Styrene			<0.50		ug/L		0.5	16-DEC-21

Quality Control Report

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

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-ROU-HS-WT	**Water**							
Batch R5679591								
WG3675336-2 MB								
Tetrachloroethylene			<0.50		ug/L		0.5	16-DEC-21
Toluene			<0.40		ug/L		0.4	16-DEC-21
trans-1,2-Dichloroethylene			<0.50		ug/L		0.5	16-DEC-21
trans-1,3-Dichloropropene			<0.30		ug/L		0.3	16-DEC-21
Trichloroethylene			<0.50		ug/L		0.5	16-DEC-21
Trichlorofluoromethane			<1.0		ug/L		1	16-DEC-21
Vinyl chloride			<0.50		ug/L		0.5	16-DEC-21
Surrogate: 1,4-Difluorobenzene			99.4		%		70-130	16-DEC-21
Surrogate: 4-Bromofluorobenzene			98.5		%		70-130	16-DEC-21
WG3675336-5 MS		**WG3675336-3**						
1,1,1,2-Tetrachloroethane			95.4		%		50-150	16-DEC-21
1,1,2,2-Tetrachloroethane			80.2		%		50-150	16-DEC-21
1,1,1-Trichloroethane			109.7		%		50-150	16-DEC-21
1,1,2-Trichloroethane			93.4		%		50-150	16-DEC-21
1,2-Dibromoethane			86.4		%		50-150	16-DEC-21
1,1-Dichloroethane			100.6		%		50-150	16-DEC-21
1,1-Dichloroethylene			116.8		%		50-150	16-DEC-21
1,2-Dichlorobenzene			99.4		%		50-150	16-DEC-21
1,2-Dichloroethane			100.1		%		50-150	16-DEC-21
1,2-Dichloropropane			99.2		%		50-150	16-DEC-21
1,3-Dichlorobenzene			100.1		%		50-150	16-DEC-21
1,4-Dichlorobenzene			100.1		%		50-150	16-DEC-21
Acetone			103.0		%		50-150	16-DEC-21
Benzene			98.2		%		50-150	16-DEC-21
Bromodichloromethane			113.7		%		50-150	16-DEC-21
Bromoform			80.8		%		50-150	16-DEC-21
Bromomethane			80.6		%		50-150	16-DEC-21
Carbon tetrachloride			109.4		%		50-150	16-DEC-21
Chlorobenzene			100.5		%		50-150	16-DEC-21
Chloroethane			99.2		%		50-150	16-DEC-21
Chloroform			105.8		%		50-150	16-DEC-21
cis-1,2-Dichloroethylene			101.2		%		50-150	16-DEC-21
cis-1,3-Dichloropropene			64.9		%		50-150	16-DEC-21
Dibromochloromethane			93.9		%		50-150	16-DEC-21

Quality Control Report

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

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-ROU-HS-WT	**Water**							
Batch R5679591								
WG3675336-5 MS		**WG3675336-3**						
Dichlorodifluoromethane			117.7		%		50-150	16-DEC-21
Dichloromethane			105.5		%		50-150	16-DEC-21
Ethylbenzene			93.1		%		50-150	16-DEC-21
m+p-Xylenes			100.5		%		50-150	16-DEC-21
Methyl Ethyl Ketone			81.0		%		50-150	16-DEC-21
Methyl Isobutyl Ketone			76.5		%		50-150	16-DEC-21
n-Hexane			114.9		%		50-150	16-DEC-21
MTBE			101.7		%		50-150	16-DEC-21
o-Xylene			89.6		%		50-150	16-DEC-21
Styrene			85.6		%		50-150	16-DEC-21
Tetrachloroethylene			95.8		%		50-150	16-DEC-21
Toluene			99.5		%		50-150	16-DEC-21
trans-1,2-Dichloroethylene			113.9		%		50-150	16-DEC-21
trans-1,3-Dichloropropene			50.7		%		50-150	16-DEC-21
Trichloroethylene			98.6		%		50-150	16-DEC-21
Trichlorofluoromethane			111.6		%		50-150	16-DEC-21
Vinyl chloride			97.7		%		50-150	16-DEC-21

Quality Control Report

Workorder: L2672706 Report Date: 21-DEC-21

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

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.
RRQC	Refer to report remarks for information regarding this QC result.

Hold Time Exceedances:

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

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

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

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

Chain of Custody (COC) / Analytical Requ

www.alsglobal.com

Canada Toll Free: 1 800 668 9878

L2672706-COFC

of HDJ

Report To	Contact and company name below will appear on the final report
Company:	GHD Ltd. (Acct 13791)
Contact:	Stephanie Berton
Phone:	519-884-0510
	Company address below will appear on the final report
Street:	455 Phillip St.
City/Province:	Waterloo, ON
Postal Code:	N2L 3X2
Invoice To	Same as Report To ☑ YES ☐ NO
	Copy of Invoice with Report ☐ YES ☑ NO
Company:	GHD Ltd. (Acct 13791)
Contact:	

Reports / Recipients

Select Report Format: ☑ PDF ☐ EXCEL ☐ EDD (DIGITAL)
Merge QC/QCI Reports with COA ☐ YES ☐ NO ☐ N/A
☐ Compare Results to Criteria on Report - provide details below if box checked
Select Distribution: ☑ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax: stephanie.berton@ghd.com
Email 2: See SSOW/PO
Email 3:

Invoice Recipients

Select Invoice Distribution: ☑ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax: Invoicing-Canada@ghd.com
Email 2:

Project Information

ALS Account # / Quote #:
Job #: 44985-20-21
PO / AFE:
LSD:

Oil and Gas Required Fields (client use)

AFE/Cost Center: PO#
Major/Minor Code: Routing Code:
Requisitioner:
Location:

ALS Lab Work Order # (lab use only): L2672706

ALS Contact: Rick H Sampler:

☐ Routine [R] if received by 3pm M-F - no surcharges apply
☐ 4 day [P4] if received by 3pm M-F - 20% rush surcharge minimum
☐ 3 day [P3] if received by 3pm M-F - 25% rush surcharge minimum
☒ 2 day [P2] if received by 3pm M-F - 50% rush surcharge minimum
☐ 1 day [E] if received by 3pm M-F - 100% rush surcharge minimum
Same day [E2] if received by 10am M-S - 200% rush surcharge. Additional fees may apply to rush resuests on weekends, statutory holidays and non-routine tests

AFFIX ALS BARCODE LABEL HERE (ALS use only)

Date and Time Required for all E&P TATs: dd-mmm-yy hh:mm am/pm

For tests that can not be performed according to the TAT requested, you will be contacted.

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

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	NUMBER OF CONTAINERS	SVOCs (SVOC-44985-P-WT)	VOCs(VOC-ROU-HS-WT,)	ALK, Conductivity, pH, TDS, TSS	Anions6 (Br,N2N3, CL, F, BR, SO4)	Phenols-4AAP, COD, TKN, TTP	DOC	NH3-Unionized Ammonia	Total Metals, Hardness-Calc-T-WT	Mercury Total	Total Cyanide, Total Cr6	REP: WT-44985-VOC	REP: WT-44985-Metals	Field Temp (°)	Field Ph	SAMPLES ON HOLD	EXTENDED STORAGE REQUIRED	SUSPECTED HAZARD (see notes
	EQ Pond Discharge	14-Dec-21	10:00	Water		R	R	R	R	R	R	R	R	R	R	R	R	8	7.53			
	POND D West Pond	"	"	Water		R	R	R	R	R	R	R	R	R	R	R	R	7	8.02			
	POND A East Pond	"	"	Water		R	R	R	R	R	R	R	R	R	R	R	R	7	7.89			

Drinking Water (DW) Samples[1] (client use)

Are samples taken from a Regulated DW System?
☐ YES ☑ NO
Are samples for human consumption/ use?
☐ YES ☑ NO

Notes / Specify Limits for result evaluation by selecting from drop-down below (Excel COC only)

Please provide field temp and field pH for unionized calculation.

SAMPLE RECEIPT DETAILS (lab use only)

Cooling Method: ☐ NONE ☐ ICE ☐ ICE PACKS ☐ FROZEN ☐ COOLING INITIATED
Submission Comments identified on Sample Receipt Notification: ☐ YES ☐ NO
Cooler Custody Seals Intact: ☐ YES ☐ N/A Sample Custody Seals Intact: ☐ YES ☐ N/A

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			
					5.9		

SHIPMENT RELEASE (client use)

Released by: George Munro Date: Dec-14/21 Time: 12:00

INITIAL SHIPMENT RECEPTION (lab use only)

Received by: Date: Time:

FINAL SHIPMENT RECEPTION (lab use only)

Received by: Date: DEC 15/21 Time: 9:30

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

AUG 2020 FRONT

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: Stephanie Berton
455 Phillip St
Waterloo ON N2L3X2

Date Received: 02-SEP-21
Report Date: 13-SEP-21 14:08 (MT)
Version: FINAL

Client Phone: 519-884-0510

Certificate of Analysis

Lab Work Order #: L2634894

Project P.O. #: 73506479
Job Reference: 44985-20
C of C Numbers:
Legal Site Desc:

Rick Hawthorne
Account Manager

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2634894-1 EAST STORM WATER POND Sampled By: CLIENT on 01-SEP-21 @ 14:30 Matrix: WATER							
Field Tests							
pH, Client Supplied	8.40		0.10	pH		07-SEP-21	R5579908
Temperature, Client	24.0		-50	Deg. C		07-SEP-21	R5579908
Physical Tests							
Conductivity	912		1.0	umhos/cm		03-SEP-21	R5579603
Hardness (as CaCO3)	230	HTC	1.3	mg/L		08-SEP-21	
pH	8.19		0.10	pH units		03-SEP-21	R5579603
Total Suspended Solids	5.6		3.0	mg/L	08-SEP-21	09-SEP-21	R5581185
Total Dissolved Solids	511	DLDS	20	mg/L		08-SEP-21	R5582192
Anions and Nutrients							
Alkalinity, Total (as CaCO3)	60.4		1.0	mg/L		03-SEP-21	R5579603
Unionized ammonia	<0.0014		0.0014	mg/L		07-SEP-21	
Ammonia, Total (as N)	<0.010		0.010	mg/L		07-SEP-21	R5580043
Bromide (Br)	3.53		0.10	mg/L		07-SEP-21	R5580808
Chloride (Cl)	100		0.50	mg/L		07-SEP-21	R5580808
Fluoride (F)	1.40		0.020	mg/L		07-SEP-21	R5580808
Nitrate (as N)	<0.020		0.020	mg/L		07-SEP-21	R5580808
Nitrite (as N)	<0.010		0.010	mg/L		07-SEP-21	R5580808
Total Kjeldahl Nitrogen	0.560		0.050	mg/L	07-SEP-21	08-SEP-21	R5581351
Phosphorus, Total	0.0172		0.0030	mg/L	03-SEP-21	07-SEP-21	R5580135
Sulfate (SO4)	222		0.30	mg/L		07-SEP-21	R5580808
Cyanides							
Cyanide, Total	<0.0020		0.0020	mg/L		07-SEP-21	R5577945
Organic / Inorganic Carbon							
Dissolved Carbon Filtration Location	LAB					03-SEP-21	R5578600
Dissolved Organic Carbon	5.65		0.50	mg/L	03-SEP-21	09-SEP-21	R5581449
Total Metals							
Aluminum (Al)-Total	0.329		0.010	mg/L	02-SEP-21	07-SEP-21	R5577923
Antimony (Sb)-Total	0.00066		0.00010	mg/L	02-SEP-21	03-SEP-21	R5577923
Arsenic (As)-Total	0.00401		0.00010	mg/L	02-SEP-21	03-SEP-21	R5577923
Barium (Ba)-Total	0.0419		0.00020	mg/L	02-SEP-21	03-SEP-21	R5577923
Beryllium (Be)-Total	<0.00010		0.00010	mg/L	02-SEP-21	03-SEP-21	R5577923
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	02-SEP-21	03-SEP-21	R5577923
Boron (B)-Total	0.171		0.010	mg/L	02-SEP-21	03-SEP-21	R5577923
Cadmium (Cd)-Total	<0.000040	DLM	0.000040	mg/L	02-SEP-21	03-SEP-21	R5577923
Calcium (Ca)-Total	49.2		0.50	mg/L	02-SEP-21	03-SEP-21	R5577923
Cobalt (Co)-Total	0.00038		0.00010	mg/L	02-SEP-21	03-SEP-21	R5577923
Copper (Cu)-Total	0.0016		0.0010	mg/L	02-SEP-21	03-SEP-21	R5577923
Iron (Fe)-Total	0.288		0.050	mg/L	02-SEP-21	03-SEP-21	R5577923
Lead (Pb)-Total	0.00026		0.00010	mg/L	02-SEP-21	03-SEP-21	R5577923
Magnesium (Mg)-Total	26.1		0.050	mg/L	02-SEP-21	03-SEP-21	R5577923
Manganese (Mn)-Total	0.00967		0.00050	mg/L	02-SEP-21	03-SEP-21	R5577923
Mercury (Hg)-Total	<0.0000050		0.0000050	mg/L		08-SEP-21	R5580714

* 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
L2634894-1 EAST STORM WATER POND Sampled By: CLIENT on 01-SEP-21 @ 14:30 Matrix: WATER							
Total Metals							
Molybdenum (Mo)-Total	0.0810		0.000050	mg/L	02-SEP-21	03-SEP-21	R5577923
Nickel (Ni)-Total	0.00412		0.00050	mg/L	02-SEP-21	03-SEP-21	R5577923
Potassium (K)-Total	9.58		0.050	mg/L	02-SEP-21	03-SEP-21	R5577923
Selenium (Se)-Total	0.00170		0.000050	mg/L	02-SEP-21	03-SEP-21	R5577923
Silicon (Si)-Total	1.41		0.10	mg/L	02-SEP-21	03-SEP-21	R5577923
Silver (Ag)-Total	<0.000050		0.000050	mg/L	02-SEP-21	03-SEP-21	R5577923
Sodium (Na)-Total	81.4		0.50	mg/L	02-SEP-21	03-SEP-21	R5577923
Strontium (Sr)-Total	0.572		0.0010	mg/L	02-SEP-21	03-SEP-21	R5577923
Thallium (Tl)-Total	0.000014		0.000010	mg/L	02-SEP-21	03-SEP-21	R5577923
Tin (Sn)-Total	<0.00010		0.00010	mg/L	02-SEP-21	03-SEP-21	R5577923
Vanadium (V)-Total	0.00124		0.00050	mg/L	02-SEP-21	03-SEP-21	R5577923
Zinc (Zn)-Total	0.0086		0.0030	mg/L	02-SEP-21	03-SEP-21	R5577923
Speciated Metals							
Chromium, Hexavalent	<0.00050		0.00050	mg/L		03-SEP-21	R5580125
Aggregate Organics							
COD	12		10	mg/L		07-SEP-21	R5579890
Phenols (4AAP)	0.0104		0.0010	mg/L		03-SEP-21	R5578677
Volatile Organic Compounds							
Acetone	<20	OWP	20	ug/L		10-SEP-21	R5582148
Benzene	<0.50	OWP	0.50	ug/L		10-SEP-21	R5582148
Bromodichloromethane	<1.0	OWP	1.0	ug/L		10-SEP-21	R5582148
Bromoform	<1.0	OWP	1.0	ug/L		10-SEP-21	R5582148
Bromomethane	<0.50	OWP	0.50	ug/L		10-SEP-21	R5582148
Carbon tetrachloride	<0.50	OWP	0.50	ug/L		10-SEP-21	R5582148
Chlorobenzene	<0.50	OWP	0.50	ug/L		10-SEP-21	R5582148
Dibromochloromethane	<1.0	OWP	1.0	ug/L		10-SEP-21	R5582148
Chloroethane	<1.0	OWP	1.0	ug/L		10-SEP-21	R5582148
Chloroform	<1.0	OWP	1.0	ug/L		10-SEP-21	R5582148
1,2-Dibromoethane	<0.20	OWP	0.20	ug/L		10-SEP-21	R5582148
1,2-Dichlorobenzene	<0.50	OWP	0.50	ug/L		10-SEP-21	R5582148
1,3-Dichlorobenzene	<0.50	OWP	0.50	ug/L		10-SEP-21	R5582148
1,4-Dichlorobenzene	<0.50	OWP	0.50	ug/L		10-SEP-21	R5582148
Dichlorodifluoromethane	<1.0	OWP	1.0	ug/L		10-SEP-21	R5582148
1,1-Dichloroethane	<0.50	OWP	0.50	ug/L		10-SEP-21	R5582148
1,2-Dichloroethane	<0.50	OWP	0.50	ug/L		10-SEP-21	R5582148
1,1-Dichloroethylene	<0.50	OWP	0.50	ug/L		10-SEP-21	R5582148
cis-1,2-Dichloroethylene	<0.50	OWP	0.50	ug/L		10-SEP-21	R5582148
trans-1,2-Dichloroethylene	<0.50	OWP	0.50	ug/L		10-SEP-21	R5582148
Dichloromethane	<2.0	OWP	2.0	ug/L		10-SEP-21	R5582148
1,2-Dichloropropane	<0.50	OWP	0.50	ug/L		10-SEP-21	R5582148
cis-1,3-Dichloropropene	<0.50	OWP	0.50	ug/L		10-SEP-21	R5582148
trans-1,3-Dichloropropene	<0.50	OWP	0.50	ug/L		10-SEP-21	R5582148

* 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
L2634894-1 EAST STORM WATER POND Sampled By: CLIENT on 01-SEP-21 @ 14:30 Matrix: WATER							
Volatile Organic Compounds							
Ethylbenzene	<0.50	OWP	0.50	ug/L		10-SEP-21	R5582148
n-Hexane	<0.50	OWP	0.50	ug/L		10-SEP-21	R5582148
Methyl Ethyl Ketone	<20	OWP	20	ug/L		10-SEP-21	R5582148
Methyl Isobutyl Ketone	<20	OWP	20	ug/L		10-SEP-21	R5582148
MTBE	<0.50	OWP	0.50	ug/L		10-SEP-21	R5582148
Styrene	<0.50	OWP	0.50	ug/L		10-SEP-21	R5582148
1,1,1,2-Tetrachloroethane	<0.50	OWP	0.50	ug/L		10-SEP-21	R5582148
1,1,2,2-Tetrachloroethane	<0.50	OWP	0.50	ug/L		10-SEP-21	R5582148
Tetrachloroethylene	<0.50	OWP	0.50	ug/L		10-SEP-21	R5582148
Toluene	<0.50	OWP	0.50	ug/L		10-SEP-21	R5582148
1,1,1-Trichloroethane	<0.50	OWP	0.50	ug/L		10-SEP-21	R5582148
1,1,2-Trichloroethane	<0.50	OWP	0.50	ug/L		10-SEP-21	R5582148
Trichloroethylene	<0.50	OWP	0.50	ug/L		10-SEP-21	R5582148
Trichlorofluoromethane	<1.0	OWP	1.0	ug/L		10-SEP-21	R5582148
Vinyl chloride	<0.50	OWP	0.50	ug/L		10-SEP-21	R5582148
o-Xylene	<0.50	OWP	0.50	ug/L		10-SEP-21	R5582148
m+p-Xylenes	<1.0	OWP	1.0	ug/L		10-SEP-21	R5582148
Xylenes (Total)	<1.1		1.1	ug/L		10-SEP-21	
Surrogate: 4-Bromofluorobenzene	102.3		70-130	%		10-SEP-21	R5582148
Surrogate: 1,4-Difluorobenzene	99.4		70-130	%		10-SEP-21	R5582148
Trihalomethanes							
Total THMs	<2.0		2.0	ug/L		10-SEP-21	
Acid Extractables							
2,3,6-Trichlorophenol	<0.50		0.50	ug/L	10-SEP-21	13-SEP-21	R5583034
Surrogate: 2,4,6-Tribromophenol	130.7		40-150	%	10-SEP-21	13-SEP-21	R5583034
Semi-Volatile Organics							
Acenaphthene	<0.20		0.20	ug/L	10-SEP-21	13-SEP-21	R5583123
Acenaphthylene	<0.20		0.20	ug/L	10-SEP-21	13-SEP-21	R5583123
Anthracene	<0.20		0.20	ug/L	10-SEP-21	13-SEP-21	R5583123
Benzo(a)anthracene	<0.20		0.20	ug/L	10-SEP-21	13-SEP-21	R5583123
Benzo(a)pyrene	<0.050		0.050	ug/L	10-SEP-21	13-SEP-21	R5583123
Benzo(b)fluoranthene	<0.20		0.20	ug/L	10-SEP-21	13-SEP-21	R5583123
Benzo(ghi)perylene	<0.20		0.20	ug/L	10-SEP-21	13-SEP-21	R5583123
Benzo(k)fluoranthene	<0.20		0.20	ug/L	10-SEP-21	13-SEP-21	R5583123
4-Chloroaniline	<0.40		0.40	ug/L	10-SEP-21	13-SEP-21	R5583123
Bis(2-chloroethyl)ether	<0.40		0.40	ug/L	10-SEP-21	13-SEP-21	R5583123
2-Chlorophenol	<0.30		0.30	ug/L	10-SEP-21	13-SEP-21	R5583123
Chrysene	<0.20		0.20	ug/L	10-SEP-21	13-SEP-21	R5583123
Dibenz(a,h)anthracene	<0.20		0.20	ug/L	10-SEP-21	13-SEP-21	R5583123
1,2-Dichlorobenzene	<0.40		0.40	ug/L	10-SEP-21	13-SEP-21	R5583123
1,3-Dichlorobenzene	<0.40		0.40	ug/L	10-SEP-21	13-SEP-21	R5583123
1,4-Dichlorobenzene	<0.40		0.40	ug/L	10-SEP-21	13-SEP-21	R5583123

* 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
L2634894-1 EAST STORM WATER POND Sampled By: CLIENT on 01-SEP-21 @ 14:30 Matrix: WATER							
Semi-Volatile Organics							
3,3-Dichlorobenzidine	<0.40		0.40	ug/L	10-SEP-21	13-SEP-21	R5583123
2,4-Dichlorophenol	<0.30		0.30	ug/L	10-SEP-21	13-SEP-21	R5583123
Diethylphthalate	<0.20		0.20	ug/L	10-SEP-21	13-SEP-21	R5583123
Dimethylphthalate	<0.20		0.20	ug/L	10-SEP-21	13-SEP-21	R5583123
2,4-Dimethylphenol	<0.50		0.50	ug/L	10-SEP-21	13-SEP-21	R5583123
2,4-Dinitrophenol	<1.0		1.0	ug/L	10-SEP-21	13-SEP-21	R5583123
2,4-Dinitrotoluene	<0.40		0.40	ug/L	10-SEP-21	13-SEP-21	R5583123
2,6-Dinitrotoluene	<0.40		0.40	ug/L	10-SEP-21	13-SEP-21	R5583123
Bis(2-ethylhexyl)phthalate	<2.0		2.0	ug/L	10-SEP-21	13-SEP-21	R5583123
Fluoranthene	<0.20		0.20	ug/L	10-SEP-21	13-SEP-21	R5583123
Fluorene	<0.20		0.20	ug/L	10-SEP-21	13-SEP-21	R5583123
Hexachlorobenzene	<0.040		0.040	ug/L	10-SEP-21	13-SEP-21	R5583123
Hexachlorobutadiene	<0.20		0.20	ug/L	10-SEP-21	13-SEP-21	R5583123
Indeno(1,2,3-cd)pyrene	<0.20		0.20	ug/L	10-SEP-21	13-SEP-21	R5583123
1-Methylnaphthalene	<0.40		0.40	ug/L	10-SEP-21	13-SEP-21	R5583123
2-Methylnaphthalene	<0.40		0.40	ug/L	10-SEP-21	13-SEP-21	R5583123
Naphthalene	<0.20		0.20	ug/L	10-SEP-21	13-SEP-21	R5583123
Pentachlorophenol	<0.50		0.50	ug/L	10-SEP-21	13-SEP-21	R5583123
Perylene	<0.20		0.20	ug/L	10-SEP-21	13-SEP-21	R5583123
Phenanthrene	<0.20		0.20	ug/L	10-SEP-21	13-SEP-21	R5583123
Pyrene	<0.20		0.20	ug/L	10-SEP-21	13-SEP-21	R5583123
2,3,4,5-Tetrachlorophenol	<0.50		0.50	ug/L	10-SEP-21	13-SEP-21	R5583123
2,3,4,6-Tetrachlorophenol	<0.50		0.50	ug/L	10-SEP-21	13-SEP-21	R5583123
1,2,4-Trichlorobenzene	<0.40		0.40	ug/L	10-SEP-21	13-SEP-21	R5583123
2,4,5-Trichlorophenol	<0.50		0.50	ug/L	10-SEP-21	13-SEP-21	R5583123
2,4,6-Trichlorophenol	<0.50		0.50	ug/L	10-SEP-21	13-SEP-21	R5583123
Surrogate: 2-Fluorobiphenyl	94.9		40-130	%	10-SEP-21	13-SEP-21	R5583123
Surrogate: Nitrobenzene d5	100.4		40-130	%	10-SEP-21	13-SEP-21	R5583123
Surrogate: d14-Terphenyl	114.6		40-130	%	10-SEP-21	13-SEP-21	R5583123
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)
Method Blank	Calcium (Ca)-Total	B	L2634894-1
Method Blank	Magnesium (Mg)-Total	B	L2634894-1
Laboratory Control Sample	2,4-Dinitrophenol	LCS-H	L2634894-1
Laboratory Control Sample	Pentachlorophenol	LCS-H	L2634894-1
Laboratory Control Sample	3,3-Dichlorobenzidine	LCS-ND	L2634894-1
Matrix Spike	Dissolved Organic Carbon	MS-B	L2634894-1
Matrix Spike	Aluminum (Al)-Total	MS-B	L2634894-1
Matrix Spike	Barium (Ba)-Total	MS-B	L2634894-1
Matrix Spike	Calcium (Ca)-Total	MS-B	L2634894-1
Matrix Spike	Iron (Fe)-Total	MS-B	L2634894-1
Matrix Spike	Magnesium (Mg)-Total	MS-B	L2634894-1
Matrix Spike	Manganese (Mn)-Total	MS-B	L2634894-1
Matrix Spike	Potassium (K)-Total	MS-B	L2634894-1
Matrix Spike	Silicon (Si)-Total	MS-B	L2634894-1
Matrix Spike	Sodium (Na)-Total	MS-B	L2634894-1
Matrix Spike	Strontium (Sr)-Total	MS-B	L2634894-1
Matrix Spike	Zinc (Zn)-Total	MS-B	L2634894-1
Matrix Spike	Ammonia, Total (as N)	MS-B	L2634894-1
Matrix Spike	Total Kjeldahl Nitrogen	MS-B	L2634894-1

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).
LCS-H	Lab Control Sample recovery was above ALS DQO. Non-detected sample results are considered reliable. Other results, if reported, have been qualified.
LCS-ND	Lab Control Sample recovery was slightly outside ALS DQO. Reported non-detect results for associated samples were unaffected.
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.
OWP	Organic water sample contained visible sediment (must be included as part of analysis). Measured concentrations of organic substances in water can be biased high due to presence of sediment.

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)	APHA 2320B

This analysis is carried out using procedures adapted from APHA Method 2320 "Alkalinity". Total alkalinity is determined by potentiometric titration to a pH 4.5 endpoint.

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).

Reference Information

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.

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 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

Reference Information

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

PH,TEMP-CLIENT-WT	Water	pH & Temperature	Results supplied by client
PH-WT	Water	pH	APHA 4500 H-Electrode

Water samples are analyzed directly by a calibrated pH meter.

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

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

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

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

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

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

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

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

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

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

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

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

Total Kjeldahl Nitrogen is determined using block digestion followed by Flow-injection analysis with fluorescence detection

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

Aqueous samples are analyzed by headspace-GC/MS.

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

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

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

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

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

Chain of Custody Numbers:

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

Client: GHD Limited (Waterloo)
455 Phillip St
Waterloo ON N2L3X2
Contact: Stephanie Berton

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
625-ACID-EXTRA-WT	**Water**							
Batch R5583034								
WG3615043-2 LCS								
2,3,6-Trichlorophenol			104.4		%		50-130	13-SEP-21
WG3615043-1 MB								
2,3,6-Trichlorophenol			<0.20		ug/L		0.2	13-SEP-21
Surrogate: 2,4,6-Tribromophenol			95.0		%		40-150	13-SEP-21
625-WT	**Water**							
Batch R5583123								
WG3615043-2 LCS								
1-Methylnaphthalene			80.9		%		50-140	13-SEP-21
1,2-Dichlorobenzene			80.6		%		40-130	13-SEP-21
1,2,4-Trichlorobenzene			75.0		%		50-130	13-SEP-21
1,3-Dichlorobenzene			74.7		%		50-140	13-SEP-21
1,4-Dichlorobenzene			77.2		%		40-130	13-SEP-21
2-Chlorophenol			87.2		%		65-130	13-SEP-21
2-Methylnaphthalene			84.5		%		50-140	13-SEP-21
2,3,4,5-Tetrachlorophenol			114.7		%		50-130	13-SEP-21
2,3,4,6-Tetrachlorophenol			107.3		%		65-130	13-SEP-21
2,4-Dichlorophenol			98.8		%		65-130	13-SEP-21
2,4-Dimethylphenol			105.3		%		30-130	13-SEP-21
2,4-Dinitrophenol			162.3	LCS-H	%		40-140	13-SEP-21
2,4-Dinitrotoluene			111.0		%		50-140	13-SEP-21
2,4,5-Trichlorophenol			108.2		%		65-130	13-SEP-21
2,4,6-Trichlorophenol			103.8		%		65-130	13-SEP-21
2,6-Dinitrotoluene			102.9		%		50-140	13-SEP-21
3,3-Dichlorobenzidine			22.1	LCS-ND	%		50-140	13-SEP-21
4-Chloroaniline			54.1		%		30-140	13-SEP-21
Acenaphthene			86.0		%		50-140	13-SEP-21
Acenaphthylene			80.8		%		50-140	13-SEP-21
Anthracene			85.1		%		50-140	13-SEP-21
Benzo(a)anthracene			91.7		%		50-140	13-SEP-21
Benzo(a)pyrene			74.7		%		60-130	13-SEP-21
Benzo(b)fluoranthene			70.2		%		50-140	13-SEP-21
Benzo(ghi)perylene			79.3		%		50-140	13-SEP-21
Benzo(k)fluoranthene			94.5		%		50-140	13-SEP-21
Bis(2-chloroethyl)ether			82.9		%		50-140	13-SEP-21

Quality Control Report

Client: GHD Limited (Waterloo)
455 Phillip St
Waterloo ON N2L3X2
Contact: Stephanie Berton

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
625-WT	**Water**							
Batch R5583123								
WG3615043-2 LCS								
Bis(2-ethylhexyl)phthalate			86.9		%		50-140	13-SEP-21
Chrysene			85.0		%		50-140	13-SEP-21
Dibenz(a,h)anthracene			81.6		%		50-140	13-SEP-21
Diethylphthalate			90.7		%		50-140	13-SEP-21
Dimethylphthalate			90.1		%		50-140	13-SEP-21
Fluoranthene			78.9		%		50-140	13-SEP-21
Fluorene			84.0		%		50-140	13-SEP-21
Hexachlorobenzene			76.3		%		40-130	13-SEP-21
Hexachlorobutadiene			69.5		%		40-130	13-SEP-21
Indeno(1,2,3-cd)pyrene			83.2		%		50-140	13-SEP-21
Naphthalene			85.6		%		50-140	13-SEP-21
Pentachlorophenol			141.6	LCS-H	%		60-130	13-SEP-21
Perylene			74.0		%		50-140	13-SEP-21
Phenanthrene			86.3		%		50-140	13-SEP-21
Pyrene			77.2		%		50-140	13-SEP-21
WG3615043-1 MB								
1-Methylnaphthalene			<0.40		ug/L		0.4	13-SEP-21
1,2-Dichlorobenzene			<0.40		ug/L		0.4	13-SEP-21
1,2,4-Trichlorobenzene			<0.40		ug/L		0.4	13-SEP-21
1,3-Dichlorobenzene			<0.40		ug/L		0.4	13-SEP-21
1,4-Dichlorobenzene			<0.40		ug/L		0.4	13-SEP-21
2-Chlorophenol			<0.30		ug/L		0.3	13-SEP-21
2-Methylnaphthalene			<0.40		ug/L		0.4	13-SEP-21
2,3,4,5-Tetrachlorophenol			<0.50		ug/L		0.5	13-SEP-21
2,3,4,6-Tetrachlorophenol			<0.50		ug/L		0.5	13-SEP-21
2,4-Dichlorophenol			<0.30		ug/L		0.3	13-SEP-21
2,4-Dimethylphenol			<0.50		ug/L		0.5	13-SEP-21
2,4-Dinitrophenol			<1.0		ug/L		1	13-SEP-21
2,4-Dinitrotoluene			<0.40		ug/L		0.4	13-SEP-21
2,4,5-Trichlorophenol			<0.50		ug/L		0.5	13-SEP-21
2,4,6-Trichlorophenol			<0.50		ug/L		0.5	13-SEP-21
2,6-Dinitrotoluene			<0.40		ug/L		0.4	13-SEP-21
3,3-Dichlorobenzidine			<0.40		ug/L		0.4	13-SEP-21
4-Chloroaniline			<0.40		ug/L		0.4	13-SEP-21

Quality Control Report

Client: GHD Limited (Waterloo)
455 Phillip St
Waterloo ON N2L3X2
Contact: Stephanie Berton

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
625-WT	**Water**							
Batch R5583123								
WG3615043-1 MB								
Acenaphthene			<0.20		ug/L		0.2	13-SEP-21
Acenaphthylene			<0.20		ug/L		0.2	13-SEP-21
Anthracene			<0.20		ug/L		0.2	13-SEP-21
Benzo(a)anthracene			<0.20		ug/L		0.2	13-SEP-21
Benzo(a)pyrene			<0.050		ug/L		0.05	13-SEP-21
Benzo(b)fluoranthene			<0.20		ug/L		0.2	13-SEP-21
Benzo(ghi)perylene			<0.20		ug/L		0.2	13-SEP-21
Benzo(k)fluoranthene			<0.20		ug/L		0.2	13-SEP-21
Bis(2-chloroethyl)ether			<0.40		ug/L		0.4	13-SEP-21
Bis(2-ethylhexyl)phthalate			<1.0		ug/L		1	13-SEP-21
Chrysene			<0.20		ug/L		0.2	13-SEP-21
Dibenz(a,h)anthracene			<0.20		ug/L		0.2	13-SEP-21
Diethylphthalate			<0.20		ug/L		0.2	13-SEP-21
Dimethylphthalate			<0.20		ug/L		0.2	13-SEP-21
Fluoranthene			<0.20		ug/L		0.2	13-SEP-21
Fluorene			<0.20		ug/L		0.2	13-SEP-21
Hexachlorobenzene			<0.040		ug/L		0.04	13-SEP-21
Hexachlorobutadiene			<0.20		ug/L		0.2	13-SEP-21
Indeno(1,2,3-cd)pyrene			<0.20		ug/L		0.2	13-SEP-21
Naphthalene			<0.20		ug/L		0.2	13-SEP-21
Pentachlorophenol			<0.50		ug/L		0.5	13-SEP-21
Perylene			<0.20		ug/L		0.2	13-SEP-21
Phenanthrene			<0.20		ug/L		0.2	13-SEP-21
Pyrene			<0.20		ug/L		0.2	13-SEP-21
Surrogate: 2-Fluorobiphenyl			78.5		%		40-130	13-SEP-21
Surrogate: Nitrobenzene d5			83.7		%		40-130	13-SEP-21
Surrogate: d14-Terphenyl			106.8		%		40-130	13-SEP-21
WG3615043-4 MS		**WG3615043-3**						
2-Chlorophenol			90.6		%		50-150	13-SEP-21
2,4-Dichlorophenol			113.8		%		50-150	13-SEP-21
2,4,5-Trichlorophenol			122.7		%		50-150	13-SEP-21
2,4,6-Trichlorophenol			116.7		%		50-150	13-SEP-21
ALK-WT	**Water**							

Quality Control Report

Client: GHD Limited (Waterloo)
455 Phillip St
Waterloo ON N2L3X2
Contact: Stephanie Berton

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
ALK-WT	**Water**							
Batch R5579603								
WG3610982-4 DUP		**WG3610982-3**						
Alkalinity, Total (as CaCO3)		102	101		mg/L	0.8	20	03-SEP-21
WG3610982-2 LCS								
Alkalinity, Total (as CaCO3)			109.7		%		85-115	03-SEP-21
WG3610982-1 MB								
Alkalinity, Total (as CaCO3)			<1.0		mg/L		1	03-SEP-21
BR-IC-N-WT	**Water**							
Batch R5580808								
WG3612597-8 DUP		**WG3612597-10**						
Bromide (Br)		<0.10	<0.10	RPD-NA	mg/L	N/A	20	07-SEP-21
WG3612597-7 LCS								
Bromide (Br)			99.1		%		85-115	07-SEP-21
WG3612597-6 MB								
Bromide (Br)			<0.10		mg/L		0.1	07-SEP-21
WG3612597-9 MS		**WG3612597-10**						
Bromide (Br)			104.0		%		75-125	07-SEP-21
CL-IC-N-WT	**Water**							
Batch R5580808								
WG3612597-8 DUP		**WG3612597-10**						
Chloride (Cl)		1.34	1.34		mg/L	0.0	20	07-SEP-21
WG3612597-7 LCS								
Chloride (Cl)			102.7		%		90-110	07-SEP-21
WG3612597-6 MB								
Chloride (Cl)			<0.50		mg/L		0.5	07-SEP-21
WG3612597-9 MS		**WG3612597-10**						
Chloride (Cl)			106.5		%		75-125	07-SEP-21
CN-TOT-WT	**Water**							
Batch R5577945								
WG3610968-19 DUP		**WG3610968-17**						
Cyanide, Total		<0.0020	<0.0020	RPD-NA	mg/L	N/A	20	07-SEP-21
WG3610968-16 LCS								
Cyanide, Total			92.7		%		80-120	07-SEP-21
WG3610968-15 MB								
Cyanide, Total			<0.0020		mg/L		0.002	07-SEP-21
WG3610968-18 MS		**WG3610968-17**						
Cyanide, Total			89.0		%		70-130	07-SEP-21
COD-T-WT	**Water**							

Quality Control Report

Client: GHD Limited (Waterloo)
455 Phillip St
Waterloo ON N2L3X2
Contact: Stephanie Berton

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
COD-T-WT	**Water**							
Batch R5579890								
WG3612139-3 DUP		**L2634829-1**						
COD		<10	<10	RPD-NA	mg/L	N/A	20	07-SEP-21
WG3612139-2 LCS								
COD			99.1		%		85-115	07-SEP-21
WG3612139-1 MB								
COD			<10		mg/L		10	07-SEP-21
WG3612139-4 MS		**L2634829-1**						
COD			99.8		%		75-125	07-SEP-21
CR-CR6-IC-WT	**Water**							
Batch R5580125								
WG3611271-4 DUP		**WG3611271-3**						
Chromium, Hexavalent		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	03-SEP-21
WG3611271-2 LCS								
Chromium, Hexavalent			93.6		%		80-120	03-SEP-21
WG3611271-1 MB								
Chromium, Hexavalent			<0.00050		mg/L		0.0005	03-SEP-21
WG3611271-5 MS		**WG3611271-3**						
Chromium, Hexavalent			93.9		%		70-130	03-SEP-21
DOC-WT	**Water**							
Batch R5581449								
WG3611378-3 DUP		**WG3611378-5**						
Dissolved Organic Carbon		49.0	52.5		mg/L	6.8	20	09-SEP-21
WG3611378-2 LCS								
Dissolved Organic Carbon			97.9		%		80-120	09-SEP-21
WG3611378-1 MB								
Dissolved Organic Carbon			<0.50		mg/L		0.5	09-SEP-21
WG3611378-4 MS		**WG3611378-5**						
Dissolved Organic Carbon			N/A	MS-B	%		-	09-SEP-21
EC-WT	**Water**							
Batch R5579603								
WG3610982-4 DUP		**WG3610982-3**						
Conductivity		762	755		umhos/cm	0.9	10	03-SEP-21
WG3610982-2 LCS								
Conductivity			103.2		%		90-110	03-SEP-21
WG3610982-1 MB								
Conductivity			<2.0		umhos/cm		2	03-SEP-21
F-IC-N-WT	**Water**							

Quality Control Report

Client: GHD Limited (Waterloo)
455 Phillip St
Waterloo ON N2L3X2
Contact: Stephanie Berton

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
F-IC-N-WT	**Water**							
Batch R5580808								
WG3612597-8 DUP		**WG3612597-10**						
Fluoride (F)		0.025	0.025		mg/L	0.4	20	07-SEP-21
WG3612597-7 LCS								
Fluoride (F)			103.3		%		90-110	07-SEP-21
WG3612597-6 MB								
Fluoride (F)			<0.020		mg/L		0.02	07-SEP-21
WG3612597-9 MS		**WG3612597-10**						
Fluoride (F)			106.4		%		75-125	07-SEP-21
HG-T-CVAA-WT	**Water**							
Batch R5580714								
WG3612468-3 DUP		**L2634169-9**						
Mercury (Hg)-Total		<0.0000050	0.0000055	RPD-NA	mg/L	N/A	20	08-SEP-21
WG3612468-2 LCS								
Mercury (Hg)-Total			96.8		%		80-120	08-SEP-21
WG3612468-1 MB								
Mercury (Hg)-Total			<0.000005(		mg/L		0.000005	08-SEP-21
WG3612468-4 MS		**L2634169-10**						
Mercury (Hg)-Total			95.2		%		70-130	08-SEP-21
MET-T-CCMS-WT	**Water**							
Batch R5577923								
WG3610737-4 DUP		**WG3610737-3**						
Aluminum (Al)-Total		2.59	2.51		mg/L	3.0	20	03-SEP-21
Antimony (Sb)-Total		0.00029	0.00030		mg/L	0.8	20	03-SEP-21
Arsenic (As)-Total		0.00087	0.00087		mg/L	0.0	20	03-SEP-21
Barium (Ba)-Total		0.147	0.147		mg/L	0.4	20	03-SEP-21
Beryllium (Be)-Total		0.00012	0.00012		mg/L	6.0	20	03-SEP-21
Bismuth (Bi)-Total		<0.000050	<0.000050	RPD-NA	mg/L	N/A	20	03-SEP-21
Boron (B)-Total		0.016	0.016		mg/L	0.5	20	03-SEP-21
Cadmium (Cd)-Total		0.0000320	0.0000399	J	mg/L	0.0000079	0.00001	03-SEP-21
Calcium (Ca)-Total		36.5	35.8		mg/L	1.9	20	03-SEP-21
Cobalt (Co)-Total		0.00185	0.00188		mg/L	1.7	20	03-SEP-21
Copper (Cu)-Total		0.00997	0.00997		mg/L	0.1	20	03-SEP-21
Iron (Fe)-Total		7.73	7.79		mg/L	0.8	20	03-SEP-21
Lead (Pb)-Total		0.00222	0.00229		mg/L	3.1	20	03-SEP-21
Magnesium (Mg)-Total		4.41	4.47		mg/L	1.3	20	03-SEP-21
Manganese (Mn)-Total		0.117	0.117		mg/L	0.6	20	03-SEP-21

Quality Control Report

Client: GHD Limited (Waterloo)
455 Phillip St
Waterloo ON N2L3X2
Contact: Stephanie Berton

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-WT	**Water**							
Batch R5577923								
WG3610737-4 DUP		**WG3610737-3**						
Molybdenum (Mo)-Total		0.00102	0.000999		mg/L	2.4	20	03-SEP-21
Nickel (Ni)-Total		0.00585	0.00560		mg/L	4.4	20	03-SEP-21
Potassium (K)-Total		2.30	2.28		mg/L	0.6	20	03-SEP-21
Selenium (Se)-Total		0.000180	0.000234	J	mg/L	0.000054	0.0001	03-SEP-21
Silicon (Si)-Total		5.50	5.32		mg/L	3.4	20	03-SEP-21
Silver (Ag)-Total		<0.000050	<0.000050	RPD-NA	mg/L	N/A	20	03-SEP-21
Sodium (Na)-Total		4.37	4.28		mg/L	2.0	20	03-SEP-21
Strontium (Sr)-Total		0.0940	0.0931		mg/L	0.9	20	03-SEP-21
Thallium (Tl)-Total		0.000043	0.000042		mg/L	1.4	20	03-SEP-21
Tin (Sn)-Total		0.00049	0.00049		mg/L	0.6	20	03-SEP-21
Vanadium (V)-Total		0.00555	0.00566		mg/L	2.0	20	03-SEP-21
Zinc (Zn)-Total		0.647	0.661		mg/L	2.0	20	03-SEP-21
WG3610737-2 LCS								
Aluminum (Al)-Total			107.0		%		80-120	03-SEP-21
Antimony (Sb)-Total			102.3		%		80-120	03-SEP-21
Arsenic (As)-Total			101.2		%		80-120	03-SEP-21
Barium (Ba)-Total			100.4		%		80-120	03-SEP-21
Beryllium (Be)-Total			98.6		%		80-120	03-SEP-21
Bismuth (Bi)-Total			96.9		%		80-120	03-SEP-21
Boron (B)-Total			94.4		%		80-120	03-SEP-21
Cadmium (Cd)-Total			95.8		%		80-120	03-SEP-21
Calcium (Ca)-Total			97.4		%		80-120	03-SEP-21
Cobalt (Co)-Total			96.8		%		80-120	03-SEP-21
Copper (Cu)-Total			96.8		%		80-120	03-SEP-21
Iron (Fe)-Total			98.9		%		80-120	03-SEP-21
Lead (Pb)-Total			98.3		%		80-120	03-SEP-21
Magnesium (Mg)-Total			99.0		%		80-120	03-SEP-21
Manganese (Mn)-Total			97.7		%		80-120	03-SEP-21
Molybdenum (Mo)-Total			103.2		%		80-120	03-SEP-21
Nickel (Ni)-Total			95.3		%		80-120	03-SEP-21
Potassium (K)-Total			99.7		%		80-120	03-SEP-21
Selenium (Se)-Total			97.8		%		80-120	03-SEP-21
Silicon (Si)-Total			105.6		%		60-140	03-SEP-21

Quality Control Report

Client: GHD Limited (Waterloo)
455 Phillip St
Waterloo ON N2L3X2
Contact: Stephanie Berton

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-WT	**Water**							
Batch R5577923								
WG3610737-2 LCS								
Silver (Ag)-Total			99.7		%		80-120	03-SEP-21
Sodium (Na)-Total			97.7		%		80-120	03-SEP-21
Strontium (Sr)-Total			102.9		%		80-120	03-SEP-21
Thallium (Tl)-Total			98.9		%		80-120	03-SEP-21
Tin (Sn)-Total			98.0		%		80-120	03-SEP-21
Vanadium (V)-Total			99.0		%		80-120	03-SEP-21
Zinc (Zn)-Total			102.4		%		80-120	03-SEP-21
WG3610737-1 MB								
Aluminum (Al)-Total			<0.0050		mg/L		0.005	07-SEP-21
Antimony (Sb)-Total			<0.00010		mg/L		0.0001	03-SEP-21
Arsenic (As)-Total			<0.00010		mg/L		0.0001	03-SEP-21
Barium (Ba)-Total			<0.00010		mg/L		0.0001	03-SEP-21
Beryllium (Be)-Total			<0.00010		mg/L		0.0001	03-SEP-21
Bismuth (Bi)-Total			<0.000050		mg/L		0.00005	03-SEP-21
Boron (B)-Total			<0.010		mg/L		0.01	03-SEP-21
Cadmium (Cd)-Total			<0.000005(		mg/L		0.000005	03-SEP-21
Calcium (Ca)-Total			0.060	B	mg/L		0.05	03-SEP-21
Cobalt (Co)-Total			<0.00010		mg/L		0.0001	03-SEP-21
Copper (Cu)-Total			<0.00050		mg/L		0.0005	03-SEP-21
Iron (Fe)-Total			<0.010		mg/L		0.01	03-SEP-21
Lead (Pb)-Total			<0.000050		mg/L		0.00005	03-SEP-21
Magnesium (Mg)-Total			0.0286	B	mg/L		0.005	03-SEP-21
Manganese (Mn)-Total			<0.00050		mg/L		0.0005	03-SEP-21
Molybdenum (Mo)-Total			<0.000050		mg/L		0.00005	03-SEP-21
Nickel (Ni)-Total			<0.00050		mg/L		0.0005	03-SEP-21
Potassium (K)-Total			<0.050		mg/L		0.05	03-SEP-21
Selenium (Se)-Total			<0.000050		mg/L		0.00005	03-SEP-21
Silicon (Si)-Total			<0.10		mg/L		0.1	03-SEP-21
Silver (Ag)-Total			<0.000050		mg/L		0.00005	03-SEP-21
Sodium (Na)-Total			<0.050		mg/L		0.05	03-SEP-21
Strontium (Sr)-Total			<0.0010		mg/L		0.001	03-SEP-21
Thallium (Tl)-Total			<0.000010		mg/L		0.00001	03-SEP-21
Tin (Sn)-Total			<0.00010		mg/L		0.0001	03-SEP-21
Vanadium (V)-Total			<0.00050		mg/L		0.0005	03-SEP-21

Quality Control Report

Client: GHD Limited (Waterloo)
455 Phillip St
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Contact: Stephanie Berton

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-WT	**Water**							
Batch R5577923								
WG3610737-1 MB								
Zinc (Zn)-Total			<0.0030		mg/L		0.003	03-SEP-21
WG3610737-5 MS		**WG3610737-6**						
Aluminum (Al)-Total			N/A	MS-B	%		-	03-SEP-21
Antimony (Sb)-Total			103.8		%		70-130	03-SEP-21
Arsenic (As)-Total			104.3		%		70-130	03-SEP-21
Barium (Ba)-Total			N/A	MS-B	%		-	03-SEP-21
Beryllium (Be)-Total			97.5		%		70-130	03-SEP-21
Bismuth (Bi)-Total			94.8		%		70-130	03-SEP-21
Boron (B)-Total			94.6		%		70-130	03-SEP-21
Cadmium (Cd)-Total			97.6		%		70-130	03-SEP-21
Calcium (Ca)-Total			N/A	MS-B	%		-	03-SEP-21
Cobalt (Co)-Total			97.2		%		70-130	03-SEP-21
Copper (Cu)-Total			93.6		%		70-130	03-SEP-21
Iron (Fe)-Total			N/A	MS-B	%		-	03-SEP-21
Lead (Pb)-Total			96.8		%		70-130	03-SEP-21
Magnesium (Mg)-Total			N/A	MS-B	%		-	03-SEP-21
Manganese (Mn)-Total			N/A	MS-B	%		-	03-SEP-21
Molybdenum (Mo)-Total			103.3		%		70-130	03-SEP-21
Nickel (Ni)-Total			95.1		%		70-130	03-SEP-21
Potassium (K)-Total			N/A	MS-B	%		-	03-SEP-21
Selenium (Se)-Total			102.9		%		70-130	03-SEP-21
Silicon (Si)-Total			N/A	MS-B	%		-	03-SEP-21
Silver (Ag)-Total			97.3		%		70-130	03-SEP-21
Sodium (Na)-Total			N/A	MS-B	%		-	03-SEP-21
Strontium (Sr)-Total			N/A	MS-B	%		-	03-SEP-21
Thallium (Tl)-Total			97.6		%		70-130	03-SEP-21
Tin (Sn)-Total			100.5		%		70-130	03-SEP-21
Vanadium (V)-Total			101.2		%		70-130	03-SEP-21
Zinc (Zn)-Total			N/A	MS-B	%		-	03-SEP-21
NH3-F-WT	**Water**							
Batch R5580043								
WG3611031-3 DUP		**L2634882-3**						
Ammonia, Total (as N)		0.122	0.106		mg/L	13	20	03-SEP-21
WG3611031-2 LCS								

Quality Control Report

Client: GHD Limited (Waterloo)
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Contact: Stephanie Berton

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
NH3-F-WT	**Water**							
Batch R5580043								
WG3611031-2 LCS								
Ammonia, Total (as N)			109.9		%		85-115	03-SEP-21
WG3611031-1 MB								
Ammonia, Total (as N)			<0.010		mg/L		0.01	03-SEP-21
WG3611031-4 MS		**L2634882-3**						
Ammonia, Total (as N)			N/A	MS-B	%		-	03-SEP-21
NO2-IC-WT	**Water**							
Batch R5580808								
WG3612597-8 DUP		**WG3612597-10**						
Nitrite (as N)		<0.010	<0.010	RPD-NA	mg/L	N/A	20	07-SEP-21
WG3612597-7 LCS								
Nitrite (as N)			102.0		%		90-110	07-SEP-21
WG3612597-6 MB								
Nitrite (as N)			<0.010		mg/L		0.01	07-SEP-21
WG3612597-9 MS		**WG3612597-10**						
Nitrite (as N)			105.8		%		75-125	07-SEP-21
NO3-IC-WT	**Water**							
Batch R5580808								
WG3612597-8 DUP		**WG3612597-10**						
Nitrate (as N)		<0.020	<0.020	RPD-NA	mg/L	N/A	20	07-SEP-21
WG3612597-7 LCS								
Nitrate (as N)			102.1		%		90-110	07-SEP-21
WG3612597-6 MB								
Nitrate (as N)			<0.020		mg/L		0.02	07-SEP-21
WG3612597-9 MS		**WG3612597-10**						
Nitrate (as N)			104.6		%		75-125	07-SEP-21
P-T-COL-WT	**Water**							
Batch R5580135								
WG3610879-3 DUP		**L2634912-1**						
Phosphorus, Total		0.0296	0.0301		mg/L	1.5	20	07-SEP-21
WG3610879-2 LCS								
Phosphorus, Total			106.1		%		80-120	07-SEP-21
WG3610879-1 MB								
Phosphorus, Total			<0.0030		mg/L		0.003	07-SEP-21
WG3610879-4 MS		**L2634912-1**						
Phosphorus, Total			99.2		%		70-130	07-SEP-21
PH-WT	**Water**							

Quality Control Report

Client: GHD Limited (Waterloo)
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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PH-WT	**Water**							
Batch R5579603								
WG3610982-4 DUP		**WG3610982-3**						
pH		8.33	8.33	J	pH units	0.00	0.2	03-SEP-21
WG3610982-2 LCS								
pH			6.99		pH units		6.9-7.1	03-SEP-21
PHENOLS-4AAP-WT	**Water**							
Batch R5578677								
WG3611191-3 DUP		**L2635091-1**						
Phenols (4AAP)		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	03-SEP-21
WG3611191-2 LCS								
Phenols (4AAP)			96.3		%		85-115	03-SEP-21
WG3611191-1 MB								
Phenols (4AAP)			<0.0010		mg/L		0.001	03-SEP-21
WG3611191-4 MS		**L2635091-1**						
Phenols (4AAP)			102.1		%		75-125	03-SEP-21
SO4-IC-N-WT	**Water**							
Batch R5580808								
WG3612597-8 DUP		**WG3612597-10**						
Sulfate (SO4)		3.74	3.73		mg/L	0.1	20	07-SEP-21
WG3612597-7 LCS								
Sulfate (SO4)			104.0		%		90-110	07-SEP-21
WG3612597-6 MB								
Sulfate (SO4)			<0.30		mg/L		0.3	07-SEP-21
WG3612597-9 MS		**WG3612597-10**						
Sulfate (SO4)			108.0		%		75-125	07-SEP-21
SOLIDS-TDS-WT	**Water**							
Batch R5582192								
WG3613207-3 DUP		**L2635789-5**						
Total Dissolved Solids		141	138		mg/L	2.1	20	08-SEP-21
WG3613207-2 LCS								
Total Dissolved Solids			101.8		%		85-115	08-SEP-21
WG3613207-1 MB								
Total Dissolved Solids			<10		mg/L		10	08-SEP-21
SOLIDS-TSS-WT	**Water**							
Batch R5581185								
WG3613247-3 DUP		**L2635667-1**						
Total Suspended Solids		992	998		mg/L	0.6	20	09-SEP-21
WG3613247-2 LCS								

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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
SOLIDS-TSS-WT	**Water**							
Batch R5581185								
WG3613247-2 LCS								
Total Suspended Solids			92.7		%		85-115	09-SEP-21
WG3613247-1 MB								
Total Suspended Solids			<3.0		mg/L		3	09-SEP-21
TKN-F-WT	**Water**							
Batch R5581351								
WG3611021-3 DUP		**L2634912-1**						
Total Kjeldahl Nitrogen		4.28	4.19		mg/L	2.0	20	08-SEP-21
WG3611021-1 MB								
Total Kjeldahl Nitrogen			<0.050		mg/L		0.05	08-SEP-21
WG3611021-4 MS		**L2634912-1**						
Total Kjeldahl Nitrogen			N/A	MS-B	%		-	08-SEP-21
VOC-ROU-HS-WT	**Water**							
Batch R5582148								
WG3614156-4 DUP		**WG3614156-3**						
1,1,1,2-Tetrachloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	10-SEP-21
1,1,2,2-Tetrachloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	10-SEP-21
1,1,1-Trichloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	10-SEP-21
1,1,2-Trichloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	10-SEP-21
1,2-Dibromoethane		<0.20	<0.20	RPD-NA	ug/L	N/A	30	10-SEP-21
1,1-Dichloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	10-SEP-21
1,1-Dichloroethylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	10-SEP-21
1,2-Dichlorobenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	10-SEP-21
1,2-Dichloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	10-SEP-21
1,2-Dichloropropane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	10-SEP-21
1,3-Dichlorobenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	10-SEP-21
1,4-Dichlorobenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	10-SEP-21
Acetone		<20	<20	RPD-NA	ug/L	N/A	30	10-SEP-21
Benzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	10-SEP-21
Bromodichloromethane		<1.0	<1.0	RPD-NA	ug/L	N/A	30	10-SEP-21
Bromoform		<1.0	<1.0	RPD-NA	ug/L	N/A	30	10-SEP-21
Bromomethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	10-SEP-21
Carbon tetrachloride		<0.20	<0.20	RPD-NA	ug/L	N/A	30	10-SEP-21
Chlorobenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	10-SEP-21
Chloroethane		<1.0	<1.0	RPD-NA	ug/L	N/A	30	10-SEP-21

Quality Control Report

Client: GHD Limited (Waterloo)
455 Phillip St
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Contact: Stephanie Berton

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-ROU-HS-WT	**Water**							
Batch R5582148								
WG3614156-4 DUP		**WG3614156-3**						
Chloroform		<1.0	<1.0	RPD-NA	ug/L	N/A	30	10-SEP-21
cis-1,2-Dichloroethylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	10-SEP-21
cis-1,3-Dichloropropene		<0.30	<0.30	RPD-NA	ug/L	N/A	30	10-SEP-21
Dibromochloromethane		<1.0	<1.0	RPD-NA	ug/L	N/A	30	10-SEP-21
Dichlorodifluoromethane		<1.0	<1.0	RPD-NA	ug/L	N/A	30	10-SEP-21
Dichloromethane		<2.0	<2.0	RPD-NA	ug/L	N/A	30	10-SEP-21
Ethylbenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	10-SEP-21
m+p-Xylenes		<1.0	<0.40	RPD-NA	ug/L	N/A	30	10-SEP-21
Methyl Ethyl Ketone		<20	<20	RPD-NA	ug/L	N/A	30	10-SEP-21
Methyl Isobutyl Ketone		<20	<20	RPD-NA	ug/L	N/A	30	10-SEP-21
n-Hexane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	10-SEP-21
MTBE		<0.50	<0.50	RPD-NA	ug/L	N/A	30	10-SEP-21
o-Xylene		<0.50	<0.30	RPD-NA	ug/L	N/A	30	10-SEP-21
Styrene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	10-SEP-21
Tetrachloroethylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	10-SEP-21
Toluene		<0.50	<0.40	RPD-NA	ug/L	N/A	30	10-SEP-21
trans-1,2-Dichloroethylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	10-SEP-21
trans-1,3-Dichloropropene		<0.50	<0.30	RPD-NA	ug/L	N/A	30	10-SEP-21
Trichloroethylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	10-SEP-21
Trichlorofluoromethane		<1.0	<1.0	RPD-NA	ug/L	N/A	30	10-SEP-21
Vinyl chloride		<0.50	<0.50	RPD-NA	ug/L	N/A	30	10-SEP-21
WG3614156-1 LCS								
1,1,1,2-Tetrachloroethane			101.2		%		70-130	09-SEP-21
1,1,2,2-Tetrachloroethane			100.7		%		70-130	09-SEP-21
1,1,1-Trichloroethane			99.7		%		70-130	09-SEP-21
1,1,2-Trichloroethane			104.0		%		70-130	09-SEP-21
1,2-Dibromoethane			102.2		%		70-130	09-SEP-21
1,1-Dichloroethane			102.7		%		70-130	09-SEP-21
1,1-Dichloroethylene			109.7		%		70-130	09-SEP-21
1,2-Dichlorobenzene			99.7		%		70-130	09-SEP-21
1,2-Dichloroethane			101.3		%		70-130	09-SEP-21
1,2-Dichloropropane			100.8		%		70-130	09-SEP-21
1,3-Dichlorobenzene			98.2		%		70-130	09-SEP-21

Quality Control Report

Client: GHD Limited (Waterloo)
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Contact: Stephanie Berton

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-ROU-HS-WT	**Water**							
Batch R5582148								
WG3614156-1 LCS								
1,4-Dichlorobenzene			97.7		%		70-130	09-SEP-21
Acetone			114.1		%		60-140	09-SEP-21
Benzene			98.3		%		70-130	09-SEP-21
Bromodichloromethane			104.3		%		70-130	09-SEP-21
Bromoform			98.2		%		70-130	09-SEP-21
Bromomethane			121.7		%		60-140	09-SEP-21
Carbon tetrachloride			98.6		%		70-130	09-SEP-21
Chlorobenzene			102.2		%		70-130	09-SEP-21
Chloroethane			111.6		%		70-130	09-SEP-21
Chloroform			99.9		%		70-130	09-SEP-21
cis-1,2-Dichloroethylene			102.5		%		70-130	09-SEP-21
cis-1,3-Dichloropropene			94.6		%		70-130	09-SEP-21
Dibromochloromethane			99.9		%		70-130	09-SEP-21
Dichlorodifluoromethane			103.5		%		50-140	09-SEP-21
Dichloromethane			103.3		%		70-130	09-SEP-21
Ethylbenzene			101.0		%		70-130	09-SEP-21
m+p-Xylenes			101.3		%		70-130	09-SEP-21
Methyl Ethyl Ketone			105.9		%		60-140	09-SEP-21
Methyl Isobutyl Ketone			100.1		%		50-150	09-SEP-21
n-Hexane			106.8		%		70-130	09-SEP-21
MTBE			104.1		%		70-130	09-SEP-21
o-Xylene			100.3		%		70-130	09-SEP-21
Styrene			99.3		%		70-130	09-SEP-21
Tetrachloroethylene			101.7		%		70-130	09-SEP-21
Toluene			101.2		%		70-130	09-SEP-21
trans-1,2-Dichloroethylene			103.9		%		70-130	09-SEP-21
trans-1,3-Dichloropropene			97.3		%		70-130	09-SEP-21
Trichloroethylene			98.1		%		70-130	09-SEP-21
Trichlorofluoromethane			112.6		%		60-140	09-SEP-21
Vinyl chloride			110.0		%		60-140	09-SEP-21
WG3614156-2 MB								
1,1,1,2-Tetrachloroethane			<0.50		ug/L		0.5	09-SEP-21
1,1,2,2-Tetrachloroethane			<0.50		ug/L		0.5	09-SEP-21
1,1,1-Trichloroethane			<0.50		ug/L		0.5	09-SEP-21

Quality Control Report

Client: GHD Limited (Waterloo)
455 Phillip St
Waterloo ON N2L3X2
Contact: Stephanie Berton

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-ROU-HS-WT	**Water**							
Batch R5582148								
WG3614156-2 MB								
1,1,2-Trichloroethane			<0.50		ug/L		0.5	09-SEP-21
1,2-Dibromoethane			<0.20		ug/L		0.2	09-SEP-21
1,1-Dichloroethane			<0.50		ug/L		0.5	09-SEP-21
1,1-Dichloroethylene			<0.50		ug/L		0.5	09-SEP-21
1,2-Dichlorobenzene			<0.50		ug/L		0.5	09-SEP-21
1,2-Dichloroethane			<0.50		ug/L		0.5	09-SEP-21
1,2-Dichloropropane			<0.50		ug/L		0.5	09-SEP-21
1,3-Dichlorobenzene			<0.50		ug/L		0.5	09-SEP-21
1,4-Dichlorobenzene			<0.50		ug/L		0.5	09-SEP-21
Acetone			<20		ug/L		20	09-SEP-21
Benzene			<0.50		ug/L		0.5	09-SEP-21
Bromodichloromethane			<1.0		ug/L		1	09-SEP-21
Bromoform			<1.0		ug/L		1	09-SEP-21
Bromomethane			<0.50		ug/L		0.5	09-SEP-21
Carbon tetrachloride			<0.20		ug/L		0.2	09-SEP-21
Chlorobenzene			<0.50		ug/L		0.5	09-SEP-21
Chloroethane			<1.0		ug/L		1	09-SEP-21
Chloroform			<1.0		ug/L		1	09-SEP-21
cis-1,2-Dichloroethylene			<0.50		ug/L		0.5	09-SEP-21
cis-1,3-Dichloropropene			<0.30		ug/L		0.3	09-SEP-21
Dibromochloromethane			<1.0		ug/L		1	09-SEP-21
Dichlorodifluoromethane			<1.0		ug/L		1	09-SEP-21
Dichloromethane			<2.0		ug/L		2	09-SEP-21
Ethylbenzene			<0.50		ug/L		0.5	09-SEP-21
m+p-Xylenes			<0.40		ug/L		0.4	09-SEP-21
Methyl Ethyl Ketone			<20		ug/L		20	09-SEP-21
Methyl Isobutyl Ketone			<20		ug/L		20	09-SEP-21
n-Hexane			<0.50		ug/L		0.5	09-SEP-21
MTBE			<0.50		ug/L		0.5	09-SEP-21
o-Xylene			<0.30		ug/L		0.3	09-SEP-21
Styrene			<0.50		ug/L		0.5	09-SEP-21
Tetrachloroethylene			<0.50		ug/L		0.5	09-SEP-21
Toluene			<0.40		ug/L		0.4	09-SEP-21

Quality Control Report

Client: GHD Limited (Waterloo)
455 Phillip St
Waterloo ON N2L3X2
Contact: Stephanie Berton

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-ROU-HS-WT	**Water**							
Batch R5582148								
WG3614156-2 MB								
trans-1,2-Dichloroethylene			<0.50		ug/L		0.5	09-SEP-21
trans-1,3-Dichloropropene			<0.30		ug/L		0.3	09-SEP-21
Trichloroethylene			<0.50		ug/L		0.5	09-SEP-21
Trichlorofluoromethane			<1.0		ug/L		1	09-SEP-21
Vinyl chloride			<0.50		ug/L		0.5	09-SEP-21
Surrogate: 1,4-Difluorobenzene			100.2		%		70-130	09-SEP-21
Surrogate: 4-Bromofluorobenzene			106.1		%		70-130	09-SEP-21
WG3614156-5 MS		**WG3614156-3**						
1,1,1,2-Tetrachloroethane			98.8		%		50-150	10-SEP-21
1,1,2,2-Tetrachloroethane			96.2		%		50-150	10-SEP-21
1,1,1-Trichloroethane			95.8		%		50-150	10-SEP-21
1,1,2-Trichloroethane			99.1		%		50-150	10-SEP-21
1,2-Dibromoethane			96.7		%		50-150	10-SEP-21
1,1-Dichloroethane			97.9		%		50-150	10-SEP-21
1,1-Dichloroethylene			102.7		%		50-150	10-SEP-21
1,2-Dichlorobenzene			98.1		%		50-150	10-SEP-21
1,2-Dichloroethane			95.2		%		50-150	10-SEP-21
1,2-Dichloropropane			96.5		%		50-150	10-SEP-21
1,3-Dichlorobenzene			97.2		%		50-150	10-SEP-21
1,4-Dichlorobenzene			96.1		%		50-150	10-SEP-21
Acetone			99.3		%		50-150	10-SEP-21
Benzene			93.7		%		50-150	10-SEP-21
Bromodichloromethane			100.5		%		50-150	10-SEP-21
Bromoform			93.6		%		50-150	10-SEP-21
Bromomethane			111.0		%		50-150	10-SEP-21
Carbon tetrachloride			94.8		%		50-150	10-SEP-21
Chlorobenzene			99.4		%		50-150	10-SEP-21
Chloroethane			101.9		%		50-150	10-SEP-21
Chloroform			96.1		%		50-150	10-SEP-21
cis-1,2-Dichloroethylene			97.3		%		50-150	10-SEP-21
cis-1,3-Dichloropropene			91.0		%		50-150	10-SEP-21
Dibromochloromethane			96.2		%		50-150	10-SEP-21
Dichlorodifluoromethane			96.6		%		50-150	10-SEP-21
Dichloromethane			97.0		%		50-150	10-SEP-21

Quality Control Report

Client: GHD Limited (Waterloo)
455 Phillip St
Waterloo ON N2L3X2
Contact: Stephanie Berton

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-ROU-HS-WT	**Water**							
Batch R5582148								
WG3614156-5 MS		**WG3614156-3**						
Ethylbenzene			98.7		%		50-150	10-SEP-21
m+p-Xylenes			100.0		%		50-150	10-SEP-21
Methyl Ethyl Ketone			87.6		%		50-150	10-SEP-21
Methyl Isobutyl Ketone			93.1		%		50-150	10-SEP-21
n-Hexane			98.9		%		50-150	10-SEP-21
MTBE			99.98		%		50-150	10-SEP-21
o-Xylene			98.1		%		50-150	10-SEP-21
Styrene			96.3		%		50-150	10-SEP-21
Tetrachloroethylene			99.1		%		50-150	10-SEP-21
Toluene			97.8		%		50-150	10-SEP-21
trans-1,2-Dichloroethylene			98.5		%		50-150	10-SEP-21
trans-1,3-Dichloropropene			93.2		%		50-150	10-SEP-21
Trichloroethylene			94.7		%		50-150	10-SEP-21
Trichlorofluoromethane			103.8		%		50-150	10-SEP-21
Vinyl chloride			99.0		%		50-150	10-SEP-21

Quality Control Report

Workorder: L2634894 Report Date: 13-SEP-21

Client: GHD Limited (Waterloo)
455 Phillip St
Waterloo ON N2L3X2
Contact: Stephanie Berton

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
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.
LCS-H	Lab Control Sample recovery was above ALS DQO. Non-detected sample results are considered reliable. Other results, if reported, have been qualified.
LCS-ND	Lab Control Sample recovery was slightly outside ALS DQO. Reported non-detect results for associated samples were unaffected.
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.
RPD-NA	Relative Percent Difference Not Available due to result(s) being less than detection limit.

Hold Time Exceedances:

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

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

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

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

Chain of Custody (COC) / Analyti Request Form

ALS Environmental

Canada Toll Free: 1 800 668 9878

www.alsglobal.com

L2634894-COFC

COC Number: 14 -

Page 1 of 1

Report To		Acct#13791
Company:	GHD LIMITED	
Contact:	Laura Ermeta	
Address:	455 Phillip St N2L 3X2	
Phone:	519-884-0510	

Report Format / Distribution

Select Report Format: ☑ PDF ☑ EXCEL ☑ EDD (DIGITAL)

Quality Control (QC) Report with Report ☑ Yes ☐ No

☐ Criteria on Report - provide details below if box checked

Select Distribution: ☑ EMAIL ☐ MAIL ☐ FAX

Email 1 or Fax laura.ermeta@ghd.com

Email 2 See PO

Level Below (Rush Turnaround Time (TAT) is not available for all tests)

R ☑ Regular (Standard TAT if received by 3 pm - business days)

P ☐ Priority (2-4 bus. days if received by 3pm) 50% surcharge - contact ALS to confirm TAT

E ☐ Emergency (1-2 bus. days if received by 3pm) 100% surcharge - contact ALS to confirm TAT

E2 ☐ Same day or weekend emergency - contact ALS to confirm TAT and surcharg

Specify Date Required for E2,E or P:

Invoice To	Same as Report To ☑ Yes ☐ No	
	Copy of Invoice with Report ☐ Yes ☐ No	
Company:	GHD LIMITED	
Contact:	Laura Ermeta	

Invoice Distribution

Select Invoice Distribution: ☑ EMAIL ☐ MAIL ☑ FAX

Email 1 or Fax laura.ermeta@ghd.com

Email 2

Project Information	
ALS Quote #:	
Job #:	44985-20
PO / AFE:	73506479
LSD:	

Oil and Gas Required Fields (client use)

Approver ID:	Cost Center:
GL Account:	Routing Code:
Activity Code:	
Location:	

ALS Lab Work Order # (lab use only): L2634894 JP

ALS Contact: Rick H **Sampler:**

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	ALK, Conductivity, pH, TDS, TSS, Phenols	Br, NO2, NO3, SO4, Cl, F (ANIONS-IC-6-WT)	DOC (DOC-WT), COD, TKN, TP	Total CN (CN-TOT-WT)	Un-ionized NH3 (NH3,ETL-NH3-UNION-CL	Total Metals (MET-T-CCMSS-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~~			~~Water~~	~~R~~	R	R	R	R	R	R	R	R	R				
	~~West Storm Water Pond~~			~~Water~~	~~R~~	R	R	R	R	R	R	R	R	R				
	East Storm Water Pond	01/04/21	14:30	Water	R	R	R	R	R	R	R	R	R	R		24	8.40	

Drinking Water (DW) Samples[1] (client use)

Are samples taken from a Regulated DW System? ☐ Yes ☑ No

Are samples for human drinking water use? ☐ Yes ☐ No

Special Instructions / Specify Criteria to add on report (client Use)

Please fill in Client Supplied temperature and pH for Unionized NH3 calculation

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen	☐		SIF Observations	Yes ☐	No ☐
Ice packs	Yes ☑	No ☐	Custody seal intact	Yes ☐	No ☐
Cooling Initiated	☐				

INITIAL COOLER TEMPERATURES °C			FINAL COOLER TEMPERATURES °C		
			15.8		

SHIPMENT RELEASE (client use)		
Released by: R Tobin	Date: Sept 01/21	Time: 15:15

INITIAL SHIPMENT RECEPTION (lab use only)		
Received by:	Date:	Time:

FINAL SHIPMENT RECEPTION (lab use only)		
Received by:	Date: 2021-09-01	Time: 9:00

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

NA-FM-0326e v08 Front/04 January 2014

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

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

Appendix D

Analytical Data Verification Memo

Technical Memorandum

January 18, 2022

To	Meghan O'Brien, Diana Ball, Jim Yardley	**Tel**	+1 519 884 0510
Copy to		**Email**	Stephanie.Berton@ghd.com
From	Stephanie Berton/an/75	**Ref. No.**	044985
Subject	Analytical Data Verification Surface Water Sampling Events Clean Harbors Canada Inc. Sarnia, Ontario September, October and December 2021		

1. Introduction

This document details a reduced validation of analytical of results for surface water samples collected at the Clean Harbors Canada Inc. site in Sarnia, Ontario from September, October and December 2021. Samples were submitted to ALS Canada Ltd. (ALS) located in Waterloo, Ontario. A sample collection and analysis summary is presented in Table 1. A summary of the analytical methodology is presented in Table 2.

Standard 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:

1. "National Functional Guidelines for Superfund Organic Methods Data Review", USEPA-540-R-2016-002, September 2016.
2. "National Functional Guidelines for Inorganic Superfund Methods Data Review", USEPA-540-R-2016-001, September 2016.

Items 1 and 2 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. All samples were analyzed within the required holding times.

Most samples were properly preserved, delivered with ice packs and were stored by the laboratory at the required temperature (<10°C). The samples summarized in Table 3 were qualified due to high temperature upon arrival at the laboratory.

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. Calcium and magnesium were detected in the method blank in report L2634894. 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 volatile organic compound (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 (method) control limits. All surrogate recoveries were within the laboratory control limits.

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. Select SVOCs had LCS recoveries outside acceptance limits reported. Non−detect results associated with high LCS recoveries were not qualified. Non-detect results associated with low LCS recoveries were qualified as estimated (see Table 4).

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.

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.

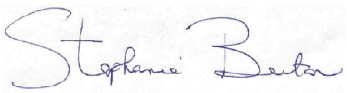
8. Total Calcium and Magnesium Data Used for Hardness Calculation

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 5).

9. Conclusion

Based on the assessment detailed in the foregoing, the data are acceptable with the specific qualifications noted herein.

Regards



Stephanie Berton
Data Management – Data Validator

Table 1

Sample Collection and Analysis Summary
Surface Water Sampling Events
Clean Harbors Canada Inc.
Sarnia, Ontario
September, October and December 2021

						Analysis/Parameters																
Lab Report #	**Sample Identification**	**Location**	**Matrix**	**Collection Date (mm/dd/yyyy)**	**Collection Time (hr:min.sec)**	**VOCs**	**SVOCs**	**Metals**	**Mercury**	**Hexavalent Chromium**	**Hardness**	**pH**	**Ammonia-N**	**Un-ionized ammonia-N**	**Anions (Br, Cl, F, NO3-N, NO2-N, SO4)**	**Alkalinity, total**	**Conductivity**	**Total Dissolved Solids**	**Total Suspended Solids**	**Cyanide, total**	**Total Phosphorus**	**Total Kjeldahl Nitrogen**	**Chemical Oxygen Demand**	**Dissolved Organic Carbon**	**Phenols**
L2634894	EAST STORM WATER POND	East Pond	Surface Water	09/01/2021	14:30:00	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
L2649522	EAST STORM WATER POND	East Pond	Surface Water	10/07/2021	11:00:00	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
L2672706	POND A EAST POND	East Pond	Surface Water	12/14/2021	10:00:00	X	X	X	X	X	-	X	X	X	X	X	X	X	X	X	X	X	X	X	X
L2672706	EQ POND DISCHARGE	EQ Pond	Surface Water	12/14/2021	10:00:00	X	X	X	X	X	-	X	X	X	X	X	X	X	X	X	X	X	X	X	X
L2672706	POND D WEST POND	West Pond	Surface Water	12/14/2021	10:00:00	X	X	X	X	X	-	X	X	X	X	X	X	X	X	X	X	X	X	X	X

Notes:
"-" - Not applicable
VOCs - Volatile Organic Compound
SVOCs - Semi-Volatile Organic Compound
N - Nitrogen
Br - Bromide
F - Fluoride
Cl - Chloride
NO2-N - Nitrite-Nitrogen
NO3-N - Nitrate-Nitrogen
SO4 - Sulphate

Table 2

Analytical Method and Holding Time Criteria
Surface Water Sampling Events
Clean Harbors Canada Inc.
Sarnia, Ontario
September, October and December 2021

Parameters	Methodology [1]	Holding Time Criteria
		Water
Volatile Organic Compounds	SW846 8260	14 days
Semi-volatile Organic Compounds	SW846 8270	14 days
Metals	SW846 6020/EPA 200.8	60 days
Mercury	EPA 1631	28 days
Hexavalent Chromium	SW846 7199	28 days
Hardness	SM 2340B	60 days
pH	SM 4500H	28 days
Ammonia-N	EPA 350.1	28 days
Un-ionized ammonia-N	Calculation	NA
Anions (Nitrite-N, Nitrate-N)	EPA 300.1	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

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
N - Nitrogen
NA - Not applicable

Table 3

Qualified Sample Data Due To Insufficient Sample Preservation - Temperature
Surface Water Sampling Events
Clean Harbors Canada Inc.
Sarnia, Ontario
September, October and December 2021

Lab Report #	Parameter	Associated Sample ID	Temp. Upon Receipt at Laboratory (°C)	Required Temperature (°C)	Analyte	Qualified Result	Units
L2634894	VOCS	EAST STORM WATER POND	15.8	10	1,1,1,2-Tetrachloroethane	0.50 UJ	µg/L
L2634894	VOCS	EAST STORM WATER POND	15.8	10	1,1,1-Trichloroethane	0.50 UJ	µg/L
L2634894	VOCS	EAST STORM WATER POND	15.8	10	1,1,2,2-Tetrachloroethane	0.50 UJ	µg/L
L2634894	VOCS	EAST STORM WATER POND	15.8	10	1,1,2-Trichloroethane	0.50 UJ	µg/L
L2634894	VOCS	EAST STORM WATER POND	15.8	10	1,1-Dichloroethane	0.50 UJ	µg/L
L2634894	VOCS	EAST STORM WATER POND	15.8	10	1,1-Dichloroethene	0.50 UJ	µg/L
L2634894	VOCS	EAST STORM WATER POND	15.8	10	1,2-Dibromoethane (Ethylene dibromide)	0.20 UJ	µg/L
L2634894	VOCS	EAST STORM WATER POND	15.8	10	1,2-Dichlorobenzene	0.50 UJ	µg/L
L2634894	VOCS	EAST STORM WATER POND	15.8	10	1,2-Dichloroethane	0.50 UJ	µg/L
L2634894	VOCS	EAST STORM WATER POND	15.8	10	1,2-Dichloropropane	0.50 UJ	µg/L
L2634894	VOCS	EAST STORM WATER POND	15.8	10	1,3-Dichlorobenzene	0.50 UJ	µg/L
L2634894	VOCS	EAST STORM WATER POND	15.8	10	1,4-Dichlorobenzene	0.50 UJ	µg/L
L2634894	VOCS	EAST STORM WATER POND	15.8	10	2-Butanone (Methyl ethyl ketone) (MEK)	20 UJ	µg/L
L2634894	VOCS	EAST STORM WATER POND	15.8	10	4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	20 UJ	µg/L
L2634894	VOCS	EAST STORM WATER POND	15.8	10	Acetone	20 UJ	µg/L
L2634894	VOCS	EAST STORM WATER POND	15.8	10	Benzene	0.50 UJ	µg/L
L2634894	VOCS	EAST STORM WATER POND	15.8	10	Bromodichloromethane	1.0 UJ	µg/L
L2634894	VOCS	EAST STORM WATER POND	15.8	10	Bromoform	1.0 UJ	µg/L
L2634894	VOCS	EAST STORM WATER POND	15.8	10	Bromomethane (Methyl bromide)	0.50 UJ	µg/L
L2634894	VOCS	EAST STORM WATER POND	15.8	10	Carbon tetrachloride	0.50 UJ	µg/L
L2634894	VOCS	EAST STORM WATER POND	15.8	10	Chlorobenzene	0.50 UJ	µg/L
L2634894	VOCS	EAST STORM WATER POND	15.8	10	Chloroethane	1.0 UJ	µg/L
L2634894	VOCS	EAST STORM WATER POND	15.8	10	Chloroform (Trichloromethane)	1.0 UJ	µg/L
L2634894	VOCS	EAST STORM WATER POND	15.8	10	cis-1,2-Dichloroethene	0.50 UJ	µg/L
L2634894	VOCS	EAST STORM WATER POND	15.8	10	cis-1,3-Dichloropropene	0.50 UJ	µg/L
L2634894	VOCS	EAST STORM WATER POND	15.8	10	Dibromochloromethane	1.0 UJ	µg/L
L2634894	VOCS	EAST STORM WATER POND	15.8	10	Dichlorodifluoromethane (CFC-12)	1.0 UJ	µg/L
L2634894	VOCS	EAST STORM WATER POND	15.8	10	Ethylbenzene	0.50 UJ	µg/L
L2634894	VOCS	EAST STORM WATER POND	15.8	10	Hexane	0.50 UJ	µg/L
L2634894	VOCS	EAST STORM WATER POND	15.8	10	m&p-Xylenes	1.0 UJ	µg/L
L2634894	VOCS	EAST STORM WATER POND	15.8	10	Methyl tert butyl ether (MTBE)	0.50 UJ	µg/L
L2634894	VOCS	EAST STORM WATER POND	15.8	10	Methylene chloride	2.0 UJ	µg/L
L2634894	VOCS	EAST STORM WATER POND	15.8	10	o-Xylene	0.50 UJ	µg/L
L2634894	VOCS	EAST STORM WATER POND	15.8	10	Styrene	0.50 UJ	µg/L
L2634894	VOCS	EAST STORM WATER POND	15.8	10	Tetrachloroethene	0.50 UJ	µg/L
L2634894	VOCS	EAST STORM WATER POND	15.8	10	Toluene	0.50 UJ	µg/L
L2634894	VOCS	EAST STORM WATER POND	15.8	10	trans-1,2-Dichloroethene	0.50 UJ	µg/L
L2634894	VOCS	EAST STORM WATER POND	15.8	10	trans-1,3-Dichloropropene	0.50 UJ	µg/L
L2634894	VOCS	EAST STORM WATER POND	15.8	10	Trichloroethene	0.50 UJ	µg/L
L2634894	VOCS	EAST STORM WATER POND	15.8	10	Trichlorofluoromethane (CFC-11)	1.0 UJ	µg/L
L2634894	VOCS	EAST STORM WATER POND	15.8	10	Vinyl chloride	0.50 UJ	µg/L
L2634894	VOCS	EAST STORM WATER POND	15.8	10	Xylenes (total)	1.1 UJ	µg/L
L2634894	VOCS	EAST STORM WATER POND	15.8	10	Trihalomethanes	2.0 UJ	µg/L
L2634894	SVOCs	EAST STORM WATER POND	15.8	10	1,2,4-Trichlorobenzene	0.40 UJ	µg/L
L2634894	SVOCs	EAST STORM WATER POND	15.8	10	1,2-Dichlorobenzene	0.40 UJ	µg/L
L2634894	SVOCs	EAST STORM WATER POND	15.8	10	1,3-Dichlorobenzene	0.40 UJ	µg/L
L2634894	SVOCs	EAST STORM WATER POND	15.8	10	1,4-Dichlorobenzene	0.40 UJ	µg/L
L2634894	SVOCs	EAST STORM WATER POND	15.8	10	1-Methylnaphthalene	0.40 UJ	µg/L
L2634894	SVOCs	EAST STORM WATER POND	15.8	10	2,3,4,5-Tetrachlorophenol	0.50 UJ	µg/L
L2634894	SVOCs	EAST STORM WATER POND	15.8	10	2,3,4,6-Tetrachlorophenol	0.50 UJ	µg/L
L2634894	SVOCs	EAST STORM WATER POND	15.8	10	2,3,6-Trichlorophenol	0.50 UJ	µg/L
L2634894	SVOCs	EAST STORM WATER POND	15.8	10	2,4,5-Trichlorophenol	0.50 UJ	µg/L
L2634894	SVOCs	EAST STORM WATER POND	15.8	10	2,4,6-Trichlorophenol	0.50 UJ	µg/L
L2634894	SVOCs	EAST STORM WATER POND	15.8	10	2,4-Dichlorophenol	0.30 UJ	µg/L
L2634894	SVOCs	EAST STORM WATER POND	15.8	10	2,4-Dimethylphenol	0.50 UJ	µg/L
L2634894	SVOCs	EAST STORM WATER POND	15.8	10	2,4-Dinitrophenol	1.0 UJ	µg/L
L2634894	SVOCs	EAST STORM WATER POND	15.8	10	2,4-Dinitrotoluene	0.40 UJ	µg/L
L2634894	SVOCs	EAST STORM WATER POND	15.8	10	2,6-Dinitrotoluene	0.40 UJ	µg/L
L2634894	SVOCs	EAST STORM WATER POND	15.8	10	2-Chlorophenol	0.30 UJ	µg/L
L2634894	SVOCs	EAST STORM WATER POND	15.8	10	2-Methylnaphthalene	0.40 UJ	µg/L
L2634894	SVOCs	EAST STORM WATER POND	15.8	10	3,3'-Dichlorobenzidine	0.40 UJ	µg/L
L2634894	SVOCs	EAST STORM WATER POND	15.8	10	4-Chloroaniline	0.40 UJ	µg/L
L2634894	SVOCs	EAST STORM WATER POND	15.8	10	Acenaphthene	0.20 UJ	µg/L
L2634894	SVOCs	EAST STORM WATER POND	15.8	10	Acenaphthylene	0.20 UJ	µg/L
L2634894	SVOCs	EAST STORM WATER POND	15.8	10	Anthracene	0.20 UJ	µg/L
L2634894	SVOCs	EAST STORM WATER POND	15.8	10	Benzo(a)anthracene	0.20 UJ	µg/L
L2634894	SVOCs	EAST STORM WATER POND	15.8	10	Benzo(a)pyrene	0.050 UJ	µg/L
L2634894	SVOCs	EAST STORM WATER POND	15.8	10	Benzo(b)fluoranthene	0.20 UJ	µg/L
L2634894	SVOCs	EAST STORM WATER POND	15.8	10	Benzo(g,h,i)perylene	0.20 UJ	µg/L
L2634894	SVOCs	EAST STORM WATER POND	15.8	10	Benzo(k)fluoranthene	0.20 UJ	µg/L
L2634894	SVOCs	EAST STORM WATER POND	15.8	10	bis(2-Chloroethyl)ether	0.40 UJ	µg/L
L2634894	SVOCs	EAST STORM WATER POND	15.8	10	bis(2-Ethylhexyl)phthalate (DEHP)	2.0 UJ	µg/L
L2634894	SVOCs	EAST STORM WATER POND	15.8	10	Chrysene	0.20 UJ	µg/L
L2634894	SVOCs	EAST STORM WATER POND	15.8	10	Dibenz(a,h)anthracene	0.20 UJ	µg/L

Qualified Sample Data Due To Insufficient Sample Preservation - Temperature
Surface Water Sampling Events
Clean Harbors Canada Inc.
Sarnia, Ontario
September, October and December 2021

Lab Report #	Parameter	Associated Sample ID	Temp. Upon Receipt at Laboratory (°C)	Required Temperature (°C)	Analyte	Qualified Result	Units
L2634894	SVOCs	EAST STORM WATER POND	15.8	10	Diethyl phthalate	0.20 UJ	µg/L
L2634894	SVOCs	EAST STORM WATER POND	15.8	10	Dimethyl phthalate	0.20 UJ	µg/L
L2634894	SVOCs	EAST STORM WATER POND	15.8	10	Fluoranthene	0.20 UJ	µg/L
L2634894	SVOCs	EAST STORM WATER POND	15.8	10	Fluorene	0.20 UJ	µg/L
L2634894	SVOCs	EAST STORM WATER POND	15.8	10	Hexachlorobenzene	0.040 UJ	µg/L
L2634894	SVOCs	EAST STORM WATER POND	15.8	10	Hexachlorobutadiene	0.20 UJ	µg/L
L2634894	SVOCs	EAST STORM WATER POND	15.8	10	Indeno(1,2,3-cd)pyrene	0.20 UJ	µg/L
L2634894	SVOCs	EAST STORM WATER POND	15.8	10	Naphthalene	0.20 UJ	µg/L
L2634894	SVOCs	EAST STORM WATER POND	15.8	10	Pentachlorophenol	0.50 UJ	µg/L
L2634894	SVOCs	EAST STORM WATER POND	15.8	10	Perylene	0.20 UJ	µg/L
L2634894	SVOCs	EAST STORM WATER POND	15.8	10	Phenanthrene	0.20 UJ	µg/L
L2634894	SVOCs	EAST STORM WATER POND	15.8	10	Pyrene	0.20 UJ	µg/L
L2634894	Metals	EAST STORM WATER POND	15.8	10	Aluminum	0.329 J	mg/L
L2634894	Metals	EAST STORM WATER POND	15.8	10	Antimony	0.00066 J	mg/L
L2634894	Metals	EAST STORM WATER POND	15.8	10	Arsenic	0.00401 J	mg/L
L2634894	Metals	EAST STORM WATER POND	15.8	10	Barium	0.0419 J	mg/L
L2634894	Metals	EAST STORM WATER POND	15.8	10	Beryllium	0.00010 UJ	mg/L
L2634894	Metals	EAST STORM WATER POND	15.8	10	Bismuth	0.000050 UJ	mg/L
L2634894	Metals	EAST STORM WATER POND	15.8	10	Boron	0.171 J	mg/L
L2634894	Metals	EAST STORM WATER POND	15.8	10	Cadmium	0.000040 UJ	mg/L
L2634894	Metals	EAST STORM WATER POND	15.8	10	Calcium	49.2 J	mg/L
L2634894	Metals	EAST STORM WATER POND	15.8	10	Cobalt	0.00038 J	mg/L
L2634894	Metals	EAST STORM WATER POND	15.8	10	Copper	0.0016 J	mg/L
L2634894	Metals	EAST STORM WATER POND	15.8	10	Iron	0.288 J	mg/L
L2634894	Metals	EAST STORM WATER POND	15.8	10	Lead	0.00026 J	mg/L
L2634894	Metals	EAST STORM WATER POND	15.8	10	Magnesium	26.1 J	mg/L
L2634894	Metals	EAST STORM WATER POND	15.8	10	Manganese	0.00967 J	mg/L
L2634894	Metals	EAST STORM WATER POND	15.8	10	Mercury	0.0000050 UJ	mg/L
L2634894	Metals	EAST STORM WATER POND	15.8	10	Molybdenum	0.0810 J	mg/L
L2634894	Metals	EAST STORM WATER POND	15.8	10	Nickel	0.00412 J	mg/L
L2634894	Metals	EAST STORM WATER POND	15.8	10	Potassium	9.58 J	mg/L
L2634894	Metals	EAST STORM WATER POND	15.8	10	Selenium	0.00170 J	mg/L
L2634894	Metals	EAST STORM WATER POND	15.8	10	Silicon	1.41 J	mg/L
L2634894	Metals	EAST STORM WATER POND	15.8	10	Silver	0.000050 UJ	mg/L
L2634894	Metals	EAST STORM WATER POND	15.8	10	Sodium	81.4 J	mg/L
L2634894	Metals	EAST STORM WATER POND	15.8	10	Strontium	0.572 J	mg/L
L2634894	Metals	EAST STORM WATER POND	15.8	10	Thallium	0.000014 J	mg/L
L2634894	Metals	EAST STORM WATER POND	15.8	10	Tin	0.00010 UJ	mg/L
L2634894	Metals	EAST STORM WATER POND	15.8	10	Vanadium	0.00124 J	mg/L
L2634894	Metals	EAST STORM WATER POND	15.8	10	Zinc	0.0086 J	mg/L
L2634894	Gen Chem	EAST STORM WATER POND	15.8	10	Alkalinity, total (as CaCO3)	60.4 J	mg/L
L2634894	Gen Chem	EAST STORM WATER POND	15.8	10	Ammonia-N	0.010 UJ	mg/L
L2634894	Gen Chem	EAST STORM WATER POND	15.8	10	Bromide	3.53 J	mg/L
L2634894	Gen Chem	EAST STORM WATER POND	15.8	10	Chemical oxygen demand (COD)	12 J	mg/L
L2634894	Gen Chem	EAST STORM WATER POND	15.8	10	Chloride	100 J	mg/L
L2634894	Gen Chem	EAST STORM WATER POND	15.8	10	Chromium VI (hexavalent)	0.00050 UJ	mg/L
L2634894	Gen Chem	EAST STORM WATER POND	15.8	10	Conductivity	912 J	umhos/cm
L2634894	Gen Chem	EAST STORM WATER POND	15.8	10	Cyanide (total)	0.0020 UJ	mg/L
L2634894	Gen Chem	EAST STORM WATER POND	15.8	10	Dissolved organic carbon (DOC) (dissolved)	5.65 J	mg/L
L2634894	Gen Chem	EAST STORM WATER POND	15.8	10	Fluoride	1.40 J	mg/L
L2634894	Gen Chem	EAST STORM WATER POND	15.8	10	Hardness	230 J	mg/L
L2634894	Gen Chem	EAST STORM WATER POND	15.8	10	Nitrate (as N)	0.020 UJ	mg/L
L2634894	Gen Chem	EAST STORM WATER POND	15.8	10	Nitrite (as N)	0.010 UJ	mg/L
L2634894	Gen Chem	EAST STORM WATER POND	15.8	10	pH, lab	8.19 J	s.u.
L2634894	Gen Chem	EAST STORM WATER POND	15.8	10	Phenolics (total)	0.0104 J	mg/L
L2634894	Gen Chem	EAST STORM WATER POND	15.8	10	Phosphorus	0.0172 J	mg/L
L2634894	Gen Chem	EAST STORM WATER POND	15.8	10	Sulfate	222 J	mg/L
L2634894	Gen Chem	EAST STORM WATER POND	15.8	10	Total dissolved solids (TDS)	511 J	mg/L
L2634894	Gen Chem	EAST STORM WATER POND	15.8	10	Total kjeldahl nitrogen (TKN)	0.560 J	mg/L
L2634894	Gen Chem	EAST STORM WATER POND	15.8	10	Total suspended solids (TSS)	5.6 J	mg/L
L2634894	Gen Chem	EAST STORM WATER POND	15.8	10	Un-ionized ammonia	0.0014 UJ	mg/L
L2649522	VOCs	EAST STORM WATER POND	16.5	10	1,1,1,2-Tetrachloroethane	0.50 UJ	mg/L
L2649522	VOCs	EAST STORM WATER POND	16.5	10	1,1,1-Trichloroethane	0.50 UJ	mg/L
L2649522	VOCs	EAST STORM WATER POND	16.5	10	1,1,2,2-Tetrachloroethane	0.50 UJ	mg/L
L2649522	VOCs	EAST STORM WATER POND	16.5	10	1,1,2-Trichloroethane	0.50 UJ	mg/L
L2649522	VOCs	EAST STORM WATER POND	16.5	10	1,1-Dichloroethane	0.50 UJ	mg/L
L2649522	VOCs	EAST STORM WATER POND	16.5	10	1,1-Dichloroethene	0.50 UJ	mg/L
L2649522	VOCs	EAST STORM WATER POND	16.5	10	1,2-Dibromoethane (Ethylene dibromide)	0.20 UJ	mg/L
L2649522	VOCs	EAST STORM WATER POND	16.5	10	1,2-Dichlorobenzene	0.50 UJ	mg/L
L2649522	VOCs	EAST STORM WATER POND	16.5	10	1,2-Dichloroethane	0.50 UJ	mg/L
L2649522	VOCs	EAST STORM WATER POND	16.5	10	1,2-Dichloropropane	0.50 UJ	mg/L

Table 3

Qualified Sample Data Due To Insufficient Sample Preservation - Temperature
Surface Water Sampling Events
Clean Harbors Canada Inc.
Sarnia, Ontario
September, October and December 2021

Lab Report #	Parameter	Associated Sample ID	Temp. Upon Receipt at Laboratory (°C)	Required Temperature (°C)	Analyte	Qualified Result	Units
L2649522	VOCs	EAST STORM WATER POND	16.5	10	1,3-Dichlorobenzene	0.50 UJ	mg/L
L2649522	VOCs	EAST STORM WATER POND	16.5	10	1,4-Dichlorobenzene	0.50 UJ	mg/L
L2649522	VOCs	EAST STORM WATER POND	16.5	10	2-Butanone (Methyl ethyl ketone) (MEK)	20 UJ	mg/L
L2649522	VOCs	EAST STORM WATER POND	16.5	10	4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	20 UJ	mg/L
L2649522	VOCs	EAST STORM WATER POND	16.5	10	Acetone	20 UJ	mg/L
L2649522	VOCs	EAST STORM WATER POND	16.5	10	Benzene	0.50 UJ	mg/L
L2649522	VOCs	EAST STORM WATER POND	16.5	10	Bromodichloromethane	1.0 UJ	mg/L
L2649522	VOCs	EAST STORM WATER POND	16.5	10	Bromoform	1.0 UJ	mg/L
L2649522	VOCs	EAST STORM WATER POND	16.5	10	Bromomethane (Methyl bromide)	0.50 UJ	mg/L
L2649522	VOCs	EAST STORM WATER POND	16.5	10	Carbon tetrachloride	0.50 UJ	mg/L
L2649522	VOCs	EAST STORM WATER POND	16.5	10	Chlorobenzene	0.50 UJ	mg/L
L2649522	VOCs	EAST STORM WATER POND	16.5	10	Chloroethane	1.0 UJ	mg/L
L2649522	VOCs	EAST STORM WATER POND	16.5	10	Chloroform (Trichloromethane)	1.0 UJ	mg/L
L2649522	VOCs	EAST STORM WATER POND	16.5	10	cis-1,2-Dichloroethene	0.50 UJ	mg/L
L2649522	VOCs	EAST STORM WATER POND	16.5	10	cis-1,3-Dichloropropene	0.50 UJ	mg/L
L2649522	VOCs	EAST STORM WATER POND	16.5	10	Dibromochloromethane	1.0 UJ	mg/L
L2649522	VOCs	EAST STORM WATER POND	16.5	10	Dichlorodifluoromethane (CFC-12)	1.0 UJ	mg/L
L2649522	VOCs	EAST STORM WATER POND	16.5	10	Ethylbenzene	0.50 UJ	mg/L
L2649522	VOCs	EAST STORM WATER POND	16.5	10	Hexane	0.50 UJ	mg/L
L2649522	VOCs	EAST STORM WATER POND	16.5	10	m&p-Xylenes	1.0 UJ	mg/L
L2649522	VOCs	EAST STORM WATER POND	16.5	10	Methyl tert butyl ether (MTBE)	0.50 UJ	mg/L
L2649522	VOCs	EAST STORM WATER POND	16.5	10	Methylene chloride	2.0 UJ	mg/L
L2649522	VOCs	EAST STORM WATER POND	16.5	10	o-Xylene	0.50 UJ	mg/L
L2649522	VOCs	EAST STORM WATER POND	16.5	10	Styrene	0.50 UJ	mg/L
L2649522	VOCs	EAST STORM WATER POND	16.5	10	Tetrachloroethene	0.50 UJ	mg/L
L2649522	VOCs	EAST STORM WATER POND	16.5	10	Toluene	0.50 UJ	mg/L
L2649522	VOCs	EAST STORM WATER POND	16.5	10	trans-1,2-Dichloroethene	0.50 UJ	mg/L
L2649522	VOCs	EAST STORM WATER POND	16.5	10	trans-1,3-Dichloropropene	0.50 UJ	mg/L
L2649522	VOCs	EAST STORM WATER POND	16.5	10	Trichloroethene	0.50 UJ	mg/L
L2649522	VOCs	EAST STORM WATER POND	16.5	10	Trichlorofluoromethane (CFC-11)	1.0 UJ	mg/L
L2649522	VOCs	EAST STORM WATER POND	16.5	10	Vinyl chloride	0.50 UJ	mg/L
L2649522	VOCs	EAST STORM WATER POND	16.5	10	Xylenes (total)	1.1 UJ	mg/L
L2649522	VOCs	EAST STORM WATER POND	16.5	10	Trihalomethanes	2.0 UJ	µg/L
L2649522	SVOCs	EAST STORM WATER POND	16.5	10	1,2,4-Trichlorobenzene	0.40 UJ	mg/L
L2649522	SVOCs	EAST STORM WATER POND	16.5	10	1,2-Dichlorobenzene	0.40 UJ	mg/L
L2649522	SVOCs	EAST STORM WATER POND	16.5	10	1,3-Dichlorobenzene	0.40 UJ	mg/L
L2649522	SVOCs	EAST STORM WATER POND	16.5	10	1,4-Dichlorobenzene	0.40 UJ	mg/L
L2649522	SVOCs	EAST STORM WATER POND	16.5	10	1-Methylnaphthalene	0.40 UJ	mg/L
L2649522	SVOCs	EAST STORM WATER POND	16.5	10	2,3,4,5-Tetrachlorophenol	0.50 UJ	mg/L
L2649522	SVOCs	EAST STORM WATER POND	16.5	10	2,3,4,6-Tetrachlorophenol	0.50 UJ	mg/L
L2649522	SVOCs	EAST STORM WATER POND	16.5	10	2,3,6-Trichlorophenol	0.50 UJ	mg/L
L2649522	SVOCs	EAST STORM WATER POND	16.5	10	2,4,5-Trichlorophenol	0.50 UJ	mg/L
L2649522	SVOCs	EAST STORM WATER POND	16.5	10	2,4,6-Trichlorophenol	0.50 UJ	mg/L
L2649522	SVOCs	EAST STORM WATER POND	16.5	10	2,4-Dichlorophenol	0.30 UJ	mg/L
L2649522	SVOCs	EAST STORM WATER POND	16.5	10	2,4-Dimethylphenol	0.50 UJ	mg/L
L2649522	SVOCs	EAST STORM WATER POND	16.5	10	2,4-Dinitrophenol	1.0 UJ	mg/L
L2649522	SVOCs	EAST STORM WATER POND	16.5	10	2,4-Dinitrotoluene	0.40 UJ	mg/L
L2649522	SVOCs	EAST STORM WATER POND	16.5	10	2,6-Dinitrotoluene	0.40 UJ	mg/L
L2649522	SVOCs	EAST STORM WATER POND	16.5	10	2-Chlorophenol	0.30 UJ	mg/L
L2649522	SVOCs	EAST STORM WATER POND	16.5	10	2-Methylnaphthalene	0.40 UJ	mg/L
L2649522	SVOCs	EAST STORM WATER POND	16.5	10	3,3'-Dichlorobenzidine	0.40 UJ	mg/L
L2649522	SVOCs	EAST STORM WATER POND	16.5	10	4-Chloroaniline	0.40 UJ	mg/L
L2649522	SVOCs	EAST STORM WATER POND	16.5	10	Acenaphthene	0.20 UJ	mg/L
L2649522	SVOCs	EAST STORM WATER POND	16.5	10	Acenaphthylene	0.20 UJ	mg/L
L2649522	SVOCs	EAST STORM WATER POND	16.5	10	Anthracene	0.20 UJ	mg/L
L2649522	SVOCs	EAST STORM WATER POND	16.5	10	Benzo(a)anthracene	0.20 UJ	mg/L
L2649522	SVOCs	EAST STORM WATER POND	16.5	10	Benzo(a)pyrene	0.050 UJ	mg/L
L2649522	SVOCs	EAST STORM WATER POND	16.5	10	Benzo(b)fluoranthene	0.20 UJ	mg/L
L2649522	SVOCs	EAST STORM WATER POND	16.5	10	Benzo(g,h,i)perylene	0.20 UJ	mg/L
L2649522	SVOCs	EAST STORM WATER POND	16.5	10	Benzo(k)fluoranthene	0.20 UJ	mg/L
L2649522	SVOCs	EAST STORM WATER POND	16.5	10	bis(2-Chloroethyl)ether	0.40 UJ	mg/L
L2649522	SVOCs	EAST STORM WATER POND	16.5	10	bis(2-Ethylhexyl)phthalate (DEHP)	2.0 UJ	mg/L
L2649522	SVOCs	EAST STORM WATER POND	16.5	10	Chrysene	0.20 UJ	mg/L
L2649522	SVOCs	EAST STORM WATER POND	16.5	10	Dibenz(a,h)anthracene	0.20 UJ	mg/L
L2649522	SVOCs	EAST STORM WATER POND	16.5	10	Diethyl phthalate	0.20 UJ	mg/L
L2649522	SVOCs	EAST STORM WATER POND	16.5	10	Dimethyl phthalate	0.20 UJ	mg/L
L2649522	SVOCs	EAST STORM WATER POND	16.5	10	Fluoranthene	0.20 UJ	mg/L
L2649522	SVOCs	EAST STORM WATER POND	16.5	10	Fluorene	0.20 UJ	mg/L
L2649522	SVOCs	EAST STORM WATER POND	16.5	10	Hexachlorobenzene	0.040 UJ	mg/L
L2649522	SVOCs	EAST STORM WATER POND	16.5	10	Hexachlorobutadiene	0.20 UJ	mg/L
L2649522	SVOCs	EAST STORM WATER POND	16.5	10	Indeno(1,2,3-cd)pyrene	0.20 UJ	mg/L
L2649522	SVOCs	EAST STORM WATER POND	16.5	10	Naphthalene	0.20 UJ	mg/L
L2649522	SVOCs	EAST STORM WATER POND	16.5	10	Pentachlorophenol	0.50 UJ	mg/L

Table 3

Qualified Sample Data Due To Insufficient Sample Preservation - Temperature
Surface Water Sampling Events
Clean Harbors Canada Inc.
Sarnia, Ontario
September, October and December 2021

Lab Report #	Parameter	Associated Sample ID	Temp. Upon Receipt at Laboratory (°C)	Required Temperature (°C)	Analyte	Qualified Result		Units
L2649522	SVOCs	EAST STORM WATER POND	16.5	10	Perylene	0.20	UJ	mg/L
L2649522	SVOCs	EAST STORM WATER POND	16.5	10	Phenanthrene	0.20	UJ	mg/L
L2649522	SVOCs	EAST STORM WATER POND	16.5	10	Pyrene	0.20	UJ	mg/L
L2649522	Metals	EAST STORM WATER POND	16.5	10	Aluminum	0.087	J	mg/L
L2649522	Metals	EAST STORM WATER POND	16.5	10	Antimony	0.00076	J	mg/L
L2649522	Metals	EAST STORM WATER POND	16.5	10	Arsenic	0.00068	J	mg/L
L2649522	Metals	EAST STORM WATER POND	16.5	10	Barium	0.0489	J	mg/L
L2649522	Metals	EAST STORM WATER POND	16.5	10	Beryllium	0.00010	UJ	mg/L
L2649522	Metals	EAST STORM WATER POND	16.5	10	Bismuth	0.000050	UJ	mg/L
L2649522	Metals	EAST STORM WATER POND	16.5	10	Boron	0.148	J	mg/L
L2649522	Metals	EAST STORM WATER POND	16.5	10	Cadmium	0.000060	UJ	mg/L
L2649522	Metals	EAST STORM WATER POND	16.5	10	Calcium	73.5	J	mg/L
L2649522	Metals	EAST STORM WATER POND	16.5	10	Cobalt	0.00024	J	mg/L
L2649522	Metals	EAST STORM WATER POND	16.5	10	Copper	0.0010	UJ	mg/L
L2649522	Metals	EAST STORM WATER POND	16.5	10	Iron	0.093	J	mg/L
L2649522	Metals	EAST STORM WATER POND	16.5	10	Lead	0.00010	UJ	mg/L
L2649522	Metals	EAST STORM WATER POND	16.5	10	Magnesium	21.7	J	mg/L
L2649522	Metals	EAST STORM WATER POND	16.5	10	Manganese	0.0229	J	mg/L
L2649522	Metals	EAST STORM WATER POND	16.5	10	Mercury	0.0000050	UJ	mg/L
L2649522	Metals	EAST STORM WATER POND	16.5	10	Molybdenum	0.155	J	mg/L
L2649522	Metals	EAST STORM WATER POND	16.5	10	Nickel	0.00097	J	mg/L
L2649522	Metals	EAST STORM WATER POND	16.5	10	Potassium	4.27	J	mg/L
L2649522	Metals	EAST STORM WATER POND	16.5	10	Selenium	0.0211	J	mg/L
L2649522	Metals	EAST STORM WATER POND	16.5	10	Silicon	1.33	J	mg/L
L2649522	Metals	EAST STORM WATER POND	16.5	10	Silver	0.000050	UJ	mg/L
L2649522	Metals	EAST STORM WATER POND	16.5	10	Sodium	25.5	J	mg/L
L2649522	Metals	EAST STORM WATER POND	16.5	10	Strontium	1.16	J	mg/L
L2649522	Metals	EAST STORM WATER POND	16.5	10	Thallium	0.000039	J	mg/L
L2649522	Metals	EAST STORM WATER POND	16.5	10	Tin	0.00010	UJ	mg/L
L2649522	Metals	EAST STORM WATER POND	16.5	10	Vanadium	0.00066	J	mg/L
L2649522	Metals	EAST STORM WATER POND	16.5	10	Zinc	0.0030	UJ	mg/L
L2649522	Gen Chem	EAST STORM WATER POND	16.5	10	Alkalinity, total (as CaCO3)	39.6	J	mg/L
L2649522	Gen Chem	EAST STORM WATER POND	16.5	10	Ammonia-N	0.273	J	mg/L
L2649522	Gen Chem	EAST STORM WATER POND	16.5	10	Bromide	0.10	UJ	mg/L
L2649522	Gen Chem	EAST STORM WATER POND	16.5	10	Chemical oxygen demand (COD)	10	UJ	mg/L
L2649522	Gen Chem	EAST STORM WATER POND	16.5	10	Chloride	8.52	J	mg/L
L2649522	Gen Chem	EAST STORM WATER POND	16.5	10	Chromium VI (hexavalent)	0.00050	UJ	mg/L
L2649522	Gen Chem	EAST STORM WATER POND	16.5	10	Conductivity	617	J	umhos/cm
L2649522	Gen Chem	EAST STORM WATER POND	16.5	10	Cyanide (total)	0.0020	UJ	mg/L
L2649522	Gen Chem	EAST STORM WATER POND	16.5	10	Dissolved organic carbon (DOC) (dissolved)	0.97	J	mg/L
L2649522	Gen Chem	EAST STORM WATER POND	16.5	10	Fluoride	0.626	J	mg/L
L2649522	Gen Chem	EAST STORM WATER POND	16.5	10	Hardness	273	J	mg/L
L2649522	Gen Chem	EAST STORM WATER POND	16.5	10	Nitrate (as N)	0.557	J	mg/L
L2649522	Gen Chem	EAST STORM WATER POND	16.5	10	Nitrite (as N)	0.028	J	mg/L
L2649522	Gen Chem	EAST STORM WATER POND	16.5	10	pH, lab	7.83	J	s.u.
L2649522	Gen Chem	EAST STORM WATER POND	16.5	10	Phenolics (total)	0.0103	J	mg/L
L2649522	Gen Chem	EAST STORM WATER POND	16.5	10	Phosphorus	0.0034	J	mg/L
L2649522	Gen Chem	EAST STORM WATER POND	16.5	10	Sulfate	254	J	mg/L
L2649522	Gen Chem	EAST STORM WATER POND	16.5	10	Total dissolved solids (TDS)	413	J	mg/L
L2649522	Gen Chem	EAST STORM WATER POND	16.5	10	Total kjeldahl nitrogen (TKN)	0.450	J	mg/L
L2649522	Gen Chem	EAST STORM WATER POND	16.5	10	Total suspended solids (TSS)	3.0	UJ	mg/L
L2649522	Gen Chem	EAST STORM WATER POND	16.5	10	Un-ionized ammonia	0.00119	J	mg/L

Notes:
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 4

Qualified Sample Results Due To Outlying Laboratory Control Sample Results
Surface Water Sampling Events
Clean Harbors Canada Inc.
Sarnia, Ontario
September, October and December 2021

Lab Report #	Parameter	Analyte	LCS % Recovery	Control Limits % Recovery	Associated Sample ID	Qualified Results	Units
L2634894	SVOCs	3,3-Dichlorobenzidine	22.1	50-140	EAST STORM WATER POND	0.40 UJ	µg/L
L2649522	SVOCs	3,3-Dichlorobenzidine	32.7	50-140	EAST STORM WATER POND	0.40 UJ	µg/L
L2672706	SVOCs	3,3-Dichlorobenzidine	36.6	50-140	EQ POND DISCHARGE	0.40 UJ	µg/L
L2672706	SVOCs	3,3-Dichlorobenzidine	36.6	50-140	POND D WEST POND	0.40 UJ	µg/L
L2672706	SVOCs	3,3-Dichlorobenzidine	36.6	50-140	POND A EAST POND	0.40 UJ	µg/L

Notes:
LCS - Laboratory Control Sample
UJ - Not detected; associated reporting limit is estimated
SVOCs - Semi-volatile Organic Compounds

Table 5

Qualified Sample Data Due To Total Calcium and Magnesium Data Used For Hardness Calculation
Surface Water Sampling Events
Clean Harbors Canada Inc.
Sarnia, Ontario
September, October and December 2021

Lab Report #	Parameter	Sample ID	Analyte	Qualified Result	Units
L2634894	Gen Chem	EAST STORM WATER POND	Hardness	230 J	mg/L
L2649522	Gen Chem	EAST STORM WATER POND	Hardness	273 J	mg/L

Notes:
J - Estimated concentration
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	
Waste Disposal Site Name	Clean Harbors Canada, Inc. - Lambton Facility
Location (e.g. street address, lot, concession)	4090 Telfer Road, R.R. #1, Corunna, Ontario, N0N 1G0
GPS Location (taken within the property boundary at front gate/ front entry)	NAD 83; Zone 17; Easting (m) 393726; Northing (m) 4748167; Horizontal Accuracy +/-3m
Municipality	Lambton County
Client and/or Site Owner	Clean Harbors Canada, Inc.
Monitoring Period (Year)	January 1 through December 31, 2021
This Monitoring Report is being submitted under the following:	
Certificate of Approval No.:	ECA A031806
Director's Order No.:	Not applicable
Provincial Officer's Order No.:	Not applicable
Other:	Document relates to surface water monitoring only

Report Submission Frequency	◉ **Annual** ○ **Other**	
The site is:	◉ **Active** ○ **Inactive** ○ **Closed**	
If closed, specify C of A, control or authorizing document closure date:		
Has the nature of the operations at the site changed during this monitoring period?	○ **Yes** ◉ **No**	
If yes, provide details:		
Have any measurements been taken since the last reporting period that indicate landfill gas volumes have exceeded the MOE limits for subsurface or adjacent buildings? (i. e. exceeded the LEL for methane)	○ Yes ◉ No	

Groundwater WDS Verification:

Based on all available information about the site and site knowledge, it is my opinion that:

Sampling and Monitoring Program Status:

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:	○ **Yes** ◉ **No**	Not Applicable - Surface water report
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):	○ **Yes** ○ **No** ◉ **Not Applicable**	If no, list exceptions below or attach information.

Groundwater Sampling Location	**Description/Explanation for change (change in name or location, additions, deletions)**	**Date**
Not Applicable		

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.	◯ **Yes** ◯ **No** ◉ **Not Applicable**	
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:	◯ **Yes** ◯ **No** ◉ **Not Applicable**	If no, list exceptions below or attach additional information.

Groundwater Sampling Location	**Description/Explanation for change (change in name or location, additions, deletions)**	**Date**
Not Applicable		

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):	◯ **Yes** ◯ **No**	If no, specify (Type Here):

Sampling and Monitoring Program Results/WDS Conditions and Assessment:

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.	◯ **Yes** ◯ **No**	If no, the potential design and operational concerns/ exceptions are as follows (Type Here):	
6) The site meets compliance and assessment criteria.	◯ **Yes** ◯ **No**	If no, list and explain exceptions (Type Here):	
7) The site continues to perform as anticipated. There have been no unusual trends/ changes in measured leachate and groundwater levels or concentrations.	◯ **Yes** ◯ **No**	If no, list exceptions and explain reason for increase/change (Type Here):	
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.*** **The site has developed stable leachate mound(s) and stable leachate plume geometry/concentrations; and** ***ii.*** **Seasonal and annual water levels and water quality fluctuations are well understood.**	◯ **Yes** ◯ **No**	**Note which practice(s):**	☐ **(a)** ☐ **(b)** ☐ **(c)**
9) Have trigger values for contingency plans or site remedial actions been exceeded (where they exist):	◯ **Yes** ◯ **No** ◯ **Not Applicable**	If yes, list value(s) that are/have been exceeded and follow-up action taken (Type Here):	

Groundwater CEP Declaration:

I am a licensed professional Engineer or a registered professional geoscientist in Ontario with expertise in hydrogeology, as defined in Appendix D under Instructions. Where additional expertise was needed to evaluate the site monitoring data, I have relied on individuals who I believe to be experts in the relevant discipline, who have co-signed the compliance monitoring report or monitoring program status report, and who have provided evidence to me of their credentials.

I have examined the applicable Certificate of Approval and any other environmental authorizing or control documents that apply to the site. I have read and followed the Monitoring and Reporting for Waste Disposal Sites Groundwater and Surface Water Technical Guidance Document (MOE, 2010, or as amended), and associated monitoring and sampling guidance documents, as amended from time to time. I have reviewed all of the data collected for the above-referenced site for the monitoring period(s) identified in this checklist. Except as otherwise agreed with the ministry for certain parameters, all of the analytical work has been undertaken by a laboratory which is accredited for the parameters analysed to *ISO/IEC 17025:2005 (E)- General requirements for the competence of testing and calibration laboratories,* or as amended from time to time by the ministry.

If any exceptions or potential concerns have been noted in the questions in the checklist attached to this declaration, it is my opinion that these exceptions and concerns are minor in nature and will be rectified for the next monitoring/reporting period. Where this is not the case, the circumstances concerning the exception or potential concern and my client's proposed action have been documented in writing to the Ministry of the Environment District Manager in a letter from me dated:

Select Date

Recommendations:

Based on my technical review of the monitoring results for the waste disposal site:

○ **No changes to the monitoring program are recommended** ○ **The following change(s) to the monitoring program is/are recommended:**	
○ **No Changes to site design and operation are recommended** ○ **The following change(s) to the site design and operation is/ are recommended:**	

Name:			
Seal:	Add Image		
Signature:		**Date:**	
CEP Contact Information:			
Company:			
Address:			
Telephone No.:		Fax No. :	
E-mail Address:	Type Here		
Co-signers for additional expertise provided:			
Signature:		**Date:**	
Signature:		**Date:**	

Surface Water WDS Verification:

Provide the name of surface water body/bodies potentially receiving the WDS effluent and the approximate distance to the waterbody (including the nearest surface water body/bodies to the site):

Name (s)	The WDS effluent drains into the Telfer Road drainage ditch and associated drains with eventually discharge to Bear Creek
Distance(s)	Approximately +/-10 km from Site to Bear Creek

Based on all available information and site knowledge, it is my opinion that:

Sampling and Monitoring Program Status:

1) The current surface water monitoring program continues to effectively characterize the surface water conditions, and includes data that relates upstream/background and downstream receiving water conditions:	(●) Yes ( ) No	If no, identify issues (Type Here):
2) All surface water sampling for the monitoring period being reported was successfully completed in accordance with the Certificate(s) of Approval or relevant authorizing/control document(s) (if applicable):	(●) Yes ( ) No ( ) **Not applicable (No C of A, authorizing / control document applies)**	If no, specify below or provide details in an attachment.

Surface Water Sampling Location	Description/Explanation for change (change in name or location, additions, deletions)	Date

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.	◯ **Yes** ◉ **No** ◯ **Not Applicable**	
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:	◯ **Yes** ◯ **No** ◉ **Not Applicable**	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**

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):	◉ **Yes** ◯ **No**	If no, specify (Type Here):

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**	

7) All monitoring program surface water parameter concentrations fall within a stable or decreasing trend. The site is not characterized by historical ranges of concentrations above assessment and compliance criteria.	◉ **Yes** ◯ **No**	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)
8) For the monitoring program parameters, does the water quality in the groundwater zones adjacent to surface water receivers exceed assessment or compliance criteria (e.g. , PWQOs, CWQGs, or toxicity values for aquatic biota (APVs)):	◯ Yes ◯ No ◯ Not Known ◉ Not Applicable	If yes, provide details and whether remedial measures are necessary (Type Here)
9) Have trigger values for contingency plans or site remedial actions been exceeded (where they exist):	◯ **Yes** ◉ **No** ◯ **Not Applicable**	If yes, list value(s) that are/have been exceeded and follow-up action taken (Type Here)

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:

○ **No Changes to the monitoring program are recommended**	Refer to Section 6.2, recommendations for proposed changes to monitoring program.
◉ **The following change(s) to the monitoring program is/are recommended:**	
◉ **No changes to the site design and operation are recommended**	
○ **The following change(s) to the site design and operation is/are recommended:**	

CEP Signature	
Relevant Discipline	Professional Engineer
Date:	03-March-22
CEP Contact Information:	Mr. James Yardley, P.Eng.
Company:	GHD
Address:	455 Phillip St., Waterloo, Ontario N2L 3X2
Telephone No.:	519-340-4265
Fax No. :	519-884-0525
E-mail Address:	Jim.Yardley@ghd.com

Save As **Print Form**

Appendix F

Surface Water Characterization Monitoring Data – 2016 to 2021

Appendix F

Monthly Discharge Chemical Monitoring – Equalization Pond, General Chemistry, Metals, and VOCs/sVOCs
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	EQ Pond	EQ Pond	EQ Pond	EQ Pond	EQ Pond	EQ Pond [2]	EQ Pond [3]	EQ Pond	EQ Pond	EQ Pond	EQ Pond	EQ Pond
Sample Date:			3/31/2016	5/3/2016	7/14/2016 [1]	8/26/2016	9/22/2016	1/25/2017	2/21/2017	3/20/2017	5/8/2017	6/5/2017	2/22/2018	4/23/2018	8/28/2018	11/7/2018	11/19/2018	12/17/2018	1/22/2019	3/25/2019	1/13/2020	2/17/2020	4/13/2020	6/1/2020	12/14/2021
Parameters	**Units**	**PWQO**																						
General Chemistry																								
Alkalinity, total (as CaCO3)	mg/L	-	119	130	91	107	118	142	158	129	149	150	149	142	83	111	146	169	171	170	161	168	150	-	96
Ammonia-N	mg/L	-	0.149	0.113	0.628	0.188	0.445	7.76 DLHC	3.21 DLHC	0.727	0.141	0.114	2.28	0.827	0.252	0.507	1.21	0.401	0.152	1.32	0.143	0.65	0.449	-	0.164
Bromide	mg/L	-	0.35	0.31	0.4	0.76	0.44	0.25	0.55	0.24	0.35	0.5	0.48	1	0.69	0.66	0.72	1.01	1.85	3.27	2.5	1.59	1.47	-	2.56
Chemical oxygen demand (COD)	mg/L	-	19	25	20	13	15	11	16	17	14	ND (10)	16	17	25	18	26	17	19	29	24	18	25	-	14
Chloride	mg/L	-	76.3	58.4	60	41.7	32.2	41.4	60.9	50.2	56.5	53.9	60.3	67.6	59.3	50.3	65.5	66.4	85	91.8	79.7	65.4	65.4	-	86.8
Chromium VI (hexavalent)	mg/L	0.001	ND (0.0010)	ND (0.0010)	ND (0.0010) R	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0010)	R	ND (0.00050)	ND (0.00050)	0.00162	0.00087	ND (0.00050)	ND (0.00050)	0.00081	ND (0.00050)	-	ND (0.00050)
Conductivity	umhos/cm	-	713	752	675	588	582	728	777	698	769	750	729	780	626	605	667	745	895	876	902	775	737	-	842
Cyanide (total)	mg/L	0.005	ND (0.0020)	ND (0.0020)	ND (0.0020) R	ND (0.0020)	ND (0.0020)	ND (0.0020)	ND (0.0020)	ND (0.0020)	ND (0.0020)	ND (0.0020)	ND (0.0020)	ND (0.0020)	R	ND (0.0020)	ND (0.0020)	ND (0.0020)	ND (0.0020)	ND (0.0020)	ND (0.0020)	ND (0.0020)	ND (0.0020)	-	ND (0.0020)
Dissolved organic carbon (DOC) (dissolved)	mg/L	-	6.5	6.4	4.4	3.8	4.2	4.3	5.1	5	4.7	4.5	4.4	4.4	4.83	4.58	4.8	5.86	5.28	6.6	5.78	4.41	5.41	-	4.59
Fluoride	mg/L	-	0.612	0.587	0.531	0.699	0.79	0.55	0.546	0.505	0.49	0.55	0.568	0.483	0.508	0.543	0.503	0.572	0.867	0.619	0.732	0.546	0.523	-	0.879
Hardness	mg/L	-	257	297	246	222	221	293 HTC	303 HTC	275 HTC	295 HTC	290 HTC	266	277	220	226	238	279	319	284	283	288	280	-	-
Nitrate (as N)	mg/L	-	0.114	0.218	ND (0.020) R	ND (0.020)	0.021	0.241	0.471	0.4	0.254	0.084	0.377	0.776	0.06	0.136	0.214	0.225	0.376	0.394	0.28	0.247	0.111	-	0.151
Nitrite (as N)	mg/L	-	ND (0.010)	ND (0.010)	ND (0.010) R	ND (0.010)	0.012	0.01	0.017	ND (0.010)	ND (0.010)	ND (0.010)	0.015	0.017	R	ND (0.010)	ND (0.010)	ND (0.010)	0.011	ND (0.010)	ND (0.010)	ND (0.010)	ND (0.010)	-	ND (0.010)
pH, lab	s.u.	6.5-8.5	8.14	8.26	8.43	8.23	7.99	7.89	7.87	8.05	8.16	8.14	7.62	8.06	7.95	7.95	7.86	7.99	8	7.94	8.4	8.03	8.28	-	8.11
Phenolics (total)	mg/L	0.001	0.001	0.0018	0.0037	0.0031	0.0039	0.0015	0.0044	0.0017	0.0026	0.0025	ND (0.0010)	ND (0.0010)	R	ND (0.0010)	0.0017	0.0012	0.0025	0.0026	0.0022	0.0118	0.0021	-	0.0056
Phosphorus	mg/L	0.01	0.0278	0.0156	0.0118	0.0142	0.0183	0.0165	0.0241	0.0155	0.0188	0.0112	0.0159	0.0255	0.0277	0.0192	0.0272	0.0267	0.0243	0.0295	0.0266	0.0328	0.0311	-	0.0109
Sulfate	mg/L	-	122	164	157	123	125	121	165	147	153	156	131	156	143	111	113	141	175	144	159	151	148	-	186
Total dissolved solids (TDS)	mg/L	-	463	460	412	365	377	447 DLDS	527 DLDS	457 DLDS	450 DLDS	468 DLDS	395	482	386	369	445	500	556	520	505	486	458	-	497
Total kjeldahl nitrogen (TKN)	mg/L	-	0.75	0.41	0.99	0.5	0.86	6.49	3.33	0.91	0.5	0.45	2.86	0.8	0.57	0.72	1.85	0.93	0.86	1.88	0.9	1.14	0.91	-	0.52
Total suspended solids (TSS)	mg/L	-	10.4	4.8	2.8	2.5	ND (2.0)	6.6	7.4	3.1	7.5	4.3	3.4	5.6	2.2	6.2	5.7	3.3	3.3	7.2	6.5	5.4	5.6	-	5.1
Un-ionized ammonia	mg/L	0.02	-	-	-	-	-	0.0234	0.0178	0.00397	0.00232	0.00224	0.00218	0.00928	0.00777	0.0138	0.0098	0.00323	0.0015	0.00583	0.00122	0.00184	0.00705	-	0.003
Field Parameters																									
pH, field	s.u.	6.5-8.5	-	-	-	-	7.74	7.37	7.6	7.63	7.87	7.65	6.8	7.7	7.63	8.3	7.8	7.8	7.96	7.5	7.7	7.36	7.7	-	8
Temperature, field	Deg C	-	-	-	-	25.0	-	3	4	3	10	19	5	10	26	4	3	3	1	4	6.6	2.5	14.4	-	7.5
Metals																									
Aluminum	mg/L	0.075	0.123	0.134	0.031	0.053	0.043	0.193	0.283	0.25	0.432	0.038	0.085	0.434	0.113	0.232	0.282	0.363	0.364	0.566	0.161	0.406	0.154	0.24	0.063
Antimony	mg/L	0.02	0.00042	0.00056	0.00061	0.00055	0.00044	0.00044	0.00041	0.00043	0.0004	0.00042	0.00035	0.00038	0.00042	0.00042	0.00041	0.00064	0.00095	0.00065	0.00038	0.00047	0.0004	0.00041	0.00043
Arsenic	mg/L	0.005	0.00125	0.00094	0.0013	0.00216	0.00213	0.00108	0.00083	0.00081	0.00106	0.00134	0.00107	0.00087	0.00179	0.00129	0.00116	0.00282	0.00161	0.00139	0.00132	0.00134	0.00151	0.00158	0.00106
Barium	mg/L	-	0.0433	0.0379	0.0411	0.0388	0.0405	0.0529	0.048	0.0397	0.043	0.0429	0.0421	0.0477	0.039	0.0398	0.0558	0.0614	0.0672	0.0599	0.0625	0.059	0.0593	0.0659	0.0419
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)	ND (0.00010)	ND (0.00010)	ND (0.00010)	ND (0.00010)	ND (0.00010)	ND (0.00010)	ND (0.00010)	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)	ND (0.000050)	ND (0.000050)	ND (0.000050)	ND (0.000050)	ND (0.000050)	ND (0.000050)	ND (0.000050)	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	0.291	0.172	0.179	0.128	0.12	0.115	0.098	0.094	0.141	0.173	0.126	0.121	0.357	0.153	0.129	0.112	0.128	0.156	0.113	0.102	0.18	0.177	0.141
Cadmium	mg/L	0.0002	0.000025	0.000039	0.000019	0.000022	ND (0.000030)	ND (0.000030) DLI	0.00003	0.000033	0.000036	ND (0.000040) DLM	ND (0.000030)	ND (0.000055)	ND (0.000040)	ND (0.000030)	ND (0.000040)	0.000118	ND (0.00020)	ND (0.00030)	ND (0.00020)	ND (0.00020)	ND (0.00010)	ND (0.000080)	ND (0.000030)
Calcium	mg/L	-	67	79.6	61	59.9	62	84	85.1	77.7	79.9	76.9	73.1	75.9	55.8	60.9	66.3	78.4	87.5	76.9	77.1	78	74.9	97.2	59.5
Cobalt	mg/L	0.0009	0.00019	0.00033	0.00013	0.00013	0.0001	0.00023	0.00031	0.00029	0.00039	0.0002	0.00018	0.00043	0.00014	0.00024	0.00035	0.00038	0.00048	0.00186	0.00058	0.00049	0.00035	0.00057	ND (0.00010)
Copper	mg/L	0.005	ND (0.0010)	0.0015	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0010)	0.0013	0.0016	0.0014	0.0011	ND (0.0010)	0.0017	ND (0.0010)	0.0013	0.0016	0.0024	0.0027	0.0025	0.0025	0.0025	0.0015	0.0018	ND (0.0010)
Iron	mg/L	0.3	0.162	0.113	ND (0.050)	ND (0.050)	0.05	0.201	0.246	0.196	0.362	ND (0.050)	0.082	0.444	0.087	0.267	0.308	0.377	0.351	0.587	0.168	0.415	0.16	0.332	0.068
Lead	mg/L	0.005	0.0002	0.00022	ND (0.00010)	ND (0.00010)	ND (0.00010)	0.0002	0.00025	0.00022	0.0003	ND (0.00010)	0.00013	0.00033	ND (0.00010)	0.0002	0.00029	0.00041	0.00051	0.00059	0.00035	0.00053	0.00022	0.00044	0.00018
Magnesium	mg/L	-	21.9	23.8	22.8	17.5	17.5	20.2	22	19.7	23.1	23.9	20.2	21.3	19.6	18.1	17.7	20.3	24.3	22.2	22.1	22.6	22.5	33.7	25.6
Manganese	mg/L	-	0.0395	0.0135	0.00766	0.0342	0.0194	0.0336	0.0167	0.0104	0.0402	0.0515	0.0111	0.0306	0.0835	0.0629	0.0307	0.0204	0.0211	0.128	0.0444	0.0299	0.113	0.0685	0.0116
Mercury	mg/L	0.0002	ND (0.0000010)	ND (0.0000010)	ND (0.000010)	ND (0.000010)	ND (0.0000010)	ND (0.000010)	ND (0.000010)	ND (0.0000010)	ND (0.000010)	ND (0.000010)	ND (0.0000010)	ND (0.0000050)	ND (0.000010)	ND (0.0000010)	ND (0.000010)	ND (0.000010)	ND (0.000010)	ND (0.000010)	0.0000052	0.0000052	ND (0.0000050)	0.000005	ND (0.0000050)
Molybdenum	mg/L	0.04	0.0196	0.0426	0.044	0.0653	0.0637	0.0522	0.0374	0.0354	0.0391	0.0535	0.0364	0.0378	0.0495	0.0442	0.046	0.0739	0.132	0.082	0.0647	0.0731	0.0659	0.0677	0.0507
Nickel	mg/L	0.025	0.0035	0.00268	0.00236	0.002	0.00161	0.00248	0.0031	0.00285	0.00304	0.0027	0.00267	0.00437	0.00301	0.00341	0.0038	0.00694	0.00811	0.013	0.00604	0.00432	0.00396	0.00612	0.00329
Potassium	mg/L	-	4.27	3.66	4.11	3.63	3.85	4.54	5.12	4.78	4.45	4.48	5.79	7.16	6.71	7.64	9.05	16.2	23.4	16.7	21.3	19.3	18.1	17.7	10.8
Selenium	mg/L	0.1	0.000977	0.00214	0.00149	0.00115	0.00123	0.00158	0.00208	0.00182	0.00147	0.00143	0.000652	0.00187	0.00117	0.000888	0.000917	0.00177	0.00291	0.00202	0.0013	0.00134	0.00119	0.000943	0.000918
Silicon	mg/L	-	0.814	1.37	0.378	0.892	1.01	1.45	2.4	2.23	2.46	1.27	1.52	2.29	1.13	2.17	2.73	3.22	2.93	3.08	0.79	2.38	1.09	2.12	0.79
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)	ND (0.000050)	ND (0.000050)	ND (0.000050)	ND (0.000050)	ND (0.000050)	ND (0.000050)	ND (0.000050)	ND (0.000050)	ND (0.000050)	ND (0.000050)	ND (0.000050)	0.000072	ND (0.000050)	ND (0.000050)	ND (0.000050)
Sodium	mg/L	-	43.4	36.1	38.6	29.1	23.9	31.9	34.7	31.3	35.5	36.9	34.8	37.3	34.3	32.7	35.1	40.2	51.4	55.2	63	44.9	43.5	63.9	59.8
Strontium	mg/L	-	0.494	0.597	0.573	0.517	0.533	0.681	0.675	0.563	0.587	0.624	0.617	0.606	0.542	0.51	0.551	0.595	0.718	0.569	0.583	0.614	0.58	0.776	0.535
Thallium	mg/L	0.0003	0.000019	0.000018	0.00003	ND (0.000020)	0.000019	0.000014	0.000015	0.000015	0.000021	0.00002	0.000011	0.000023	0.000026	0.000015	0.000016	0.000036	0.000148	0.000372	0.000134	0.000109	0.000099	0.000122	0.000019
Tin	mg/L	-	ND (0.00010)	ND (0.00010)	ND (0.00010)	ND (0.00010)	ND (0.00010)	ND (0.00010)	ND (0.00010)	ND (0.00010)	ND (0.00010)	ND (0.00010)	ND (0.00010)	ND (0.00010)	ND (0.00010)	ND (0.00010)	ND (0.00010)	ND (0.00010)	ND (0.00010)	ND (0.00010)	ND (0.00010)	ND (0.00010)	ND (0.00027)	ND (0.00016)	ND (0.00010)	ND (0.00010)
Vanadium	mg/L	0.006	ND (0.00050)	0.00055	ND (0.00050)	0.00056	ND (0.00050)	0.00062	0.00079	0.00069	0.00108	ND (0.00050)	ND (0.00050)	0.00132	0.00072	0.00084	0.00093	0.00119	0.00108	0.00151	0.00053	0.00113	0.00058	0.00078	ND (0.00050)
Zinc	mg/L	0.03	0.0033	ND (0.0030)	ND (0.0030)	ND (0.0030)	ND (0.0030)	ND (0.0030)	0.0085	ND (0.0030)	ND (0.0030)	0.0032	0.0034	ND (0.0030)	ND (0.0030)	ND (0.0030)	ND (0.0030)	0.0045	0.0059	0.0063	0.0044	0.0082	ND (0.0030)	0.0043	ND (0.0030)
Volatiles																									
1,1,1,2-Tetrachloroethane	µg/L	20	ND (0.50)	ND (0.50)	ND (0.50) R	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	R	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	-	ND (0.50)
1,1,1-Trichloroethane	µg/L	10	ND (0.50)	ND (0.50)	ND (0.50) R	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	R	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	-	ND (0.50)
1,1,2,2-Tetrachloroethane	µg/L	70	ND (0.50)	ND (0.50)	ND (0.50) R	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	R	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	-	ND (0.50)
1,1,2-Trichloroethane	µg/L	800	ND (0.50)	ND (0.50)	ND (0.50) R	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	R	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	-	ND (0.50)
1,1-Dichloroethane	µg/L	200	ND (0.50)	ND (0.50)	ND (0.50) R	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	R	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	-	ND (0.50)
1,1-Dichloroethene	µg/L	40	ND (0.50)	ND (0.50)	ND (0.50) R	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	R	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	-	ND (0.50)
1,2-Dibromoethane (Ethylene dibromide)	µg/L	5	ND (0.20)	ND (0.20)	ND (0.20) R	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	R	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	-	ND (0.20)
1,2-Dichlorobenzene	µg/L	2.5	ND (0.50)	ND (0.50)	ND (0.50) R	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	R	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	-	ND (0.50)
1,2-Dichloroethane	µg/L	100	ND (0.50)	ND (0.50)	ND (0.50) R	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	R	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	-	ND (0.50)
1,2-Dichloropropane	µg/L	0.7	ND (0.50)	ND (0.50)	ND (0.50) R	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	R	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	-	ND (0.50)
1,3-Dichlorobenzene	µg/L	2.5	ND (0.50)	ND (0.50)	ND (0.50) R	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	R	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	-	ND (0.50)
1,4-Dichlorobenzene	µg/L	4	ND (0.50)	ND (0.50)	ND (0.50) R	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	R	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	-	ND (0.50)
2-Butanone (Methyl ethyl ketone) (MEK)	µg/L	400	ND (20)	ND (20)	ND (20) R	ND (20)	ND (20)	ND (20)	ND (20)	ND (20)	ND (20)	ND (20)	ND (20)	ND (20)	R	ND (20)	ND (20)	ND (20)	ND (20)	69	ND (20)	ND (20)	ND (20)	-	ND (20)
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	µg/L	-	ND (20)	ND (20)	ND (20) R	ND (20)	ND (20)	ND (20)	ND (20)	ND (20)	ND (20)	ND (20)	ND (20)	ND (20)	R	ND (20)	ND (20)	ND (20)	ND (20)	ND (20)	ND (20)	ND (20)	ND (20)	-	ND (20)
Acetone	µg/L	-	22	ND (20)	ND (20) R	ND (20)	ND (20)	ND (20)	ND (20)	ND (20)	ND (20)	ND (20)	ND (20)	ND (20)	R	ND (20)	ND (20)	ND (20)	ND (20)	283	ND (20)	ND (20)	ND (20)	-	ND (20)
Benzene	µg/L	100	ND (0.50)	ND (0.50)	ND (0.50) R	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	R	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	-	ND (0.50)
Bromodichloromethane	µg/L	200	ND (1.0)	ND (1.0)	ND (1.0) R	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	R	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	-	ND (1.0)
Bromoform	µg/L	60	ND (1.0)	ND (1.0)	ND (1.0) R	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	R	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	-	ND (1.0)
Bromomethane (Methyl bromide)	µg/L	0.9	ND (0.50)	ND (0.50)	ND (0.50) R	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	R	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	-	ND (0.50)
Carbon tetrachloride	µg/L	-	ND (0.50)	ND (0.50)	ND (0.50) R	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	R	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	-	ND (0.50)

Appendix F

Monthly Discharge Chemical Monitoring – Equalization Pond, General Chemistry, Metals, and VOCs/sVOCs
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	EQ Pond	EQ Pond		EQ Pond	EQ Pond	EQ Pond	EQ Pond	EQ Pond[3]	EQ Pond[3]	EQ Pond	EQ Pond	EQ Pond	EQ Pond	EQ Pond
Sample Date:			3/31/2016	5/3/2016	7/14/2016[1]	8/26/2016	9/22/2016	1/25/2017	2/21/2017	3/20/2017	5/8/2017	6/5/2017	2/22/2018	4/23/2018	8/28/2018	11/7/2018	11/19/2018	12/17/2018	1/22/2019	3/25/2019	1/13/2020	2/17/2020	4/13/2020	6/1/2020	12/14/2021
Parameters	**Units**	**PWQO**																							
Chlorobenzene	µg/L	15	ND (0.50)	ND (0.50)	ND (0.50) R	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	R	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	-	ND (0.50)
Chloroethane	µg/L	-	ND (1.0)	ND (1.0)	ND (1.0) R	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	R	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	-	ND (1.0)
Chloroform (Trichloromethane)	µg/L	-	ND (1.0)	ND (1.0)	ND (1.0) R	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	R	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	-	ND (1.0)
cis-1,2-Dichloroethene	µg/L	200	ND (0.50)	ND (0.50)	ND (0.50) R	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	R	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	1.25	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	-	ND (0.50)
cis-1,3-Dichloropropene	µg/L	-	ND (0.50)	ND (0.50)	ND (0.50) R	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	R	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	-	ND (0.50)
Dibromochloromethane	µg/L	40	ND (1.0)	ND (1.0)	ND (1.0) R	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	R	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	-	ND (1.0)
Dichlorodifluoromethane (CFC-12)	µg/L	-	ND (1.0)	ND (1.0)	ND (1.0) R	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	R	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	-	ND (1.0)
Ethylbenzene	µg/L	8	ND (0.50)	ND (0.50)	ND (0.50) R	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	R	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	-	ND (0.50)
Hexane	µg/L	-	ND (0.50)	ND (0.50)	ND (0.50) R	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	R	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	-	ND (0.50)
m&p-Xylenes	µg/L	2	ND (1.0)	ND (1.0)	ND (1.0) R	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	R	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	-	ND (1.0)
Methyl tert butyl ether (MTBE)	µg/L	200	ND (0.50)	ND (0.50)	ND (0.50) R	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	R	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	1.28	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	-	ND (0.50)
Methylene chloride	µg/L	100	ND (2.0)	ND (2.0)	ND (2.0) R	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	R	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	-	ND (2.0)
o-Xylene	µg/L	40	ND (0.50)	ND (0.50)	ND (0.50) R	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	R	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	-	ND (0.50)
Styrene	µg/L	4	ND (0.50)	ND (0.50)	ND (0.50) R	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	R	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	-	ND (0.50)
Tetrachloroethene	µg/L	50	ND (0.50)	ND (0.50)	ND (0.50) R	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	R	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	-	ND (0.50)
Toluene	µg/L	0.8	ND (0.50)	ND (0.50)	ND (0.50) R	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	R	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	0.61	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	-	ND (0.50)
trans-1,2-Dichloroethene	µg/L	200	ND (0.50)	ND (0.50)	ND (0.50) R	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	R	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	-	ND (0.50)
trans-1,3-Dichloropropene	µg/L	7	ND (0.50)	ND (0.50)	ND (0.50) R	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	R	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	-	ND (0.50)
Trichloroethene	µg/L	20	ND (0.50)	ND (0.50)	ND (0.50) R	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	R	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	-	ND (0.50)
Trichlorofluoromethane (CFC-11)	µg/L	-	ND (1.0)	ND (1.0)	ND (1.0) R	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	R	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	-	ND (1.0)
Trihalomethanes	µg/L	-	-	-	ND (2.0) R	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	R	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	-	
Vinyl chloride	µg/L	600	ND (0.50)	ND (0.50)	ND (0.50) R	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	R	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	-	ND (0.50)
Xylenes (total)	µg/L	-	ND (1.1)	ND (1.1)	ND (1.1) R	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	R	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	-	ND (1.1)
Semi-Volatiles																									
1,2,4-Trichlorobenzene	µg/L	0.5	ND (0.40)	ND (0.40)	ND (0.40) R	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	R	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	**ND (1.0)**	ND (0.40)	ND (0.40)	-	ND (0.40)
1,2-Dichlorobenzene	µg/L	2.5	ND (0.40)	ND (0.40)	ND (0.40) R	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	R	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (1.0)	ND (0.40)	ND (0.40)	-	ND (0.40)
1,3-Dichlorobenzene	µg/L	2.5	ND (0.40)	ND (0.40)	ND (0.40) R	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	R	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (1.0)	ND (0.40)	ND (0.40)	-	ND (0.40)
1,4-Dichlorobenzene	µg/L	4	ND (0.40)	ND (0.40)	ND (0.40) R	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	R	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (1.0)	ND (0.40)	ND (0.40)	-	ND (0.40)
1-Methylnaphthalene	µg/L	2	ND (0.40)	ND (0.40)	ND (0.40) R	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	R	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (1.0)	ND (0.40)	ND (0.40)	-	ND (0.40)
2,3,4,5-Tetrachlorophenol	µg/L	-	ND (0.50)	ND (0.50)	ND (0.50) R	ND (0.50)	ND (1.5)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	R	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (1.3)	ND (0.50)	ND (0.50)	-	ND (0.50)
2,3,4,6-Tetrachlorophenol	µg/L	-	ND (0.50)	ND (0.50)	ND (0.50) R	ND (0.50)	ND (1.5)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	R	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (1.3)	ND (0.50)	ND (0.50)	-	ND (0.50)
2,3,6-Trichlorophenol	µg/L	-	ND (0.50)	ND (0.50)	ND (0.50) R	ND (0.50)	ND (1.5)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	R	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	-	ND (0.50)
2,4,5-Trichlorophenol	µg/L	18	ND (0.50)	ND (0.50)	ND (0.50) R	ND (0.50)	ND (1.5)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	R	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (1.3)	ND (0.50)	ND (0.50)	-	ND (0.50)
2,4,6-Trichlorophenol	µg/L	18	ND (0.50)	ND (0.50)	ND (0.50) R	ND (0.50)	ND (1.5)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	R	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (1.3)	ND (0.50)	ND (0.50)	-	ND (0.50)
2,4-Dichlorophenol	µg/L	2.0	ND (0.30)	ND (0.30)	ND (0.30) R	ND (0.30)	ND (0.90)	ND (0.30)	ND (0.30)	ND (0.30)	ND (0.30)	ND (0.30)	ND (0.30)	ND (0.30)	R	ND (0.30)	ND (0.30)	ND (0.30)	ND (0.30)	ND (0.30)	ND (0.30)	**ND (0.75)**	**ND (0.30)**	**ND (0.30)**	-	ND (0.30)
2,4-Dimethylphenol	µg/L	10	ND (0.50)	ND (0.50)	ND (0.50) R	ND (0.50)	ND (1.5)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	R	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (1.3)	ND (0.50)	ND (0.50)	-	ND (0.50)
2,4-Dinitrophenol	µg/L	-	ND (1.0)	ND (2.0)	ND (1.0) R	ND (1.0)	ND (4.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	R	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (2.5)	ND (1.0)	ND (1.0)	-	ND (1.0)
2,4-Dinitrotoluene	µg/L	4	ND (0.40)	ND (0.40)	ND (0.40) R	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	R	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (1.0)	ND (0.40)	ND (0.40)	-	ND (0.40)
2,6-Dinitrotoluene	µg/L	6	ND (0.40)	ND (0.40)	ND (0.40) R	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	R	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (1.0)	ND (0.40)	ND (0.40)	-	ND (0.40)
2-Chlorophenol	µg/L	7	ND (0.30)	ND (0.30)	ND (0.30) R	ND (0.30)	ND (0.90)	ND (0.30)	ND (0.30)	ND (0.30)	ND (0.30)	ND (0.30)	ND (0.30)	ND (0.30)	R	ND (0.30)	ND (0.30)	ND (0.30)	ND (0.30)	ND (0.30)	ND (0.30)	ND (0.75)	ND (0.30)	ND (0.30)	-	ND (0.30)
2-Methylnaphthalene	µg/L	2	ND (0.40)	ND (0.40)	ND (0.40) R	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	R	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (1.0)	ND (0.40)	ND (0.40)	-	ND (0.40)
3,3'-Dichlorobenzidine	µg/L	0.6	ND (0.40)	ND (0.40)	ND (0.40) R	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	R	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	**ND (1.0)**	ND (0.40)	ND (0.40)	-	ND (0.40)
4-Chloroaniline	µg/L	-	ND (0.40)	ND (0.40)	ND (0.40) R	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	R	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (1.0)	ND (0.40)	ND (0.40)	-	ND (0.40)
Acenaphthene	µg/L	-	ND (0.20)	ND (0.20)	ND (0.20) R	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	R	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.50)	ND (0.20)	ND (0.20)	-	ND (0.20)
Acenaphthylene	µg/L	-	ND (0.20)	ND (0.20)	ND (0.20) R	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	R	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.50)	ND (0.20)	ND (0.20)	-	ND (0.20)
Anthracene	µg/L	0.0008	ND (0.20)	ND (0.20)	ND (0.20) R	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	R	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	**ND (0.50)**	**ND (0.20)**	**ND (0.20)**	-	ND (0.20)
Benzo(a)anthracene	µg/L	0.0004	ND (0.20)	ND (0.20)	ND (0.20) R	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	R	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	**ND (0.50)**	**ND (0.20)**	**ND (0.20)**	-	ND (0.20)
Benzo(a)pyrene	µg/L	-	ND (0.050)	ND (0.050)	ND (0.050) R	ND (0.050)	ND (0.050)	ND (0.050)	ND (0.050)	ND (0.050)	ND (0.050)	ND (0.050)	ND (0.050)	ND (0.050)	R	ND (0.050)	ND (0.050)	ND (0.050)	ND (0.050)	ND (0.050)	ND (0.050)	ND (0.13)	ND (0.050)	ND (0.050)	-	ND (0.050)
Benzo(b)fluoranthene	µg/L	-	ND (0.20)	ND (0.20)	ND (0.20) R	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	R	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.50)	ND (0.20)	ND (0.20)	-	ND (0.20)
Benzo(g,h,i)perylene	µg/L	0.00002	ND (0.20)	ND (0.20)	ND (0.20) R	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	R	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	**ND (0.50)**	**ND (0.20)**	**ND (0.20)**	-	ND (0.20)
Benzo(k)fluoranthene	µg/L	0.0002	ND (0.20)	ND (0.20)	ND (0.20) R	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	R	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	**ND (0.50)**	**ND (0.20)**	**ND (0.20)**	-	ND (0.20)
bis(2-Chloroethyl)ether	µg/L	200	ND (0.40)	ND (0.40)	ND (0.40) R	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	R	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (1.0)	ND (0.40)	ND (0.40)	-	ND (0.40)
bis(2-Ethylhexyl)phthalate (DEHP)[2]	µg/L	0.6	ND (2.0)	ND (2.0)	ND (2.0) R	**12**	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	R	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	**ND (2.5)**	**ND (2.0)**	**ND (2.0)**	-	ND (2.0)
Chrysene	µg/L	0.0001	ND (0.20)	ND (0.20)	ND (0.20) R	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	R	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	**ND (0.50)**	**ND (0.20)**	**ND (0.20)**	-	ND (0.20)
Dibenz(a,h)anthracene	µg/L	0.002	ND (0.20)	ND (0.20)	ND (0.20) R	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	R	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	**ND (0.50)**	**ND (0.20)**	**ND (0.20)**	-	ND (0.20)
Diethyl phthalate	µg/L	-	ND (0.20)	ND (0.20)	ND (0.20) R	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	R	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.50)	ND (0.20)	ND (0.20)	-	ND (0.20)
Dimethyl phthalate	µg/L	-	ND (0.20)	ND (0.20)	ND (0.20) R	0.32	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	R	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.50)	ND (0.20)	ND (0.20)	-	ND (0.20)
Fluoranthene	µg/L	0.0008	ND (0.20)	ND (0.20)	ND (0.20) R	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	R	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	**ND (0.50)**	**ND (0.20)**	**ND (0.20)**	-	ND (0.20)
Fluorene	µg/L	0.2	ND (0.20)	ND (0.20)	ND (0.20) R	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	R	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	**ND (0.50)**	ND (0.20)	ND (0.20)	-	ND (0.20)
Hexachlorobenzene	µg/L	0.0065	ND (0.040)	ND (0.040)	ND (0.040) R	ND (0.040)	ND (0.040)	ND (0.040)	ND (0.040)	ND (0.040)	ND (0.040)	ND (0.040)	ND (0.040)	ND (0.040)	R	ND (0.040)	ND (0.040)	ND (0.040)	ND (0.040)	ND (0.040)	ND (0.040)	**ND (0.10)**	**ND (0.040)**	**ND (0.040)**	-	ND (0.040)
Hexachlorobutadiene	µg/L	0.009	ND (0.20)	ND (0.20)	ND (0.20) R	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	R	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	**ND (0.50)**	**ND (0.20)**	**ND (0.20)**	-	ND (0.20)
Indeno(1,2,3-cd)pyrene	µg/L	-	ND (0.20)	ND (0.20)	ND (0.20) R	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	R	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.50)	ND (0.20)	ND (0.20)	-	ND (0.20)
Naphthalene	µg/L	7	ND (0.20)	ND (0.20)	ND (0.20) R	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	R	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.50)	ND (0.20)	ND (0.20)	-	ND (0.20)
Pentachlorophenol	µg/L	0.5	ND (0.50)	ND (0.50)	ND (0.50) R	ND (0.50)	ND (1.5)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	R	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	**ND (1.3)**	ND (0.50)	ND (0.50)	ND (0.50)	-	ND (0.50)
Perylene	µg/L	0.00007	ND (0.20)	ND (0.20)	ND (0.20) R	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	R	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	**ND (0.50)**	**ND (0.20)**	**ND (0.20)**	-	ND (0.20)
Phenanthrene	µg/L	0.03	ND (0.20)	ND (0.20)	ND (0.20) R	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	R	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	**ND (0.50)**	**ND (0.20)**	**ND (0.20)**	-	ND (0.20)
Pyrene	µg/L	-	ND (0.20)	ND (0.20)	ND (0.20) R	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	R	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.50)	ND (0.20)	ND (0.20)	-	ND (0.20)

Footnotes:

0.01 Analytical results above the Provincial Water Quality Objectives (PWQO).
ND - Not detected at the associated reporting limit.
- - Not applicable.
1. Half the detection limit is used for values below their detection limits for calculation purposes.
2. Reporting limit for DEHP is higher than the PWQO.
3. All 2019 data are unvalidated preliminary results.

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.
HTC - Hardness was calculated from Total Ca and/or Mg concentrations and may be biased high (dissolved Ca/Mg results unavailable).
J - Estimated concentration.
N/A - Result not available.
ND - Not detected at the associated reporting limit.
R - Rejected.
- - Not applicable.

Appendix F

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

Sample Location: / Sample Date: / Parameters	Units	PWQO	East Pond 5/3/2016	East Pond 7/14/2016 [1]	East Pond 8/26/2016	East Pond 9/22/2016	East Pond 1/25/2017	East Pond 2/21/2017	East Pond 3/20/2017	East Pond 5/8/2017	East Pond 6/5/2017
General Chemistry											
Alkalinity, total (as CaCO3)	mg/L	-	122	53	95	104	33	23	105	126	117
Ammonia-N	mg/L	-	ND (0.020)	1.61	2.93	4.06	2.84 DLHC	1.30 DLHC	0.125	0.108	0.147
Bromide	mg/L	-	0.3	1.36	0.78	0.47	ND (0.10)	ND (0.10)	0.23	0.47	0.44
Chemical oxygen demand (COD)	mg/L	-	26	26	25	36	ND (10)	ND (10)	ND (10)	23	12
Chloride	mg/L	-	38.7	42	25.5	26.3	9.85	4.14	33.2	40.7	55.3
Chromium VI (hexavalent)	mg/L	0.001	ND (0.0010)	ND (0.0010) R	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0010)	**0.0015**	ND (0.0010)
Conductivity	umhos/cm	-	700	665	534	555	156	75.6	636	723	683
Cyanide (total)	mg/L	0.005	ND (0.0020)	ND (0.0020) R	ND (0.0020)	ND (0.0020)	**0.0085**	ND (0.0020)	ND (0.0020)	ND (0.0020)	ND (0.0020)
Dissolved organic carbon (DOC) (dissolved)	mg/L	-	6	5.2	4.7	5.2	2.4	1.4	5	4.8	5
Fluoride	mg/L	-	0.645	1.1	0.816	0.838	0.163	0.074	0.474	0.609	0.529
Hardness	mg/L	-	310	250	210	236	59 HTC	43 HTC	254 HTC	283 HTC	262 HTC
Nitrate (as N)	mg/L	-	0.058	ND (0.020) R	ND (0.020)	ND (0.020)	0.16	ND (0.020)	0.172	0.114	ND (0.020)
Nitrite (as N)	mg/L	-	ND (0.010)	ND (0.010) R	ND (0.010)	ND (0.010)	ND (0.010)	ND (0.010)	ND (0.010)	ND (0.010)	ND (0.010)
pH, lab	s.u.	6.5-8.5	8.41	8.23	8.22	8.16	7.85	7.44	8.19	8.14	8.29
Phenolics (total)	mg/L	0.001	**0.0019**	**0.0031**	**0.0025**	**0.0028**	**0.0032**	**0.0043**	ND (0.0010)	**0.0024**	**0.0031**
Phosphorus	mg/L	0.01	**0.0239**	**0.0244**	**0.0223**	**0.0604**	**0.0437**	**0.0224**	**0.042**	**0.0372**	**0.0196**
Sulfate	mg/L	-	186	180	135	135	24.7	9.89	143	175	154
Total dissolved solids (TDS)	mg/L	-	451	388	343	373	86 DLDS	44 DLDS	400 DLDS	459 DLDS	421 DLDS
Total kjeldahl nitrogen (TKN)	mg/L	-	0.46	2.12	2.76	4.75	3.54	1.55	0.57	ND (1.5) DLM	0.55
Total suspended solids (TSS)	mg/L	-	21	9.5	11.4	24.4	7.9	4.9	20.5	14	9.3
Un-ionized ammonia	mg/L	0.02	-	-	-	-	0.00217	0.00736	0.00191	0.00142	0.00496
Field Parameters											
pH, field	s.u.	6.5-8.5	-	-	-	7.87	6.81	7.61	8.08	7.77	7.89
Temperature, field	Deg C	-	-	-	-	21	2	4	3	10	19
Metals											
Aluminum	mg/L	0.075	**0.667**	**0.377**	**0.318**	**1.47**	**1.08**	**0.607**	**0.689**	**1.16**	**0.254**
Antimony	mg/L	0.02	0.00066	0.00095	0.00056	0.00061	0.00021	0.00017	0.00047	0.00055	0.00054
Arsenic	mg/L	0.005	0.00122	0.00206	0.00206	0.00294	0.0006	0.00035	0.00102	0.00133	0.00119
Barium	mg/L	-	0.0413	0.0478	0.0431	0.0599	0.0162	0.00936	0.0413	0.0451	0.0396
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)	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)	ND (0.000050)
Boron	mg/L	0.2	0.095	0.109	0.094	0.104	0.016	ND (0.010)	0.071	0.101	0.112
Cadmium	mg/L	0.0002	ND (0.000080)	ND (0.000060)	0.000045	ND (0.000070)	0.000067	0.000058	0.000049	ND (0.000090) DLM	ND (0.000040) DLM
Calcium	mg/L	-	82.9	65.8	59.6	66	17.3	11.6	69.9	76.5	67.6
Cobalt	mg/L	0.0009	0.00063	0.00035	0.00028	0.00069	0.00049	0.00033	0.00052	0.00087	0.00037
Copper	mg/L	0.005	0.0022	0.0016	0.0017	0.0027	0.0019	0.0015	0.0021	0.0027	0.0017
Iron	mg/L	0.3	**0.599**	**0.311**	**0.351**	**1.18**	**0.866**	**0.506**	**0.572**	**1.17**	0.24
Lead	mg/L	0.005	0.00052	0.00038	0.00035	0.00094	0.00131	0.00212	0.00054	0.00177	0.00035
Magnesium	mg/L	-	24.9	20.7	14.9	17.2	3.88	3.44	19.4	22.4	22.5
Manganese	mg/L	-	0.0372	0.0146	0.0174	0.0478	0.0268	0.0218	0.0354	0.0542	0.0467
Mercury	mg/L	0.0002	ND (0.000010)	ND (0.000010)	ND (0.000010)	ND (0.000010)	0.000011	ND (0.000010)	ND (0.000010)	ND (0.000010)	ND (0.000010)
Molybdenum	mg/L	0.04	**0.057**	**0.126**	**0.078**	**0.0768**	0.00911	0.00457	**0.0405**	**0.0663**	**0.0654**
Nickel	mg/L	0.025	0.00285	0.00258	0.00205	0.00342	0.00155	0.00116	0.00279	0.00364	0.00211
Potassium	mg/L	-	3.97	4.46	3.95	4.83	1.82	0.947	4.35	4.94	4.8
Selenium	mg/L	0.1	0.00281	0.00258	0.0024	0.00184	0.000796	0.000429	0.00225	0.0027	0.00223
Silicon	mg/L	-	2.35	1.5	1.59	4.44	2.72	1.46	3.07	3.81	1.81
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)	ND (0.000050)
Sodium	mg/L	-	27.4	32.7	21	22.2	6	3.56	25	28.9	30
Strontium	mg/L	-	0.712	0.58	0.567	0.61	0.121	0.0748	0.583	0.68	0.625
Thallium	mg/L	0.0003	0.000041	0.000028	ND (0.000030)	0.000038	0.000034	0.000019	0.000036	0.000045	0.000024
Tin	mg/L	-	0.00012	ND (0.00010)	ND (0.00010)	0.00016	0.00016	0.00017	ND (0.00010)	0.00013	ND (0.00010)
Vanadium	mg/L	0.006	0.00155	0.0012	0.00105	0.00347	0.00251	0.00155	0.0016	0.00263	0.00103
Zinc	mg/L	0.03	0.0037	ND (0.0030)	ND (0.0030)	0.0061	0.0094	0.0104	0.0052	0.0148	ND (0.0030)
Volatiles											
1,1,1,2-Tetrachloroethane	ug/L	20	ND (0.50)	ND (0.50) R	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)
1,1,1-Trichloroethane	ug/L	10	ND (0.50)	ND (0.50) R	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)
1,1,2,2-Tetrachloroethane	ug/L	70	ND (0.50)	ND (0.50) R	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)
1,1,2-Trichloroethane	ug/L	800	ND (0.50)	ND (0.50) R	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)
1,1-Dichloroethane	ug/L	200	ND (0.50)	ND (0.50) R	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)
1,1-Dichloroethene	ug/L	40	ND (0.50)	ND (0.50) R	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)
1,2-Dibromoethane (Ethylene dibromide)	ug/L	5	ND (0.20)	ND (0.20) R	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)
1,2-Dichlorobenzene	ug/L	2.5	ND (0.50)	ND (0.50) R	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)
1,2-Dichloroethane	ug/L	100	ND (0.50)	ND (0.50) R	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)
1,2-Dichloropropane	ug/L	0.7	ND (0.50)	ND (0.50) R	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)
1,3-Dichlorobenzene	ug/L	2.5	ND (0.50)	ND (0.50) R	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)
1,4-Dichlorobenzene	ug/L	4	ND (0.50)	ND (0.50) R	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)
2-Butanone (Methyl ethyl ketone) (MEK)	ug/L	400	ND (20)	ND (20) R	ND (20)	ND (20)	ND (20)	ND (20)	ND (20)	ND (20)	ND (20)
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	ug/L	-	ND (20)	ND (20) R	ND (20)	ND (20)	ND (20)	ND (20)	ND (20)	ND (20)	ND (20)
Acetone	ug/L	-	ND (20)	ND (20) R	ND (20)	ND (20)	ND (20)	ND (20)	ND (20)	ND (20)	ND (20)
Benzene	ug/L	100	ND (0.50)	ND (0.50) R	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)
Bromodichloromethane	ug/L	200	ND (1.0)	ND (1.0) R	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
Bromoform	ug/L	60	ND (1.0)	ND (1.0) R	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
Bromomethane (Methyl bromide)	ug/L	0.9	ND (0.50)	ND (0.50) R	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)
Carbon tetrachloride	ug/L	-	ND (0.50)	ND (0.50) R	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)

Parameters	East Pond 2/22/2018	East Pond 4/23/2018	East Pond 8/28/2018	East Pond 11/7/2018	East Pond 11/19/2018	East Pond 12/17/2018	East Pond [3] 1/22/2019	East Pond [3] 3/25/2019
General Chemistry								
Alkalinity, total (as CaCO3)	166	114	115	144	143	169	169	183
Ammonia-N	1.46	0.959	0.24	0.584	3.82	0.607	0.12	1.24 DLHC
Bromide	0.54	0.38	0.4	0.76	0.64	0.61	2.08	1.52
Chemical oxygen demand (COD)	29	24	33	32	30	23	25	25
Chloride	76.4	42.5	34.8	54.8	47.2	56.1	80.4	77.5
Chromium VI (hexavalent)	ND (0.0010)	ND (0.0010)	R	0.00053	0.0006	ND (0.00050)	ND (0.00050)	ND (0.00050)
Conductivity	815	657	516	662	636	746	898	881
Cyanide (total)	ND (0.0020)	ND (0.0020)	R	ND (0.0020)	ND (0.0020)	ND (0.0020)	ND (0.0020)	ND (0.0020)
Dissolved organic carbon (DOC) (dissolved)	5.3	4.6	5.34	7.26	5.6	5.73	5.72	5.75
Fluoride	0.541	0.549	0.561	0.574	0.562	0.541	0.993	0.68
Hardness	287	244	198	251	231	298	324 HTC	296 HTC
Nitrate (as N)	0.539	0.32	0.023	0.072	0.056	0.083	0.19	0.062
Nitrite (as N)	0.01	ND (0.010)	R	ND (0.010)	ND (0.010)	ND (0.010)	ND (0.010)	ND (0.010)
pH, lab	7.66	8.08	7.82	7.78	7.79	7.88	7.91	7.56
Phenolics (total)	**0.0023**	ND (0.0010)	**0.0143**	**0.0017**	**0.0015**	**0.0025**	**0.0016**	**0.0024**
Phosphorus	**0.0315**	**0.0315**	**0.0709**	**0.0542**	**0.044**	**0.0527**	**0.0388**	**0.0475**
Sulfate	138	155	90.3	113	122	153	189	159
Total dissolved solids (TDS)	470	429	319	433	433	492	551 DLDS	529 DLDS
Total kjeldahl nitrogen (TKN)	1.9	1.02	0.88	1.31	4.73	1.18	0.78	1.75
Total suspended solids (TSS)	7.8	5.2	14.1	15	2.3	11.7	7.5	10.7
Un-ionized ammonia	0.0035	0.00117	0.00588	0.0186	**0.0245**	0.00205	0.000122	0.00433
Field Parameters								
pH, field	7.2	6.7	7.62	8.3	7.7	7.42	6.97	7.4
Temperature, field	5	11	23	6	3	3	1	4
Metals								
Aluminum	**0.289**	**0.436**	**1.24**	**1.31**	**0.817**	**0.706**	**0.534**	**0.802**
Antimony	0.00034	0.00041	0.00046	0.00055	0.00049	0.00045	0.0011	0.00051
Arsenic	0.00112	0.00081	0.00469	0.00209	0.00169	0.00129	0.00183	0.0024
Barium	0.0529	0.0435	0.0749	0.0649	0.0638	0.0675	0.07	0.0624
Beryllium	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	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	0.115	0.067	0.085	0.099	0.085	0.087	0.126	0.1
Cadmium	ND (0.000060)	ND (0.000010)	ND (0.00020)	ND (0.00020)	ND (0.000085)	0.000106	ND (0.00020) DLM	ND (0.00070) DLM
Calcium	80.3	66.8	56	69.5	63.6	83.2	87.4	79.3
Cobalt	0.00052	0.00052	**0.00122**	**0.00121**	0.0008	0.00065	0.00067	**0.0017**
Copper	0.0016	0.002	0.0037	0.0034	**0.0051**	0.0026	0.0031	0.0023
Iron	**0.386**	**0.41**	**1.61**	**1.68**	**2.42**	**0.785**	**0.765**	**1.2**
Lead	0.00052	0.0022	0.00232	0.00259	0.00157	0.00108	0.00085	0.0025
Magnesium	21	18.8	14.2	18.9	17.5	21.9	25.6	23.9
Manganese	0.194	0.0235	0.175	0.0809	0.0483	0.0414	0.04	0.368
Mercury	ND (0.000010)	0.000005	0.000033	0.000053	0.000022	0.000019	0.000013	0.000028
Molybdenum	0.0315	**0.0453**	**0.0604**	**0.0582**	**0.0631**	**0.0736**	**0.16**	**0.0958**
Nickel	0.00408	0.00675	0.00522	0.00624	0.00594	0.00395	0.00996	0.00714
Potassium	6.18	7.24	12.4	16.8	16.1	19.3	30.5	20
Selenium	0.00079	0.0028	0.00107	0.00121	0.00118	0.00168	0.00366	0.00161
Silicon	2.27	2.29	4.81	5.2	4.09	3.94	3.46	4.06
Silver	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	39.3	25.9	22.2	35.6	27.2	33.5	49.7	45.5
Strontium	0.618	0.611	0.512	0.56	0.568	0.67	0.766	0.665
Thallium	0.000023	0.000036	0.000034	0.000046	0.000037	0.000043	0.00029	**0.000773**
Tin	ND (0.00010)	ND (0.00010)	0.00011	0.00013	ND (0.00010)	ND (0.00010)	ND (0.00010)	ND (0.00010)
Vanadium	0.00082	0.00137	0.00303	0.0033	0.00219	0.00176	0.00158	0.00201
Zinc	0.0044	0.0072	0.0157	0.0176	0.0132	0.0111	0.0116	0.02
Volatiles								
1,1,1,2-Tetrachloroethane	ND (0.50)	ND (0.50)	R	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)
1,1,1-Trichloroethane	ND (0.50)	ND (0.50)	R	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)
1,1,2,2-Tetrachloroethane	ND (0.50)	ND (0.50)	R	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)
1,1,2-Trichloroethane	ND (0.50)	ND (0.50)	R	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)
1,1-Dichloroethane	ND (0.50)	ND (0.50)	R	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	0.74
1,1-Dichloroethene	ND (0.50)	ND (0.50)	R	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)
1,2-Dibromoethane (Ethylene dibromide)	ND (0.20)	ND (0.20)	R	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)
1,2-Dichlorobenzene	ND (0.50)	ND (0.50)	R	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)
1,2-Dichloroethane	ND (0.50)	ND (0.50)	R	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)
1,2-Dichloropropane	ND (0.50)	ND (0.50)	R	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)
1,3-Dichlorobenzene	ND (0.50)	ND (0.50)	R	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)
1,4-Dichlorobenzene	ND (0.50)	ND (0.50)	R	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)
2-Butanone (Methyl ethyl ketone) (MEK)	ND (20)	ND (20)	R	ND (20)	ND (20)	ND (20)	ND (20)	ND (20)
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	ND (20)	ND (20)	R	ND (20)	ND (20)	ND (20)	ND (20)	ND (20)
Acetone	ND (20)	ND (20)	R	ND (20)	ND (20)	ND (20)	ND (20)	ND (20)
Benzene	ND (0.50)	ND (0.50)	R	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)
Bromodichloromethane	ND (1.0)	ND (1.0)	R	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
Bromoform	ND (1.0)	ND (1.0)	R	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
Bromomethane (Methyl bromide)	ND (0.50)	ND (0.50)	R	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)
Carbon tetrachloride	ND (0.50)	ND (0.50)	R	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)

Parameters	East Pond 1/13/2020	East Pond 2/17/2020	East Pond 3/9/2020	East Pond 3/16/2020	East Pond 3/23/2020	East Pond 4/13/2020	East Pond 6/1/2020	Pond A 9/1/2021	Pond A 10/7/2021	Pond A 12/14/2021
General Chemistry										
Alkalinity, total (as CaCO3)	131	145	-	-	-	145	-	60.4	39.6	115
Ammonia-N	0.864	0.484	-	-	-	0.135	-	ND (0.010)	0.273	0.065
Bromide	1.58	1.39	-	-	-	1.3	-	3.53	ND (0.10)	1.22
Chemical oxygen demand (COD)	48	15 -	-	-	-	32	-	12	ND (10)	20
Chloride	64.3	65.6	-	-	-	68.6	-	100	8.52	36
Chromium VI (hexavalent)	ND (0.00050)	0.00082	-	-	-	ND (0.00050)	-	ND (0.00050)	ND (0.00050)	0.00085
Conductivity	742	807	-	-	-	742	-	912	617	748
Cyanide (total)	ND (0.0020)	ND (0.0020)	-	-	-	ND (0.0020)	-	ND (0.0020)	ND (0.0020)	ND (0.0020)
Dissolved organic carbon (DOC) (dissolved)	5.38	4.8	-	-	-	8.49	-	5.65	0.97	3.9
Fluoride	0.495	0.512	-	-	-	0.493	-	1.4	0.626	0.891
Hardness	311	301	-	-	-	285	-	230	273	-
Nitrate (as N)	0.194	0.149	-	-	-	0.044	-	ND (0.020)	0.557	0.758
Nitrite (as N)	ND (0.010)	ND (0.010)	-	-	-	ND (0.010)	-	ND (0.010)	0.028	0.011
pH, lab	7.93	8.12	-	-	-	8.23	-	8.19	7.83	7.95
Phenolics (total)	**0.0046**	**0.0053**	-	-	-	**0.0024**	-	**0.0104**	**0.0103**	ND (0.010)
Phosphorus	**0.189**	**0.0344**	-	-	-	**0.0327**	-	**0.0172**	0.0034	**0.0387**
Sulfate	137	160	-	-	-	156	-	222	254	225
Total dissolved solids (TDS)	480	486	-	-	-	473	-	511	413	488
Total kjeldahl nitrogen (TKN)	1.81	0.9	-	-	-	0.77	-	0.56	0.45	0.44
Total suspended solids (TSS)	152	8.5	-	-	-	8.1	-	5.6	ND (3.0)	15.8
Un-ionized ammonia	0.00562	0.0043	-	-	-	0.00169	-	ND (0.0014)	0.00119	0.000125
Field Parameters										
pH, field	7.6	7.86	-	-	-	7.6	-	8.4	6.96	7
Temperature, field	6	2.5	-	-	-	14.4	-	24	20	7.9
Metals										
Aluminum	**5.52**	**0.433**	-	-	-	**0.28**	**1.11**	**0.329**	**0.087**	**1.05**
Antimony	0.00062	0.00046	-	-	-	0.00037	0.0005	0.00066	0.00076	0.00058
Arsenic	0.00373	0.00128	-	-	-	0.00161	0.0027	0.00401	0.00068	0.00138
Barium	0.0883	0.0574	-	-	-	0.0592	0.0699	0.0419	0.0489	0.0422
Beryllium	0.00024	ND (0.00010)	-	-	-	ND (0.00010)	ND (0.00010)	ND (0.00010)	ND (0.00010)	ND (0.00010)
Bismuth	0.000136	ND (0.000050)	-	-	-	ND (0.000050)	ND (0.000050)	ND (0.000050)	ND (0.000050)	ND (0.000050)
Boron	0.112	0.107	-	-	-	0.11	0.157	0.171	0.148	0.101
Cadmium	ND (0.00090)	ND (0.00030)	-	-	-	ND (0.00010)	ND (0.00030)	ND (0.000040)	ND (0.000060)	ND (0.00030)
Calcium	82.1	81.7	-	-	-	75.2	109	49.2	73.5	75.3
Cobalt	**0.00457**	0.00071	-	-	-	0.00047	**0.00178**	0.00038	0.00024	0.00079
Copper	**0.0101**	0.0024	-	-	-	0.0026	0.003	0.0016	ND (0.0010)	0.0034
Iron	**8.1**	**0.482**	-	-	-	**0.316**	**1.79**	0.288	0.093	**1.12**
Lead	**0.00926**	0.00084	-	-	-	0.0003	0.00242	0.00026	ND (0.00010)	0.00198
Magnesium	25.8	23.5	-	-	-	23.7	36.4	26.1	21.7	24.2
Manganese	0.167	0.0791	-	-	-	0.0506	0.274	0.00967	0.0229	0.0275
Mercury	0.0000833	0.0000084	-	-	-	ND (0.0000050)	0.0000327	ND (0.0000050)	ND (0.0000050)	0.0000256
Molybdenum	**0.0628**	**0.0744**	-	-	-	**0.0605**	**0.0743**	**0.081**	**0.155**	**0.0707**
Nickel	0.0158	0.00455	-	-	-	0.00436	0.00941	0.00412	0.00097	0.00461
Potassium	18	19.4	-	-	-	16.8	18.2	9.58	4.27	8.19
Selenium	0.00152	0.0013	-	-	-	0.00121	0.00109	0.0017	0.0211	0.00666
Silicon	11.1	2.62	-	-	-	1.37	3.89	1.41	1.33	3.92
Silver	ND (0.000050)	ND (0.000050)	-	-	-	ND (0.000050)	ND (0.000050)	ND (0.000050)	ND (0.000050)	ND (0.000050)
Sodium	41.3	43	-	-	-	43.7	70.1	81.4	25.5	30.6
Strontium	0.566	0.644	-	-	-	0.589	0.882	0.572	1.16	0.754
Thallium	**0.000325**	0.000117	-	-	-	0.000083	0.000127	0.000014	0.000039	0.000075
Tin	0.00031	0.00021	-	-	-	0.00035	ND (0.00010)	ND (0.00010)	ND (0.00010)	ND (0.00010)
Vanadium	**0.0124**	0.00114	-	-	-	0.0007	0.00264	0.00124	0.00066	0.0024
Zinc	**0.0457**	0.0086	-	-	-	0.0046	0.013	0.0086	ND (0.0030)	0.0116
Volatiles										
1,1,1,2-Tetrachloroethane	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	-	ND (0.50)	ND (0.50)	ND (0.50)
1,1,1-Trichloroethane	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	-	ND (0.50)	ND (0.50)	ND (0.50)
1,1,2,2-Tetrachloroethane	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	-	ND (0.50)	ND (0.50)	ND (0.50)
1,1,2-Trichloroethane	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	-	ND (0.50)	ND (0.50)	ND (0.50)
1,1-Dichloroethane	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	-	ND (0.50)	ND (0.50)	ND (0.50)
1,1-Dichloroethene	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	-	ND (0.50)	ND (0.50)	ND (0.50)
1,2-Dibromoethane (Ethylene dibromide)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	-	ND (0.20)	ND (0.20)	ND (0.20)
1,2-Dichlorobenzene	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	-	ND (0.50)	ND (0.50)	ND (0.50)
1,2-Dichloroethane	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	-	ND (0.50)	ND (0.50)	ND (0.50)
1,2-Dichloropropane	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	-	ND (0.50)	ND (0.50)	ND (0.50)
1,3-Dichlorobenzene	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	-	ND (0.50)	ND (0.50)	ND (0.50)
1,4-Dichlorobenzene	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	-	ND (0.50)	ND (0.50)	ND (0.50)
2-Butanone (Methyl ethyl ketone) (MEK)	ND (20)	ND (20)	ND (20)	ND (20)	ND (20)	ND (20)	-	ND (20)	ND (20)	ND (20)
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	ND (20)	ND (20)	ND (20)	ND (20)	ND (20)	ND (20)	-	ND (20)	ND (20)	ND (20)
Acetone	ND (20)	ND (20)	ND (20)	ND (20)	ND (20)	ND (20)	-	ND (20)	ND (20)	ND (20)
Benzene	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	-	ND (0.50)	ND (0.50)	ND (0.50)
Bromodichloromethane	ND (1.0)	ND (1.0)	ND (1.0)	ND (0.50)	ND (0.50)	ND (1.0)	-	ND (1.0)	ND (1.0)	ND (1.0)
Bromoform	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	-	ND (1.0)	ND (1.0)	ND (1.0)
Bromomethane (Methyl bromide)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	-	ND (0.50)	ND (0.50)	ND (0.50)
Carbon tetrachloride	ND (0.50)	ND (0.50)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.50)	-	ND (0.50)	ND (0.50)	ND (0.50)

Appendix F

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

Sample Location:			East Pond	East Pond	East Pond	East Pond	East Pond	East Pond	East Pond	East Pond	East Pond	East Pond	East Pond		East Pond	East Pond	East Pond	East Pond	East Pond	East Pond	East Pond	East Pond	East Pond	East Pond	East Pond	Pond A	Pond A	Pond A
Sample Date:			5/3/2016	7/14/2016 [1]	8/26/2016	9/22/2016	1/25/2017	2/21/2017	3/20/2017	5/8/2017	6/5/2017	2/22/2018	4/23/2018	8/28/2018	11/7/2018	11/19/2018	12/17/2018	1/22/2019 [3]	3/25/2019 [3]	1/13/2020	2/17/2020	3/9/2020	3/16/2020	3/23/2020	4/13/2020	6/1/2020	9/1/2021	10/7/2021	12/14/2021
Parameters	**Units**	**PWQO**																											
Chlorobenzene	ug/L	15	ND (0.50)	ND (0.50) R	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	R	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	-	ND (0.50)	ND (0.50)	ND (0.50)
Chloroethane	ug/L	-	ND (1.0)	ND (1.0) R	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	R	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	-	ND (1.0)	ND (1.0)	ND (1.0)
Chloroform (Trichloromethane)	ug/L	-	ND (1.0)	ND (1.0) R	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	R	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	-	ND (1.0)	ND (1.0)	ND (1.0)
cis-1,2-Dichloroethene	ug/L	200	ND (0.50)	ND (0.50) R	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	R	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	-	ND (0.50)	ND (0.50)	ND (0.50)
cis-1,3-Dichloropropene	ug/L	-	ND (0.50)	ND (0.50) R	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	R	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.30)	ND (0.30)	ND (0.30)	ND (0.50)	-	ND (0.50)	ND (0.50)	ND (0.50)
Dibromochloromethane	ug/L	40	ND (1.0)	ND (1.0) R	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	R	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	-	ND (1.0)	ND (1.0)	ND (1.0)
Dichlorodifluoromethane (CFC-12)	ug/L	-	ND (1.0)	ND (1.0) R	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	R	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	-	ND (1.0)	ND (1.0)	ND (1.0)
Ethylbenzene	ug/L	8	ND (0.50)	ND (0.50) R	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	R	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	-	ND (0.50)	ND (0.50)	ND (0.50)
Hexane	ug/L	-	ND (0.50)	ND (0.50) R	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	R	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	-	ND (0.50)	ND (0.50)	ND (0.50)
m&p-Xylenes	ug/L	2	ND (1.0)	ND (1.0) R	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	R	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (0.40)	ND (0.40)	ND (0.40)	ND (1.0)	-	ND (1.0)	ND (1.0)	ND (1.0)
Methyl tert butyl ether (MTBE)	ug/L	200	ND (0.50)	ND (0.50) R	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	R	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	-	ND (0.50)	ND (0.50)	ND (0.50)
Methylene chloride	ug/L	100	ND (2.0)	ND (2.0) R	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	R	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	-	ND (2.0)	ND (2.0)	ND (2.0)
o-Xylene	ug/L	40	ND (0.50)	ND (0.50) R	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	R	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.30)	ND (0.30)	ND (0.30)	ND (0.50)	-	ND (0.50)	ND (0.50)	ND (0.50)
Styrene	ug/L	4	ND (0.50)	ND (0.50) R	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	R	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	-	ND (0.50)	ND (0.50)	ND (0.50)
Tetrachloroethene	ug/L	50	ND (0.50)	ND (0.50) R	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	R	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	-	ND (0.50)	ND (0.50)	ND (0.50)
Toluene	ug/L	0.8	ND (0.50)	ND (0.50) R	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	R	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	-	ND (0.50)	ND (0.50)	0.55
trans-1,2-Dichloroethene	ug/L	200	ND (0.50)	ND (0.50) R	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	R	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	-	ND (0.50)	ND (0.50)	ND (0.50)
trans-1,3-Dichloropropene	ug/L	7	ND (0.50)	ND (0.50) R	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	R	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.30)	ND (0.30)	ND (0.30)	ND (0.50)	-	ND (0.50)	ND (0.50)	ND (0.50)
Trichloroethene	ug/L	20	ND (0.50)	ND (0.50) R	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	R	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	-	ND (0.50)	ND (0.50)	ND (0.50)
Trichlorofluoromethane (CFC-11)	ug/L	-	ND (1.0)	ND (1.0) R	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	R	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	-	ND (1.0)	ND (1.0)	ND (1.0)
Trihalomethanes	ug/L	-	ND (2.0) R	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	R	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (1.6)	ND (1.6)	ND (1.6)	ND (2.0)	-	ND (2.0)	ND (2.0)	ND (2.0)
Vinyl chloride	ug/L	600	ND (0.50)	ND (0.50) R	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	R	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	-	ND (0.50)	ND (0.50)	ND (0.50)
Xylenes (total)	ug/L	-	ND (1.1)	ND (1.1) R	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	R	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (0.50)	ND (0.50)	ND (0.50)	ND (1.1)	-	ND (1.1)	ND (1.1)	ND (1.1)
Semi-Volatiles																													
1,2,4-Trichlorobenzene	ug/L	0.5	ND (0.40)	ND (0.40) R	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	R	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	**ND (1.0)**	ND (0.40)	-	-	-	ND (0.40)	-	ND (0.40)	ND (0.40)	ND (0.40)
1,2-Dichlorobenzene	ug/L	2.5	ND (0.40)	ND (0.40) R	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	R	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (1.0)	ND (0.40)	-	-	-	ND (0.40)	-	ND (0.40)	ND (0.40)	ND (0.40)
1,3-Dichlorobenzene	ug/L	2.5	ND (0.40)	ND (0.40) R	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	R	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (1.0)	ND (0.40)	-	-	-	ND (0.40)	-	ND (0.40)	ND (0.40)	ND (0.40)
1,4-Dichlorobenzene	ug/L	4	ND (0.40)	ND (0.40) R	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	R	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (1.0)	ND (0.40)	-	-	-	ND (0.40)	-	ND (0.40)	ND (0.40)	ND (0.40)
1-Methylnaphthalene	ug/L	2	ND (0.40)	ND (0.40) R	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	R	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (1.0)	ND (0.40)	-	-	-	ND (0.40)	-	ND (0.40)	ND (0.40)	ND (0.40)
2,3,4,5-Tetrachlorophenol	ug/L	-	ND (0.50)	ND (0.50) R	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	R	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (1.3)	ND (0.50)	-	-	-	ND (0.50)	-	ND (0.50)	ND (0.50)	ND (0.50)
2,3,4,6-Tetrachlorophenol	ug/L	-	ND (0.50)	ND (0.50) R	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	R	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (1.3)	ND (0.50)	-	-	-	ND (0.50)	-	ND (0.50)	ND (0.50)	ND (0.50)
2,3,6-Trichlorophenol	ug/L	-	ND (0.50)	ND (0.50) R	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	R	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	-	-	-	ND (0.50)	-	ND (0.50)	ND (0.50)	ND (0.50)
2,4,5-Trichlorophenol	ug/L	18	ND (0.50)	ND (0.50) R	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	R	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (1.3)	ND (0.50)	-	-	-	ND (0.50)	-	ND (0.50)	ND (0.50)	ND (0.50)
2,4,6-Trichlorophenol	ug/L	18	ND (0.50)	ND (0.50) R	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	R	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (1.3)	ND (0.50)	-	-	-	ND (0.50)	-	ND (0.50)	ND (0.50)	ND (0.50)
2,4-Dichlorophenol	ug/L	0.2	ND (0.30)	ND (0.30) R	ND (0.30)	ND (0.30)	ND (0.30)	ND (0.30)	ND (0.30)	ND (0.30)	ND (0.30)	ND (0.30)	ND (0.30)	R	ND (0.30)	ND (0.30)	ND (0.30)	ND (0.30)	ND (0.30)	**ND (0.75)**	**ND (0.30)**	-	-	-	**ND (0.30)**	-	ND (0.30)	ND (0.30)	ND (0.30)
2,4-Dimethylphenol	ug/L	10	ND (0.50)	ND (0.50) R	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	R	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (1.3)	ND (0.50)	-	-	-	ND (0.50)	-	ND (0.50)	ND (0.50)	ND (0.50)
2,4-Dinitrophenol	ug/L	-	ND (1.0)	ND (1.0) R	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	R	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (2.5)	ND (1.0)	-	-	-	ND (1.0)	-	ND (1.0)	ND (1.0)	ND (1.0)
2,4-Dinitrotoluene	ug/L	4	ND (0.40)	ND (0.40) R	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	R	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (1.0)	ND (0.40)	-	-	-	ND (0.40)	-	ND (0.40)	ND (0.40)	ND (0.40)
2,6-Dinitrotoluene	ug/L	6	ND (0.40)	ND (0.40) R	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	R	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (1.0)	ND (0.40)	-	-	-	ND (0.40)	-	ND (0.40)	ND (0.40)	ND (0.40)
2-Chlorophenol	ug/L	7	ND (0.30)	ND (0.30) R	ND (0.30)	ND (0.30)	ND (0.30)	ND (0.30)	ND (0.30)	ND (0.30)	ND (0.30)	ND (0.30)	ND (0.30)	R	ND (0.30)	ND (0.30)	ND (0.30)	ND (0.30)	ND (0.30)	ND (0.75)	ND (0.30)	-	-	-	ND (0.30)	-	ND (0.30)	ND (0.30)	ND (0.30)
2-Methylnaphthalene	ug/L	2	ND (0.40)	ND (0.40) R	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	R	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (1.0)	ND (0.40)	-	-	-	ND (0.40)	-	ND (0.40)	ND (0.40)	ND (0.40)
3,3'-Dichlorobenzidine	ug/L	0.6	ND (0.40)	ND (0.40) R	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	R	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	**ND (1.0)**	ND (0.40)	-	-	-	ND (0.40)	-	ND (0.40)	ND (0.40)	ND (0.40)
4-Chloroaniline	ug/L	-	ND (0.40)	ND (0.40) R	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	R	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (1.0)	ND (0.40)	-	-	-	ND (0.40)	-	ND (0.40)	ND (0.40)	ND (0.40)
Acenaphthene	ug/L	-	ND (0.20)	ND (0.20) R	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	R	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.50)	ND (0.20)	-	-	-	ND (0.20)	-	ND (0.20)	ND (0.20)	ND (0.20)
Acenaphthylene	ug/L	-	ND (0.20)	ND (0.20) R	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	R	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.50)	ND (0.20)	-	-	-	ND (0.20)	-	ND (0.20)	ND (0.20)	ND (0.20)
Anthracene	ug/L	0.0008	ND (0.20)	ND (0.20) R	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	R	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	**ND (0.50)**	**ND (0.20)**	-	-	-	**ND (0.20)**	-	ND (0.20)	ND (0.20)	ND (0.20)
Benzo(a)anthracene	ug/L	0.0004	ND (0.20)	ND (0.20) R	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	R	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	**ND (0.50)**	**ND (0.20)**	-	-	-	**ND (0.20)**	-	ND (0.20)	ND (0.20)	ND (0.20)
Benzo(a)pyrene	ug/L	-	ND (0.10)	ND (0.050) R	ND (0.050)	ND (0.050)	ND (0.050)	ND (0.050)	ND (0.050)	ND (0.050)	ND (0.050)	ND (0.050)	ND (0.050)	R	ND (0.050)	ND (0.050)	ND (0.050)	ND (0.050)	ND (0.050)	ND (0.13)	ND (0.050)	-	-	-	ND (0.050)	-	ND (0.050)	ND (0.050)	ND (0.050)
Benzo(b)fluoranthene	ug/L	-	ND (0.40)	ND (0.20) R	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	R	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.50)	ND (0.20)	-	-	-	ND (0.20)	-	ND (0.20)	ND (0.20)	ND (0.20)
Benzo(g,h,i)perylene	ug/L	0.00002	ND (0.40)	ND (0.20) R	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	R	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	**ND (0.50)**	**ND (0.20)**	-	-	-	**ND (0.20)**	-	ND (0.20)	ND (0.20)	ND (0.20)
Benzo(k)fluoranthene	ug/L	0.0002	ND (0.40)	ND (0.20) R	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	R	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	**ND (0.50)**	**ND (0.20)**	-	-	-	**ND (0.20)**	-	ND (0.20)	ND (0.20)	ND (0.20)
bis(2-Chloroethyl)ether	ug/L	200	ND (0.40)	ND (0.40) R	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	R	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (1.0)	ND (0.40)	-	-	-	ND (0.40)	-	ND (0.40)	ND (0.40)	ND (0.40)
bis(2-Ethylhexyl)phthalate (DEHP) [2]	ug/L	0.6	ND (2.0)	ND (2.0) R	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	7.0	ND (2.0)	R	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	**ND (2.5)**	**ND (2.0)**	-	-	-	**ND (2.0)**	-	ND (2.0)	ND (2.0)	ND (2.0)
Chrysene	ug/L	0.0001	ND (0.20)	ND (0.20) R	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	R	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	**ND (0.50)**	**ND (0.20)**	-	-	-	**ND (0.20)**	-	ND (0.20)	ND (0.20)	ND (0.20)
Dibenz(a,h)anthracene	ug/L	0.002	ND (0.40)	ND (0.20) R	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	R	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	**ND (0.50)**	**ND (0.20)**	-	-	-	**ND (0.20)**	-	ND (0.20)	ND (0.20)	ND (0.20)
Diethyl phthalate	ug/L	-	ND (0.20)	ND (0.20) R	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	R	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.50)	ND (0.20)	-	-	-	ND (0.20)	-	ND (0.20)	ND (0.20)	ND (0.20)
Dimethyl phthalate	ug/L	-	ND (0.20)	ND (0.20) R	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	R	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.50)	ND (0.20)	-	-	-	ND (0.20)	-	ND (0.20)	ND (0.20)	ND (0.20)
Fluoranthene	ug/L	0.0008	ND (0.20)	ND (0.20) R	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	R	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	**ND (0.50)**	**ND (0.20)**	-	-	-	**ND (0.20)**	-	ND (0.20)	ND (0.20)	ND (0.20)
Fluorene	ug/L	0.2	ND (0.20)	ND (0.20) R	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	R	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	**ND (0.50)**	ND (0.20)	-	-	-	ND (0.20)	-	ND (0.20)	ND (0.20)	ND (0.20)
Hexachlorobenzene	ug/L	0.0065	ND (0.040)	ND (0.040) R	ND (0.040)	ND (0.040)	ND (0.040)	ND (0.040)	ND (0.040)	ND (0.040)	ND (0.040)	ND (0.040)	ND (0.040)	R	ND (0.040)	ND (0.040)	ND (0.040)	ND (0.040)	ND (0.040)	**ND (0.10)**	**ND (0.040)**	-	-	-	**ND (0.040)**	-	ND (0.040)	ND (0.040)	ND (0.040)
Hexachlorobutadiene	ug/L	0.009	ND (0.20)	ND (0.20) R	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	R	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	**ND (0.50)**	**ND (0.20)**	-	-	-	**ND (0.20)**	-	ND (0.20)	ND (0.20)	ND (0.20)
Indeno(1,2,3-cd)pyrene	ug/L	-	ND (0.40)	ND (0.20) R	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	R	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.50)	ND (0.20)	-	-	-	ND (0.20)	-	ND (0.20)	ND (0.20)	ND (0.20)
Naphthalene	ug/L	7	ND (0.20)	ND (0.20) R	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	R	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.50)	ND (0.20)	-	-	-	ND (0.20)	-	ND (0.20)	ND (0.20)	ND (0.20)
Pentachlorophenol	ug/L	0.5	ND (0.50)	ND (0.50) R	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	R	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	**ND (1.3)**	ND (0.50)	-	-	-	ND (0.50)	-	ND (0.50)	ND (0.50)	ND (0.50)
Perylene	ug/L	0.00007	ND (0.40)	ND (0.20) R	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	R	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	**ND (0.50)**	**ND (0.20)**	-	-	-	**ND (0.20)**	-	ND (0.20)	ND (0.20)	ND (0.20)
Phenanthrene	ug/L	0.03	ND (0.20)	ND (0.20) R	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	R	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	**ND (0.50)**	**ND (0.20)**	-	-	-	**ND (0.20)**	-	ND (0.20)	ND (0.20)	ND (0.20)
Pyrene	ug/L	-	ND (0.20)	ND (0.20) R	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	R	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.50)	ND (0.20)	-	-	-	ND (0.20)	-	ND (0.20)	ND (0.20)	ND (0.20)

Footnotes:
0.01 Analytical results above the Provincial Water Quality Objectives (PWQO).
ND - Not detected at the associated reporting limit.
- - Not applicable.
1. Half the detection limit is used for values below their detection limits for calculation purposes.
2. Reporting limit for DEHP is higher than the PWQO.
3. All 2019 data are unvalidated preliminary results.

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.
HTC - Hardness was calculated from Total Ca and/or Mg concentrations and may be biased high (dissolved Ca/Mg results unavailable).
J - Estimated concentration.
N/A - Result not available.
ND - Not detected at the associated reporting limit.
R - Rejected.
- - Not applicable.

Appendix F

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

Sample Location:			West Pond	West Pond	West Pond	West Pond	West Pond	West Pond	West Pond	West Pond	West Pond	West Pond	West Pond	West Pond	West Pond	West Pond	West Pond	West Pond	West Pond	West Pond
Sample Date:			**5/3/2016**	**7/14/2016 (1)**	**8/26/2016**	**9/22/2016**	**1/25/2017**	**2/21/2017**	**3/20/2017**	**5/8/2017**	**6/5/2017**	**2/22/2018**	**4/23/2018**	**8/28/2018**	**11/7/2018**	**11/19/2018**	**12/17/2018**	**1/22/2019 (3)**	**3/25/2019 (3)**	**1/13/2020**	**2/17/2020**	**4/13/2020**	**12/14/2021**
Parameters	**Units**	**PWQO**																					
General Chemistry																							
Alkalinity, total (as CaCO3)	mg/L	-	132	93	108	107	25	29	107	152	146	160	142	88	131	151	166	173	170	160	128	189	105
Ammonia-N	mg/L	-	ND (0.020)	0.538	0.713	1.94	4.76	6.07	0.349	0.163	0.327	1.44	0.729	0.073	1.68	4.01	2.54	1.64	0.399	0.357	0.66	0.271	2.87
Bromide	mg/L	-	0.35	0.76	0.71	0.46	ND (0.10)	ND (0.10)	0.23	0.31	0.44	0.54	0.88	0.66	0.71	0.73	1.11	1.93	3.52	2.41	1.56	0.9	2.03
Chemical oxygen demand (COD)	mg/L	-	40	25	21	22	ND (10)	ND (10)	18	15	17	25	30	25	20	28	22	24	32	26	16 -	37	24
Chloride	mg/L	-	59.8	57.8	38.8	33	6.36	6.43	43.8	55.9	43.2	76.3	63.4	52	57.3	66.1	65.6	85	90.7	80.8	65.4	86.8	66.5
Chromium VI (hexavalent)	mg/L	0.001	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0010)		ND (0.00050)	ND (0.00050)	0.00219	0.00081	ND (0.00050)	0.00129	0.00091	ND (0.00050)	ND (0.00050)
Conductivity	umhos/cm	-	732	659	575	574	109	98.1	624	766	738	817	760	580	643	669	741	899	869	918	777	987	835
Cyanide (total)	mg/L	0.005	ND (0.0020)	ND (0.0020)	ND (0.0020)	ND (0.0020)	ND (0.0020)	ND (0.0020)	ND (0.0020)	ND (0.0020)	ND (0.0020)	ND (0.0020)	ND (0.0020)		ND (0.0020)	ND (0.0020)	ND (0.0020)	ND (0.0020)	ND (0.0020)	ND (0.0020)	ND (0.0020)	ND (0.0020)	ND (0.0020)
Dissolved organic carbon (DOC) (dissolved)	mg/L	-	8.8	6.1	5.3	5.1	2.1	1.9	4.5	5.8	6.1	5.3	4.8	4.5	6.16	5.25	6.5	5.64	7.49	6.55	5.13	7.86	5.79
Fluoride	mg/L	-	0.542	0.658	0.747	0.816	0.131	0.098	0.438	0.5	0.622	0.555	0.494	0.499	0.515	0.506	0.577	0.871	0.608	0.667	0.537	0.578	1.05
Hardness	mg/L	-	314	230	220	233	39 HTC	47 HTC	229 HTC	298 HTC	282 HTC	288	271	217	244	246	278	312 HTC	283 HTC	293	289	429	-
Nitrate (as N)	mg/L	-	0.135	ND (0.020)	0.025	ND (0.020)	0.056	ND (0.020)	0.274	0.147	ND (0.020)	0.533	0.53	0.084	0.155	0.173	0.145	0.309	0.297	0.112	0.162	0.082	0.13
Nitrite (as N)	mg/L	-	ND (0.010)	ND (0.010)	ND (0.010)	ND (0.010)	ND (0.010)	ND (0.010)	ND (0.010)	ND (0.010)	ND (0.010)	ND (0.010)	0.011		ND (0.010)	ND (0.010)	ND (0.010)	ND (0.010)	ND (0.010)	ND (0.010)	ND (0.010)	ND (0.010)	ND (0.010)
pH, lab	s.u.	6.5-8.5	8.34	8.44	8.03	8.18	7.48	7.64	8.09	8.19	8.24	7.43	8.16	7.94	8.08	7.85	8.04	8.04	7.89	8.26	8.08	8.17	8.01
Phenolics (total)	mg/L	0.001	0.0041	0.0042	0.0061	0.0044	0.0027	0.004	0.0012	0.0036	0.0039	0.0013	ND (0.0010)	0.001	0.0013	0.0015	0.0013	0.0018	0.0046	0.0031	0.0087	0.0022	ND (0.010)
Phosphorus	mg/L	0.01	0.0328	0.0191	0.0365	0.0217	0.0157	0.0153	0.019	0.032	0.0234	0.0239	0.0260	0.0234	0.0296	0.0301	0.0458	0.0298	0.0395	0.0522	0.0323	0.0531	0.0407
Sulfate	mg/L	-	161	153	123	126	15.3	11.8	131	152	169	138	156	125	108	114	137	177	139	169	152	226	219
Total dissolved solids (TDS)	mg/L	-	-	-	25	-	--	51 DLDS	389 DLDS	461 DLDS	446 DLDS	465	480	350	383	452	480	552 DLDS	517 DLDS	529	454	666	518
Total kjeldahl nitrogen (TKN)	mg/L	-	450	395	364	374	4.93	6.46	0.59	0.61	0.7	1.25	1.02	0.43	2.55	4.96	3.68	1.79	1.46	1.05	1.1	0.85	3.4
Total suspended solids (TSS)	mg/L	-	0.68	1.6	1.18	3.13	2.5	3.5	2.1	8.2	2.1	6.3	5.8	4.5	7.9	7.9	4.5	3.9	10.1	12	5.9	17.6	16.7
Un-ionized ammonia	mg/L	0.02	-	-	-	-	0.00267	0.0255	0.00322	0.00276	0.00705	0.0016	0.00281	0.00252	0.0536	0.0163	0.0103	0.0011	0.00221	0.00404	0.00325	0.00584	0.00554
Field Parameters																							
pH, field	s.u.	6.5-8.5	-	-	-	8.14	6.64	7.48	7.86	7.88	7.69	6.9	7.2	7.74	8.3	7.5	7.5	6.79	7.6	7.8	7.6	7.8	7
Temperature, field	Deg C	-	-	-	-	21	3	4	3	10	19	4	11	24	6	3	3	1	4	7.2	2.5	15.6	8
Metals																							
Aluminum	mg/L	0.075	0.517	0.489	0.77	0.117	0.043	0.047	0.278	0.528	0.226	0.381	0.55	0.256	0.564	0.411	0.348	0.346	0.767	1.08	0.461	1.36	1.34
Antimony	mg/L	0.02	0.0007	0.00064	0.00056	0.00051	0.00012	0.00016	0.00037	0.00042	0.00045	0.00036	0.00037	0.00041	0.00041	0.00041	0.00073	0.00095	0.00064	0.00046	0.00047	0.00053	0.00046
Arsenic	mg/L	0.005	0.00139	0.00196	0.00279	0.0027	0.00019	0.00021	0.00077	0.00124	0.00146	0.00112	0.00088	0.00207	0.00136	0.00122	0.00394	0.00155	0.00145	0.00266	0.00139	0.00191	0.00179
Barium	mg/L	-	0.0425	0.0372	0.0432	0.042	0.00859	0.00965	0.0334	0.0448	0.038	0.0548	0.044	0.0386	0.0552	0.0592	0.0613	0.0655	0.0628	0.0735	0.0807	0.0766	0.0443
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)	ND (0.00010)	ND (0.00010)	ND (0.00010)	ND (0.00010)	ND (0.00010)	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)	ND (0.000050)	ND (0.000050)	ND (0.000050)	ND (0.000050)	ND (0.000050)	ND (0.000050)	ND (0.000050)	ND (0.000050)	ND (0.000050)	0.000051	ND (0.000050)	ND (0.000050)	ND (0.000050)
Boron	mg/L	0.2	0.179	0.165	0.137	0.132	0.016	0.014	0.084	0.148	0.147	0.117	0.114	0.149	0.172	0.139	0.114	0.141	0.153	0.107	0.106	0.133	0.131
Cadmium	mg/L	0.0002	ND (0.000080)	ND (0.000030)	0.000036	ND (0.000040)	0.000018	0.000015	0.000044	0.000038	4D (0.000040) DLM	ND (0.000060)	ND (0.000010)	ND (0.000050)	ND (0.000040)	ND (0.000040)	0.00019	ND (0.00020) DLM	ND (0.00030) DLM	ND (0.00040)	ND (0.00020)	ND (0.00030)	ND (0.00020)
Calcium	mg/L	-	82.2	55.8	60.9	64	12.1	13.8	63.7	81.1	72.8	80.3	74.2	59.4	67.7	69	77	85.1	76.9	77.7	77.9	114	71.5
Cobalt	mg/L	0.0009	0.00055	0.00035	0.00051	0.00016	ND (0.00010)	ND (0.00010)	0.0003	0.0005	0.0003	0.00052	0.00051	0.00028	0.00051	0.00044	0.00043	0.0005	0.00244	0.00113	0.00054	0.00121	0.00073
Copper	mg/L	0.005	0.0022	0.0014	0.0016	ND (0.0010)	ND (0.0010)	ND (0.0010)	0.0016	0.0018	0.0015	0.0018	0.002	0.0033	0.0036	0.0019	0.0028	0.0029	0.003	0.004	0.0022	0.0346	0.003
Iron	mg/L	0.3	0.449	0.359	0.874	0.122	ND (0.050)	ND (0.050)	0.216	0.456	0.225	0.425	0.522	0.285	0.628	0.425	0.363	0.339	0.859	1.26	0.395	1.6	1.25
Lead	mg/L	0.005	0.00039	0.00029	0.00065	0.00022	0.00015	0.00017	0.00031	0.00037	0.0002	0.00049	0.00044	0.00055	0.00055	0.00039	0.00047	0.00054	0.00083	0.00226	0.00062	0.00345	0.00084
Magnesium	mg/L	-	26.3	22	16.6	17.7	2.22	3	17	23.1	24.4	21.1	20.9	16.6	18.2	17.9	20.9	24.3	22	24	23.1	35.3	26.5
Manganese	mg/L	-	0.0484	0.0173	0.0639	0.0136	0.0258	0.0409	0.0209	0.0568	0.0236	0.173	0.1347	0.0299	0.0369	0.0439	0.0274	0.0241	0.246	0.0473	0.0394	0.112	0.0226
Mercury	mg/L	0.0002	ND (0.000010)	ND (0.000010)	ND (0.000010)	ND (0.000010)	ND (0.000010)	ND (0.000010)	ND (0.000010)	ND (0.000010)	ND (0.000010)	ND (0.000010)	ND (0.0000050)	ND (0.000010)	ND (0.000010)	ND (0.000010)	ND (0.000010)	ND (0.000010)	ND (0.000010)	0.0000583	0.0000052	0.0000238	ND (0.0000050)
Molybdenum	mg/L	0.04	0.0511	0.0642	0.0654	0.0653	0.00476	0.00436	0.0291	0.0397	0.0481	0.0325	0.0396	0.0435	0.0469	0.0469	0.0772	0.127	0.0817	0.063	0.073	0.0688	0.0552
Nickel	mg/L	0.025	0.0033	0.00278	0.00313	0.00198	ND (0.00050)	ND (0.00050)	0.00256	0.00323	0.00307	0.00403	0.00497	0.00361	0.00438	0.00405	0.00863	0.00842	0.014	0.00744	0.00452	0.00739	0.0053
Potassium	mg/L	-	4.38	3.7	3.72	4.25	0.921	0.808	3.97	4.6	4.34	6.38	7.15	6.08	9.66	9.07	16.4	24.6	16	20.4	19.9	19.3	7.2
Selenium	mg/L	0.1	0.00216	0.00148	0.00127	0.0014	0.000265	0.000256	0.00152	0.00163	0.00149	0.000826	0.00212	0.00141	0.000956	0.000946	0.00196	0.00356	0.00182	0.0017	0.00138	0.00121	0.00275
Silicon	mg/L	-	2.28	1.3	2.23	1	0.307	0.342	2.06	2.69	1.19	2.54	2.51	1.89	3.03	3.04	3.06	2.86	3.13	2.87	2.55	4.31	4.09
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)	ND (0.000050)	ND (0.000050)	ND (0.000050)	ND (0.000050)	ND (0.000050)	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	-	37.9	38.3	26.6	26.6	3.79	4.39	25.3	35.9	37	41.1	35.8	31.2	37	36	41.1	53	54.9	59.4	45.2	57	49.3
Strontium	mg/L	-	0.598	0.489	0.516	0.547	0.0944	0.0931	0.463	0.599	0.597	0.632	0.593	0.569	0.519	0.538	0.581	0.697	0.574	0.579	0.614	0.861	0.591
Thallium	mg/L	0.0003	0.000024	0.000014	ND (0.000030)	ND (0.000010)	ND (0.000010)	ND (0.000010)	0.000018	0.00002	0.000016	0.000019	0.000026	0.000024	0.000022	0.00002	0.000049	0.000202	0.000678	0.000123	0.000108	0.000201	0.000036
Tin	mg/L	-	0.00012	ND (0.00010)	ND (0.00010)	ND (0.00010)	ND (0.00010)	ND (0.00010)	ND (0.00010)	ND (0.00010)	ND (0.00010)	ND (0.00010)	ND (0.00010)	ND (0.00010)	ND (0.00010)	ND (0.00010)	ND (0.00010)	ND (0.00010)	ND (0.00010)	0.00017	0.00015	0.00131	ND (0.00010)
Vanadium	mg/L	0.006	0.00135	0.00133	0.00195	0.00067	ND (0.00050)	ND (0.00050)	0.00072	0.00129	0.00079	0.00099	0.00157	0.00088	0.00144	0.00117	0.00134	0.00105	0.00198	0.00256	0.00117	0.00304	0.00277
Zinc	mg/L	0.03	0.003	ND (0.0030)	0.0155	ND (0.0030)	ND (0.0030)	ND (0.0030)	0.0047	ND (0.0030)	ND (0.0030)	0.0174	0.0058	0.0045	0.0052	ND (0.0030)	0.0061	0.0077	0.0078	0.0107	0.0072	0.0137	0.0049
Volatiles																							
1,1,1,2-Tetrachloroethane	ug/L	20	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	-	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)
1,1,1-Trichloroethane	ug/L	10	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	-	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)
1,1,2,2-Tetrachloroethane	ug/L	70	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	-	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)
1,1,2-Trichloroethane	ug/L	800	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	-	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)
1,1-Dichloroethane	ug/L	200	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	-	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)
1,1-Dichloroethene	ug/L	40	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	-	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)
1,2-Dibromoethane (Ethylene dibromide)	ug/L	5	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	-	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)
1,2-Dichlorobenzene	ug/L	2.5	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	-	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)
1,2-Dichloroethane	ug/L	100	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	-	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)
1,2-Dichloropropane	ug/L	0.7	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	-	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)
1,3-Dichlorobenzene	ug/L	2.5	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	-	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)
1,4-Dichlorobenzene	ug/L	4	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	-	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)
2-Butanone (Methyl ethyl ketone) (MEK)	ug/L	400	ND (20)	ND (20)	ND (20)	ND (20)	ND (60) DLQ	ND (20)	ND (20)	ND (20)	ND (20)	ND (20)	ND (20)	-	ND (20)	ND (20)	ND (20)	ND (20)	87	ND (20)	ND (20)	ND (20)	ND (20)
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	ug/L	-	ND (20)	ND (20)	ND (20)	ND (20)	ND (20)	ND (20)	ND (20)	ND (20)	ND (20)	ND (20)	ND (20)	-	ND (20)	ND (20)	ND (20)	ND (20)	ND (20)	ND (20)	ND (20)	ND (20)	ND (20)
Acetone	ug/L	-	ND (20)	ND (20)	ND (20)	ND (20)	58	ND (20)	ND (20)	ND (20)	ND (20)	ND (20)	ND (20)	-	ND (20)	ND (20)	ND (20)	ND (20)	298	ND (20)	ND (20)	ND (20)	ND (20)
Benzene	ug/L	100	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	-	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)
Bromodichloromethane	ug/L	200	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	-	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
Bromoform	ug/L	60	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	-	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
Bromomethane (Methyl bromide)	ug/L	0.9	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	-	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)
Carbon tetrachloride	ug/L	-	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	-	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)

Appendix F

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

Sample Location:			West Pond	West Pond	West Pond	West Pond	West Pond	West Pond	West Pond	West Pond	West Pond	West Pond	West Pond		West Pond	West Pond	West Pond	West Pond	West Pond	West Pond	West Pond
Sample Date:			5/3/2016	7/14/2016 [1]	8/26/2016	9/22/2016	1/25/2017	2/21/2017	3/20/2017	5/8/2017	6/5/2017	2/22/2018	4/23/2018	8/28/2018	11/7/2018	11/19/2018	12/17/2018	1/22/2019	3/25/2019	1/13/2020	2/17/2020	4/13/2020	12/14/2021
Parameters	**Units**	**PWQO**																					
Chlorobenzene	ug/L	15	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	-	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)
Chloroethane	ug/L	-	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	-	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
Chloroform (Trichloromethane)	ug/L	-	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	-	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
cis-1,2-Dichloroethene	ug/L	200	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	-	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	2.33	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)
cis-1,3-Dichloropropene	ug/L	-	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	-	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)
Dibromochloromethane	ug/L	40	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	-	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
Dichlorodifluoromethane (CFC-12)	ug/L	-	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	-	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
Ethylbenzene	ug/L	8	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	-	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)
Hexane	ug/L	-	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	-	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)
m&p-Xylenes	ug/L	2	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	-	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
Methyl tert butyl ether (MTBE)	ug/L	200	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	-	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	1.36	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)
Methylene chloride	ug/L	100	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	-	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)
o-Xylene	ug/L	40	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	-	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	0.58	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)
Styrene	ug/L	4	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	-	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)
Tetrachloroethene	ug/L	50	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	-	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)
Toluene	ug/L	0.8	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	0.62	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	-	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	**1.16**	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)
trans-1,2-Dichloroethene	ug/L	200	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	-	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)
trans-1,3-Dichloropropene	ug/L	7	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	-	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)
Trichloroethene	ug/L	20	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	-	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	0.97	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)
Trichlorofluoromethane (CFC-11)	ug/L	-	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	-	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
Trihalomethanes	ug/L	-	-	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	-	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)
Vinyl chloride	ug/L	600	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	-	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)
Xylenes (total)	ug/L	-	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	-	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)
Semi-Volatiles																							
1,2,4-Trichlorobenzene	ug/L	0.5	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	-	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	**ND (1.0)**	ND (0.40)	ND (0.40)	ND (0.40)
1,2-Dichlorobenzene	ug/L	2.5	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	-	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (1.0)	ND (0.40)	ND (0.40)	ND (0.40)
1,3-Dichlorobenzene	ug/L	2.5	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	-	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (1.0)	ND (0.40)	ND (0.40)	ND (0.40)
1,4-Dichlorobenzene	ug/L	4	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	-	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (1.0)	ND (0.40)	ND (0.40)	ND (0.40)
1-Methylnaphthalene	ug/L	2	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	-	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (1.0)	ND (0.40)	ND (0.40)	ND (0.40)
2,3,4,5-Tetrachlorophenol	ug/L	-	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	-	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (1.3)	ND (0.50)	ND (0.50)	ND (0.50)
2,3,4,6-Tetrachlorophenol	ug/L	-	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	-	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (1.3)	ND (0.50)	ND (0.50)	ND (0.50)
2,3,6-Trichlorophenol	ug/L	-	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	-	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)
2,4,5-Trichlorophenol	ug/L	18	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	-	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (1.3)	ND (0.50)	ND (0.50)	ND (0.50)
2,4,6-Trichlorophenol	ug/L	18	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	-	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (1.3)	ND (0.50)	ND (0.50)	ND (0.50)
2,4-Dichlorophenol	ug/L	0.2	ND (0.30)	ND (0.30)	ND (0.30)	ND (0.30)	ND (0.30)	ND (0.30)	ND (0.30)	ND (0.30)	ND (0.30)	ND (0.30)	ND (0.30)	-	ND (0.30)	ND (0.30)	ND (0.30)	ND (0.30)	ND (0.30)	**ND (0.75)**	**ND (0.30)**	**ND (0.30)**	ND (0.30)
2,4-Dimethylphenol	ug/L	10	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	-	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (1.3)	ND (0.50)	ND (0.50)	ND (0.50)
2,4-Dinitrophenol	ug/L	-	ND (2.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	-	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (2.5)	ND (1.0)	ND (1.0)	ND (1.0)
2,4-Dinitrotoluene	ug/L	4	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	-	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (1.0)	ND (0.40)	ND (0.40)	ND (0.40)
2,6-Dinitrotoluene	ug/L	6	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	-	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (1.0)	ND (0.40)	ND (0.40)	ND (0.40)
2-Chlorophenol	ug/L	7	ND (0.30)	ND (0.30)	ND (0.30)	ND (0.30)	ND (0.30)	ND (0.30)	ND (0.30)	ND (0.30)	ND (0.30)	ND (0.30)	ND (0.30)	-	ND (0.30)	ND (0.30)	ND (0.30)	ND (0.30)	ND (0.30)	ND (0.75)	ND (0.30)	ND (0.30)	ND (0.30)
2-Methylnaphthalene	ug/L	2	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	-	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (1.0)	ND (0.40)	ND (0.40)	ND (0.40)
3,3'-Dichlorobenzidine	ug/L	0.6	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	-	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	**ND (1.0)**	ND (0.40)	ND (0.40)	ND (0.40)
4-Chloroaniline	ug/L	-	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	-	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (1.0)	ND (0.40)	ND (0.40)	ND (0.40)
Acenaphthene	ug/L	-	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	-	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.50)	ND (0.20)	ND (0.20)	ND (0.20)
Acenaphthylene	ug/L	-	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	-	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.50)	ND (0.20)	ND (0.20)	ND (0.20)
Anthracene	ug/L	0.0008	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	-	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	**ND (0.50)**	**ND (0.20)**	**ND (0.20)**	ND (0.20)
Benzo(a)anthracene	ug/L	0.0004	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	-	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	**ND (0.50)**	**ND (0.20)**	**ND (0.20)**	ND (0.20)
Benzo(a)pyrene	ug/L	-	ND (0.050)	ND (0.050)	ND (0.050)	ND (0.050)	ND (0.050)	ND (0.050)	ND (0.050)	ND (0.050)	ND (0.050)	ND (0.050)	ND (0.050)	-	ND (0.050)	ND (0.050)	ND (0.050)	ND (0.050)	ND (0.050)	ND (0.13)	ND (0.050)	ND (0.050)	ND (0.050)
Benzo(b)fluoranthene	ug/L	-	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	-	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.50)	ND (0.20)	ND (0.20)	ND (0.20)
Benzo(g,h,i)perylene	ug/L	0.00002	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	-	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	**ND (0.50)**	**ND (0.20)**	**ND (0.20)**	ND (0.20)
Benzo(k)fluoranthene	ug/L	0.0002	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	-	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	**ND (0.50)**	**ND (0.20)**	**ND (0.20)**	ND (0.20)
bis(2-Chloroethyl)ether	ug/L	200	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	-	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (1.0)	ND (0.40)	ND (0.40)	ND (0.40)
bis(2-Ethylhexyl)phthalate (DEHP) [2]	ug/L	0.6	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	-	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	**ND (2.5)**	**ND (2.0)**	**ND (2.0)**	ND (2.0)
Chrysene	ug/L	0.0001	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	-	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	**ND (0.50)**	**ND (0.20)**	**ND (0.20)**	ND (0.20)
Dibenz(a,h)anthracene	ug/L	0.002	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	-	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	**ND (0.50)**	**ND (0.20)**	**ND (0.20)**	ND (0.20)
Diethyl phthalate	ug/L	-	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	-	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.50)	ND (0.20)	ND (0.20)	ND (0.20)
Dimethyl phthalate	ug/L	-	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	-	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.50)	ND (0.20)	ND (0.20)	ND (0.20)
Fluoranthene	ug/L	0.0008	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	-	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	**ND (0.50)**	**ND (0.20)**	**ND (0.20)**	ND (0.20)
Fluorene	ug/L	0.2	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	-	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	**ND (0.50)**	ND (0.20)	ND (0.20)	ND (0.20)
Hexachlorobenzene	ug/L	0.0065	ND (0.040)	ND (0.040)	ND (0.040)	ND (0.040)	ND (0.040)	ND (0.040)	ND (0.040)	ND (0.040)	ND (0.040)	ND (0.040)	ND (0.040)	-	ND (0.040)	ND (0.040)	ND (0.040)	ND (0.040)	ND (0.040)	**ND (0.10)**	**ND (0.040)**	**ND (0.040)**	ND (0.040)
Hexachlorobutadiene	ug/L	0.009	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	-	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	**ND (0.50)**	**ND (0.20)**	**ND (0.20)**	ND (0.20)
Indeno(1,2,3-cd)pyrene	ug/L	-	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	-	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.50)	ND (0.20)	ND (0.20)	ND (0.20)
Naphthalene	ug/L	7	0.26	ND (0.20)	ND (0.20)	ND (0.20)	0.65	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	-	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.50)	ND (0.20)	ND (0.20)	ND (0.20)
Pentachlorophenol	ug/L	0.5	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	-	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	**ND (1.3)**	ND (0.50)	ND (0.50)	ND (0.50)
Perylene	ug/L	0.00007	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	-	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	**ND (0.50)**	**ND (0.20)**	**ND (0.20)**	ND (0.20)
Phenanthrene	ug/L	0.03	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	-	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	**ND (0.50)**	**ND (0.20)**	**ND (0.20)**	ND (0.20)
Pyrene	ug/L	-	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	-	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.50)	ND (0.20)	ND (0.20)	ND (0.20)

Footnotes:
0.01 Analytical results above the Provincial Water Quality Objectives (PWQO).
ND - Not detected at the associated reporting limit.
- - Not applicable.
1. Half the detection limit is used for values below their detection limits for calculation purposes.
2. Reporting limit for DEHP is higher than the PWQO.
3. All 2019 data are unvalidated preliminary results.

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.
HTC - Hardness was calculated from Total Ca and/or Mg concentrations and may be biased high (dissolved Ca/Mg results unavailable).
J - Estimated concentration.
N/A - Result not available.
ND - Not detected at the associated reporting limit.
R - Rejected.
- - Not applicable.

Appendix F

Monthly Discharge Chemical Monitoring – Off-Site Sampling Locations, General Chemistry and Metals
Lambton Facility
Clean Harbors Canada Inc.

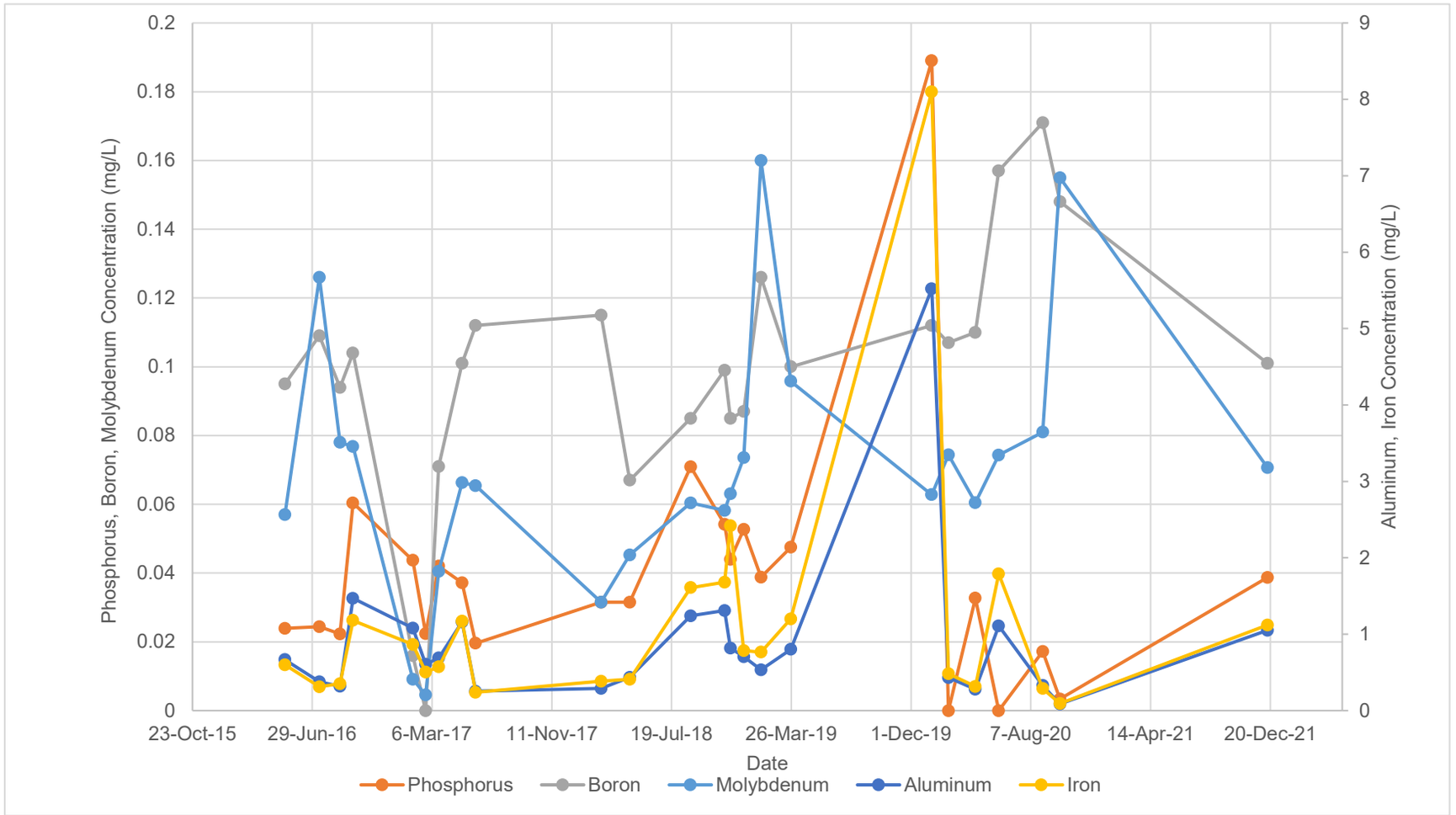
			Upstream			Downstream						
Sample Location:			**STN6**	**STN6**	**STN6**	**STN6A**	**STN6A**	**STN6A**	**STN6A**	**STN6A**	**STN6A**	**STN6A**
Sample Date:			**5/8/2017**	**11/20/2018**	**11/25/2019**	**5/3/2016**	**8/26/2016**	**5/8/2017**	**2/22/2018**	**11/20/2018**	**6/18/2019**	**11/25/2019**
Parameters	**Units**	**PWQO**										
General Chemistry												
Alkalinity, total (as CaCO3)	mg/L	-	193	279	319	177	197	200	90 J	269	284	301
Ammonia-N	mg/L	-	0.767	0.52	0.06	0.074	2.82	0.39	2.32 J	1.26	0.124	0.117
Bromide	mg/L	-	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10) J	ND (0.10)	0.17	0.29
Chemical oxygen demand (COD)	mg/L	-	36	26	ND (10)	43	59	32	51 J	25	27	ND (10)
Chloride	mg/L	-	14.9	30.1	36.4	24.7	34.9	16.7	14.4 J	35.4	32.4	41.7
Chromium VI (hexavalent)	mg/L	0.001	ND (0.0010)	ND (0.00050)	ND (0.00050)	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0010) J	ND (0.00050)	ND (0.00050)	ND (0.00050)
Conductivity	umhos/cm	-	514	739	863	566	543	534	323 J	757	769	853
Cyanide (total)	mg/L	0.005	ND (0.0020)	ND (0.0020)	ND (0.0020)	ND (0.0020)	ND (0.0020)	ND (0.0020)	ND (0.0020) J	ND (0.0020)	ND (0.0020)	ND (0.0020)
Dissolved organic carbon (DOC) (dissolved)	mg/L	-	10.5	8.47	5.53	11.6	14.9	10.3	9.6 J	8.21	7.19	1.24
Fluoride	mg/L	-	0.21	**0.23**	**0.263**	0.226	0.243	0.216	0.189 J	0.271	0.251	0.325
Hardness	mg/L	-	238 HTC	382 J	445 J+	283	239	248 HTC	144 J	372 J	365 J+	420 J+
Nitrate (as N)	mg/L	-	5.59	4.5	4.4	10.2	1.89	5.53	4.86 J	4.27	6.1	3.45
Nitrite (as N)	mg/L	-	0.035	ND (0.010)	ND (0.010)	0.021	0.026	0.031	0.037 J	ND (0.010)	0.057	ND (0.010)
pH, lab	s.u.	6.5-8.5	8.17	8.16	8.45	8.12	8.08	8.16	7.46 J	8.16	8.25	8.33
Phenolics (total)	mg/L	0.001	**0.0021**	**0.0047**	**0.0334**	**0.0015**	**0.0026**	**0.001**	ND (0.0010) J	**0.0032**	**0.0019**	**0.0023**
Phosphorus	mg/L	0.01	**0.365**	**0.0902**	**0.042**	**0.102**	**0.699**	**0.279**	**0.323 J**	**0.101**	**0.132**	**0.084**
Sulfate	mg/L	-	35.7	**99.1**	**118**	43.5	32.2	39.3	30.2 J	97.8	76.7	116
Total dissolved solids (TDS)	mg/L	-	329 DLDS	**498**	**556**	378	384	328 DLDS	227 J	491	466	546
Total kjeldahl nitrogen (TKN)	mg/L	-	2.21	1.01	0.72	1.54	3.7	1.68	4.40 J	2.08	0.95	0.66
Total suspended solids (TSS)	mg/L	-	13.5	3.8	4.4	23.9	35.6	13.3	31.0 J	4.1	13.4	12.9
Un-ionized ammonia	mg/L	0.02	0.0148	0.00198	-	-	-	0.00322	0.00512 J	0.00344	-	-
Field Parameters												
pH, field	s.u.	6.5-8.5	7.99	7.46	-	-	-	7.59	7.2	7.33	-	-
Temperature, field	Deg C	-	8.5	3.3	-	-	-	9.3	4	3	-	-
Metals												
Aluminum	mg/L	0.075	**2.34**	**0.804**	**0.479**	**3.05**	**3.04**	**2.01**	**3.64**	**0.668**	**0.791**	**0.537**
Antimony	mg/L	0.02	0.00013	0.00014	0.0001	0.00015	0.00023	0.00013	0.00014	0.00014	0.00015	0.00014
Arsenic	mg/L	0.005	0.00125	0.00064	0.00049	0.00095	0.00262	0.00111	0.00142	0.00067	0.00111	0.00062
Barium	mg/L	-	0.0389	0.0339	0.0328	0.0374	0.046	0.0353	0.0398	0.0348	0.0347	0.0373
Beryllium	mg/L	0.011	ND (0.00010)	ND (0.00010)	ND (0.00010)	ND (0.00010)	0.00012	ND (0.00010)	0.00015	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)	ND (0.000050)	ND (0.000050)
Boron	mg/L	0.2	0.033	0.038	0.041	0.037	0.063	0.036	0.02	0.044	0.047	0.048
Cadmium	mg/L	0.0002	0.000058	0.000028	0.000016	0.000051	0.000075	0.000048	0.000083	0.000023	0.0000354	0.000027
Calcium	mg/L	-	57.1	**83.5**	**96.8**	69.2	62.7	60.7	36.3	83.7	83.4	94.7
Cobalt	mg/L	0.0009	0.00087	0.00033	0.0002	0.00079	**0.00117**	0.00079	**0.00141**	0.00029	0.00047	0.00027
Copper	mg/L	0.005	0.0049	0.0021	0.0018	0.0037	**0.0059**	0.004	**0.0054**	0.002	0.0021	0.0019
Iron	mg/L	0.3	**2.2**	**0.71**	**0.352**	**2.03**	**2.83**	**1.92**	**3.58**	**0.57**	**0.819**	**0.426**
Lead	mg/L	0.005	0.00132	0.00042	0.00022	0.00104	0.00157	0.00111	0.00248	0.00036	0.000429	0.00025
Magnesium	mg/L	-	23.1	**42.2**	**49.3**	26.7	19.9	23.5	12.9	39.5	38.2	44.6
Manganese	mg/L	-	0.0223	0.0147	0.00896	0.0211	0.0386	0.0212	0.0352	0.015	0.0251	0.0151
Mercury	mg/L	0.0002	ND (0.000010)	ND (0.000010)	ND (0.0000050)	ND (0.000010)	ND (0.000010)	ND (0.000010)	ND (0.000010)	ND (0.000010)	ND (0.000010)	ND (0.0000050)
Molybdenum	mg/L	0.04	0.00226	0.00362	0.00512	0.00344	0.00733	0.00307	0.00285	0.00677	0.00931	0.0123
Nickel	mg/L	0.025	0.00391	0.00155	0.00129	0.00343	0.00554	0.00351	0.00559	0.00161	0.00239	0.002
Potassium	mg/L	-	3.49	**2.55**	**1.95**	2.62	6	3.2	3.31	3.11	3.11	4.36
Selenium	mg/L	0.1	0.00101	0.00141	0.00158	0.0014	0.000923	0.000961	0.000712	0.00128	0.00088	0.0012
Silicon	mg/L	-	7.21	5.11	4.37	8.89	11.6	6.62	8.05	4.93	5.72	4.3
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)	ND (0.000050)	ND (0.000050)
Sodium	mg/L	-	8.46	18.1	23.7	12	16.1	9.7	6.08	19.5	20.2	26.9
Strontium	mg/L	-	0.187	0.383	0.477	0.214	0.222	0.206	0.115	0.393	0.389	0.488
Thallium	mg/L	0.0003	0.000035	0.000018	0.000011	0.00004	0.000054	0.000031	0.00006	0.000014	0.000036	0.00002
Tin	mg/L	-	ND (0.00010)	ND (0.00010)	ND (0.00010)	ND (0.00010)	0.00015	ND (0.00010)	ND (0.00010)	ND (0.00010)	ND (0.00010)	0.00013
Vanadium	mg/L	0.006	0.00489	0.00362	0.00166	0.00589	**0.00682**	0.00429	**0.00671**	0.00193	0.00253	0.00173
Zinc	mg/L	0.03	0.0092	0.0032	ND (0.0030)	0.0097	0.0156	0.008	0.013	ND (0.0030)	0.0041	ND (0.0030)

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

1. No 2019 data available.

Appendix G

Surface Water Characterization Monitoring Data – Concentration vs. Time Plots



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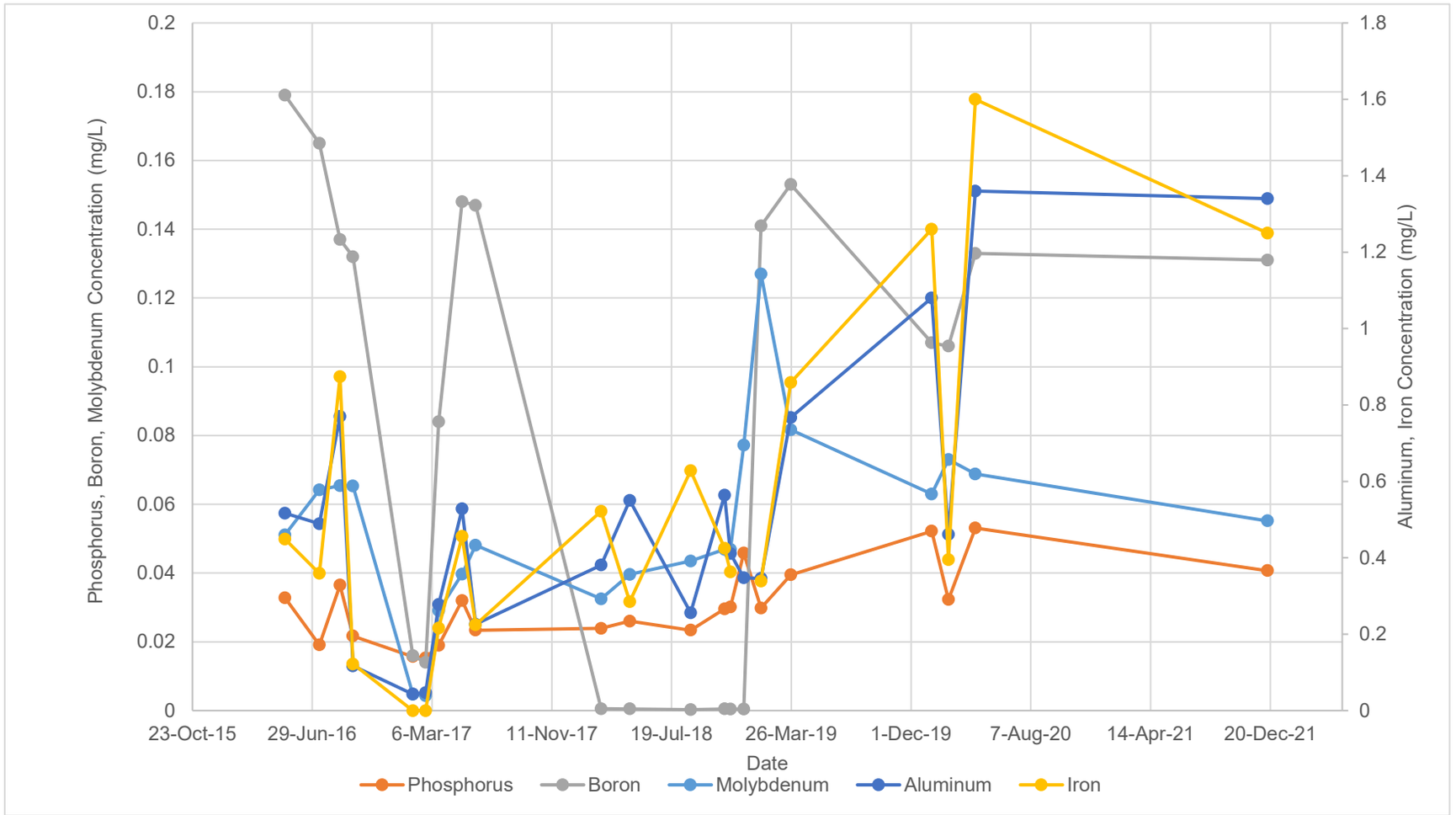
LAMBTON COUNTY, ONTARIO

044985-20

March 2, 2022

2021 ANNUAL SURFACE WATER QUALITY MONITORING REPORT

Analytical Results in the East Pond (Pond A)



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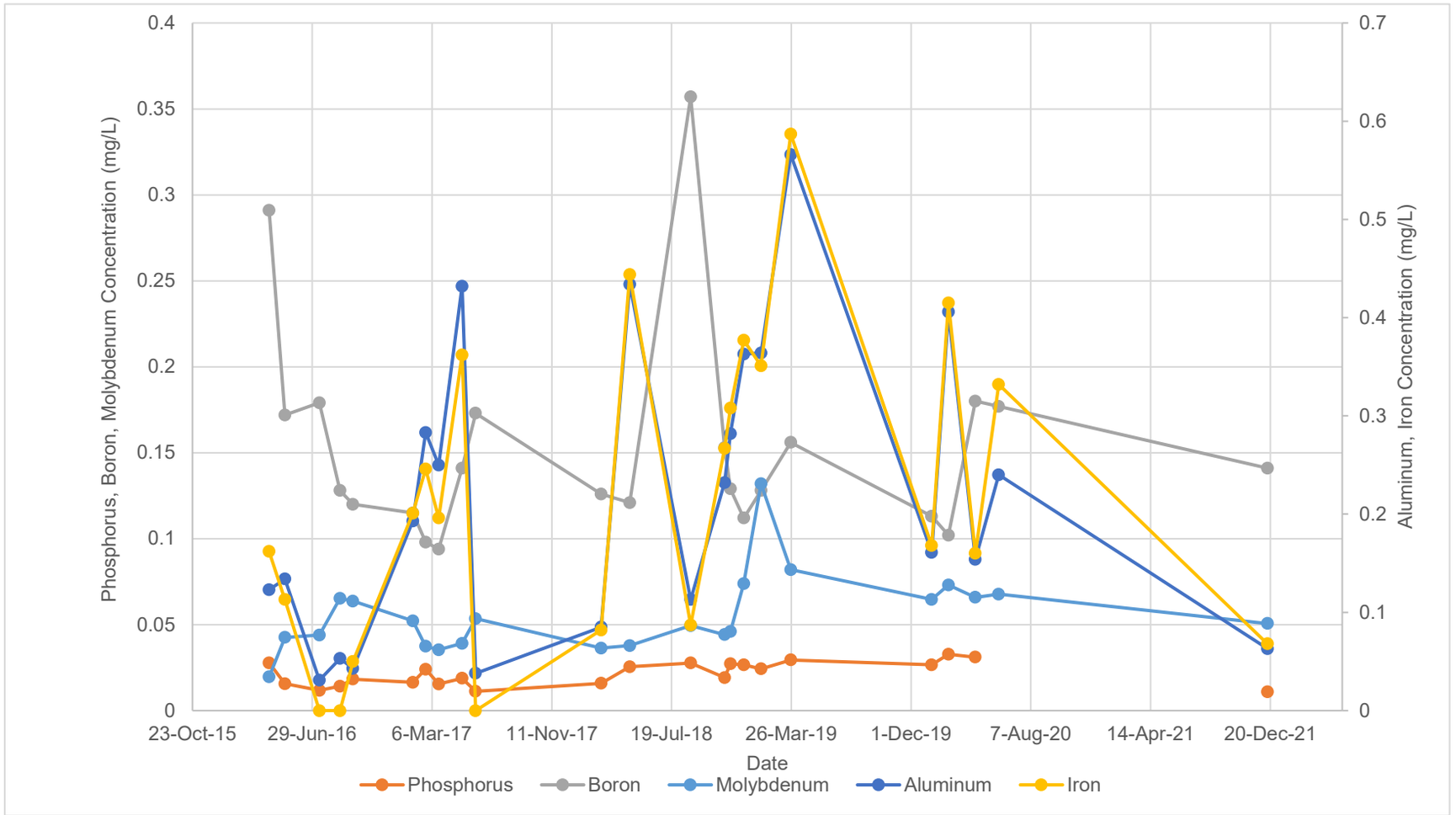
Analytical Results in the West Pond (Pond D)



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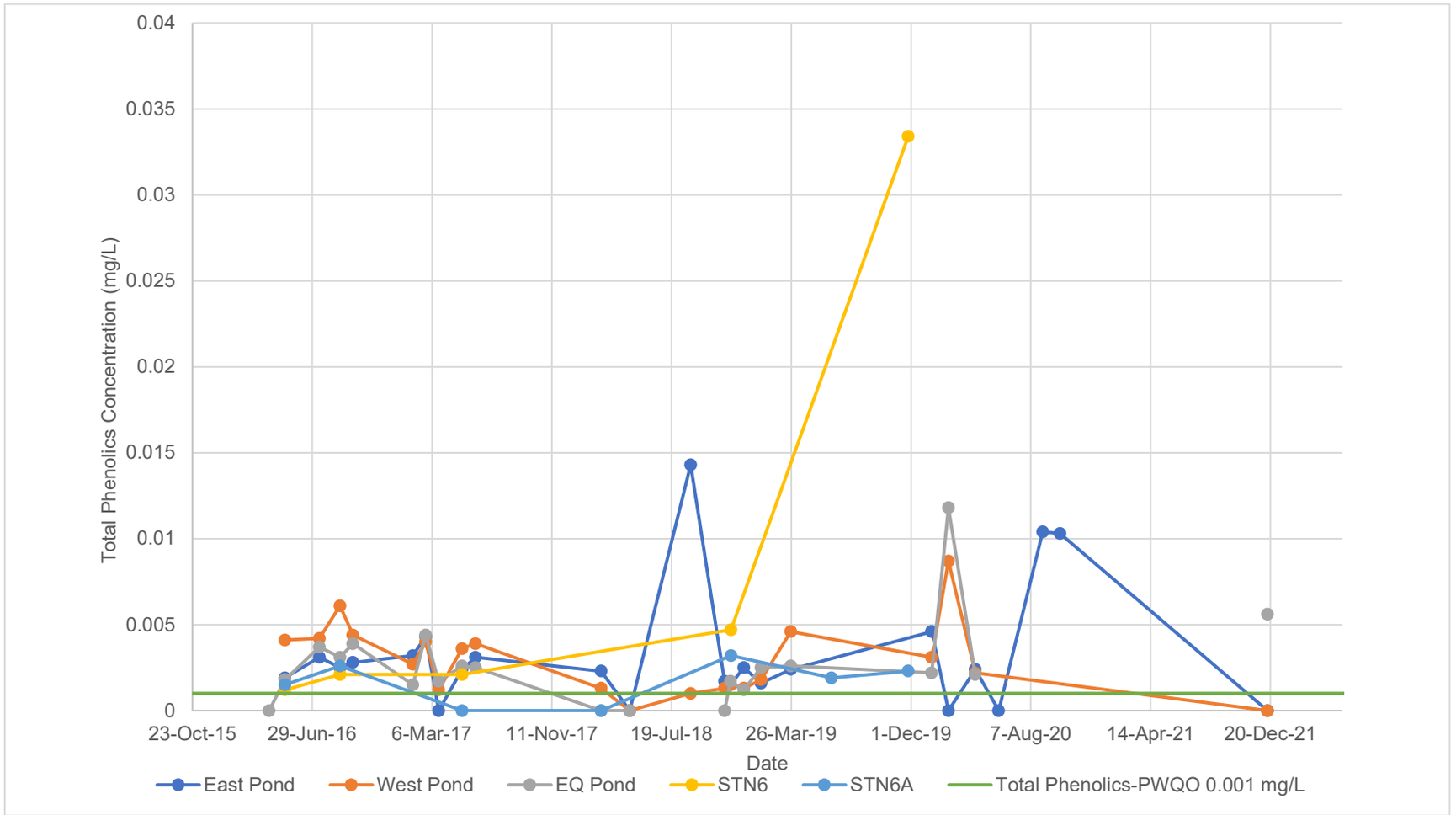
Analytical Results in the Equalization Pond



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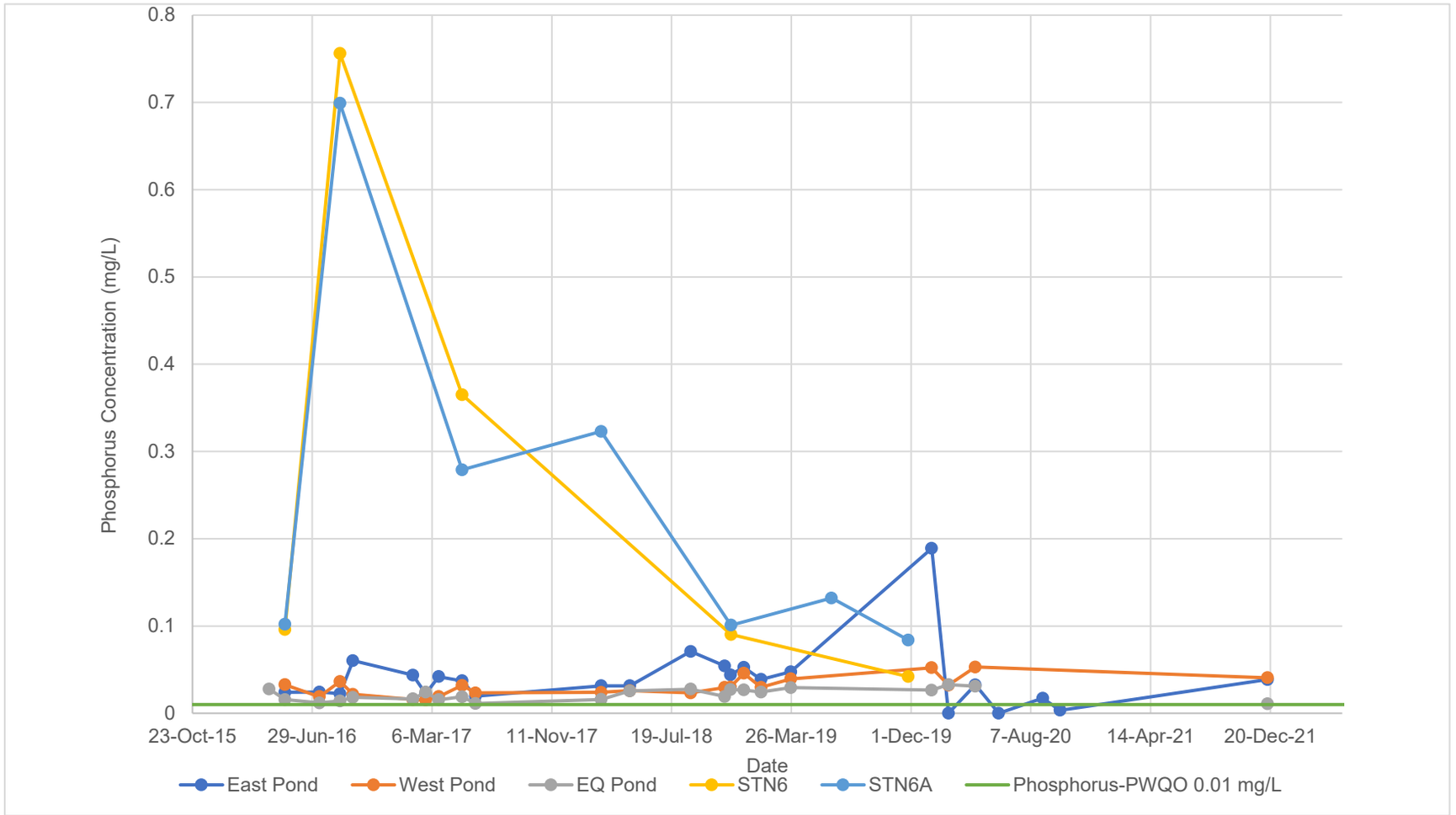
2021 ANNUAL SURFACE WATER QUALITY MONITORING REPORT

Phenolics Analytical Results by Location



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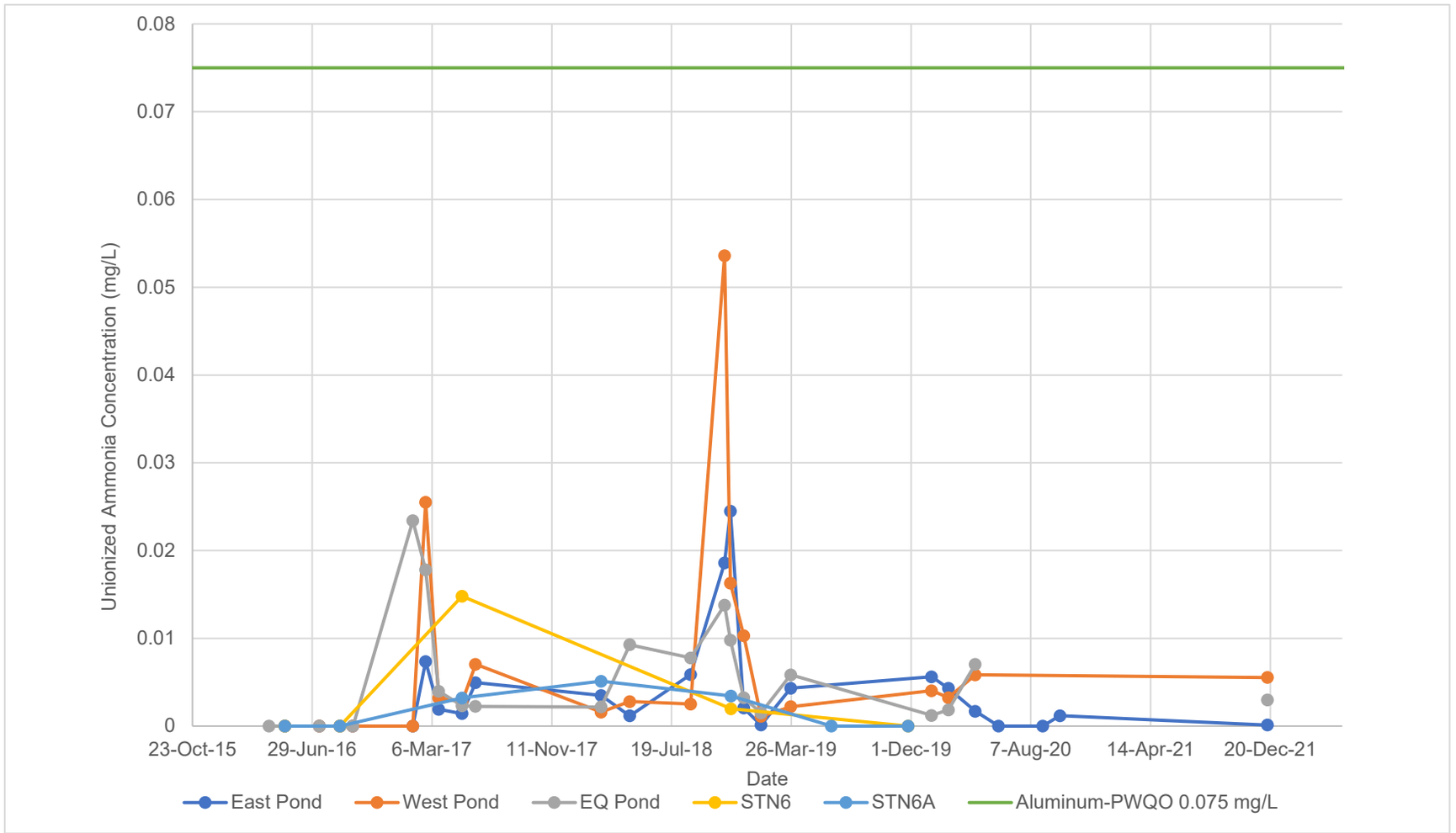
Phosphorus Analytical Results by Location



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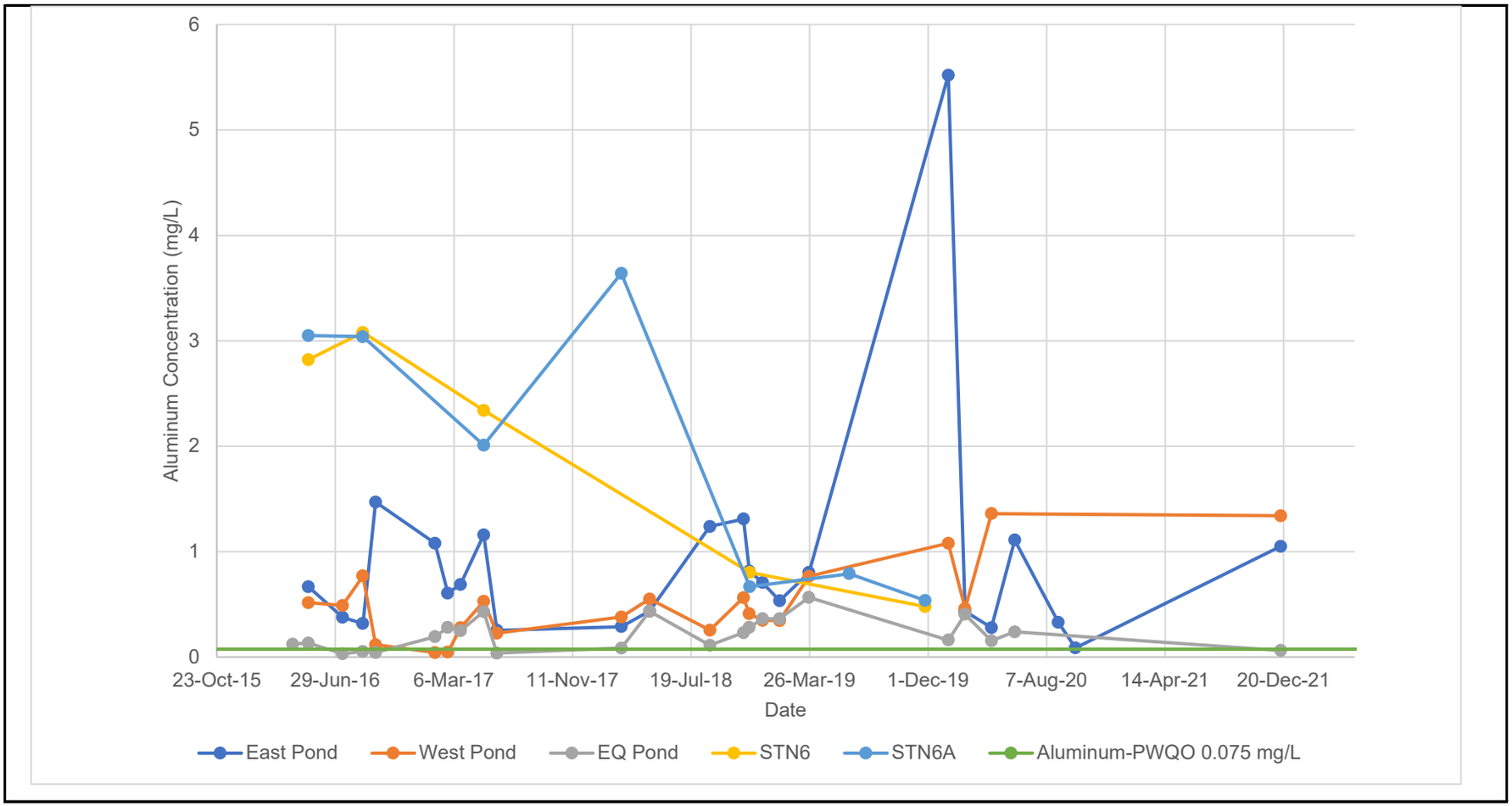
Un-ionized ammonia Analytical Results by Location



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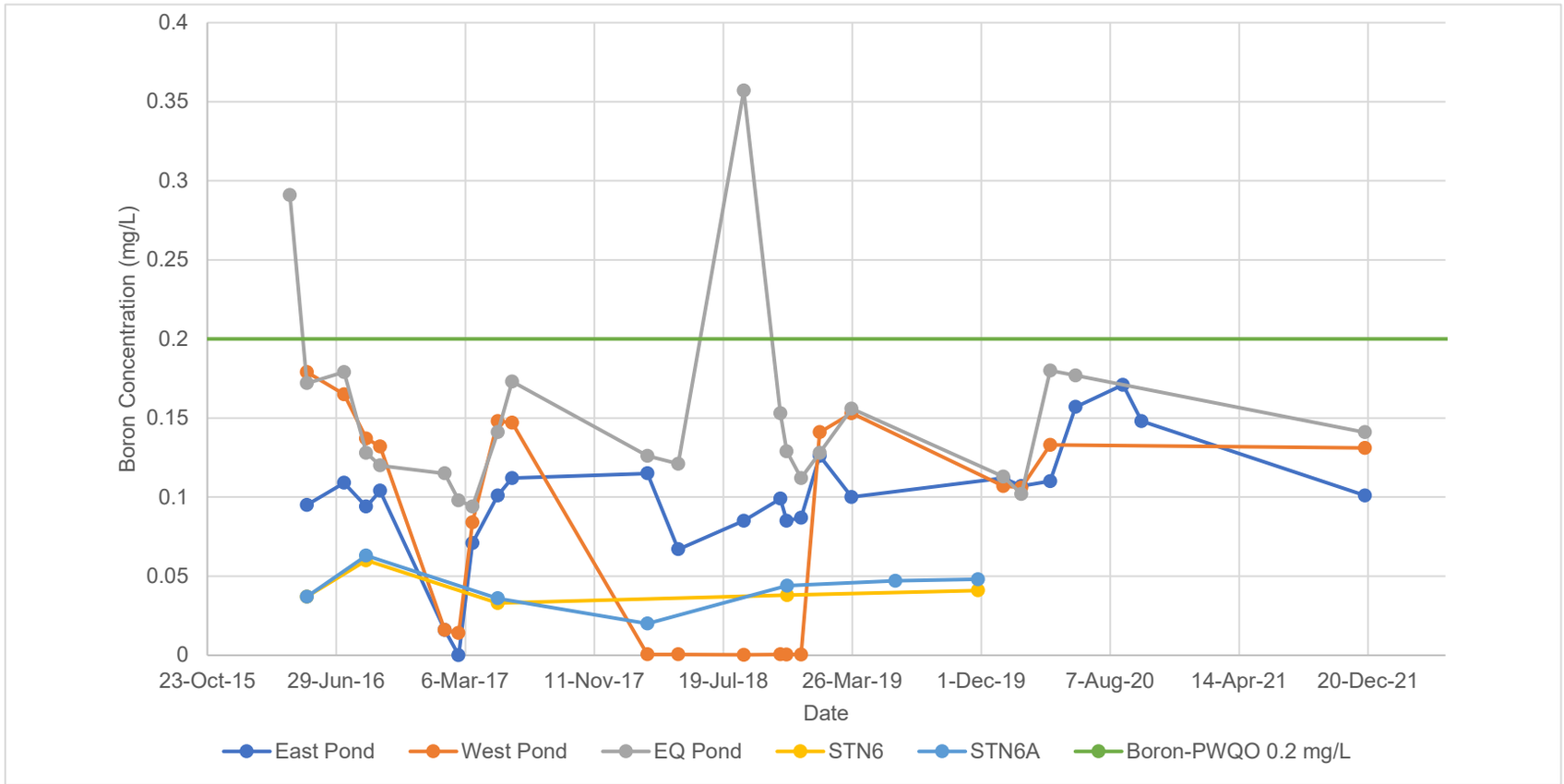
2021 ANNUAL SURFACE WATER QUALITY MONITORING REPORT

Aluminum Analytical Results by Location



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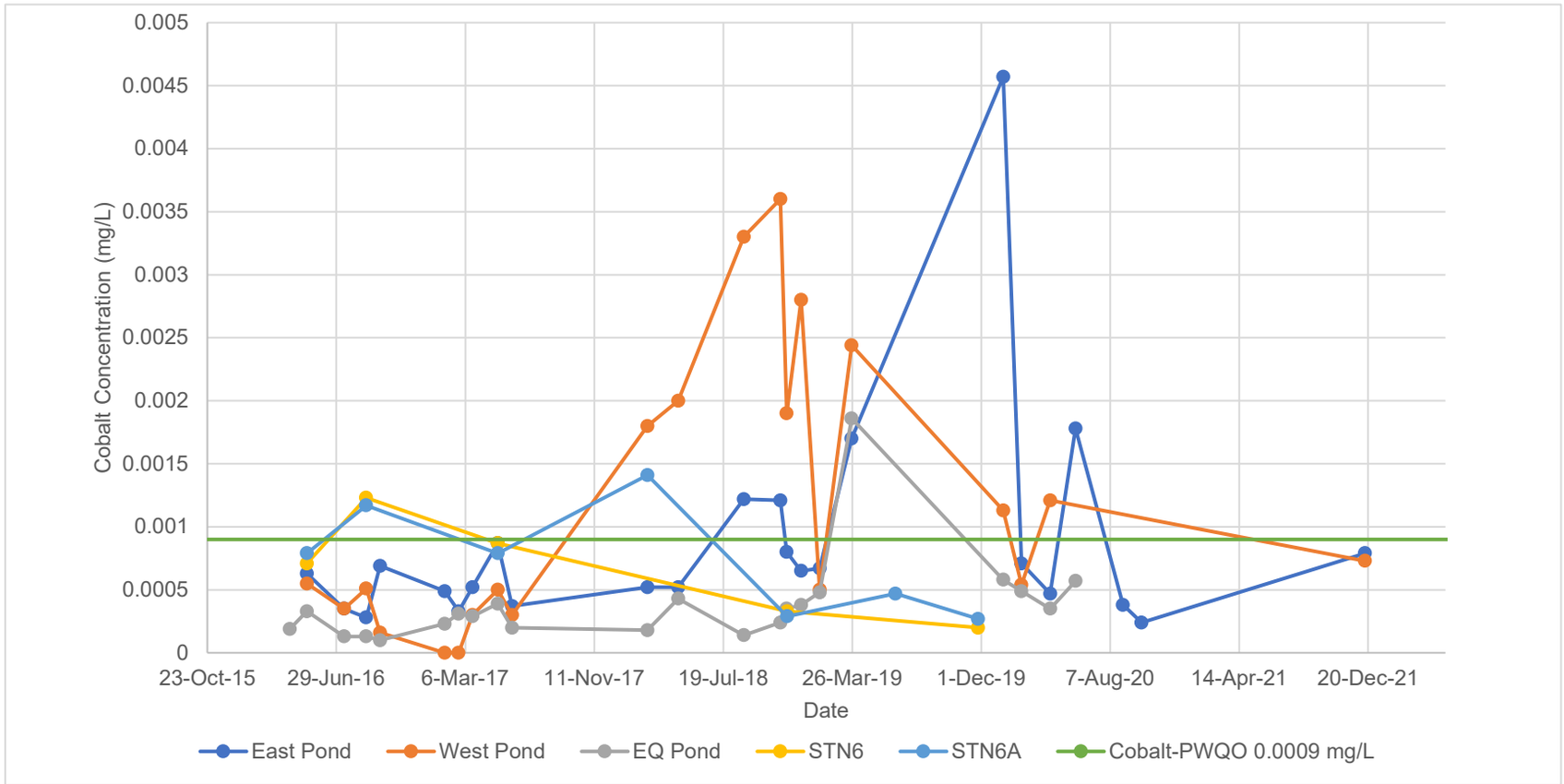
March 2, 2022

2021 ANNUAL SURFACE WATER QUALITY MONITORING REPORT

Boron Analytical Results by Location



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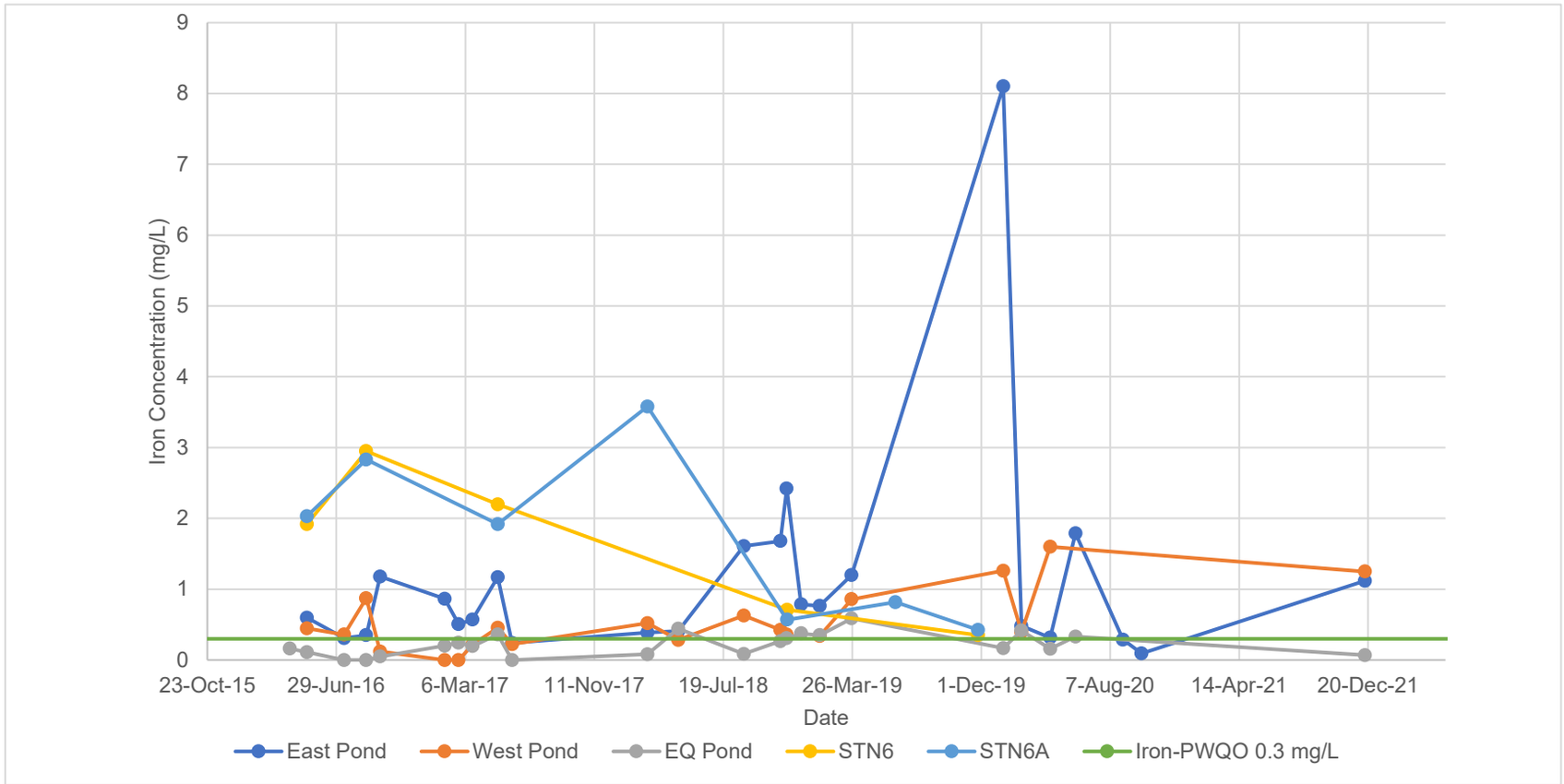
Cobalt Analytical Results by Location



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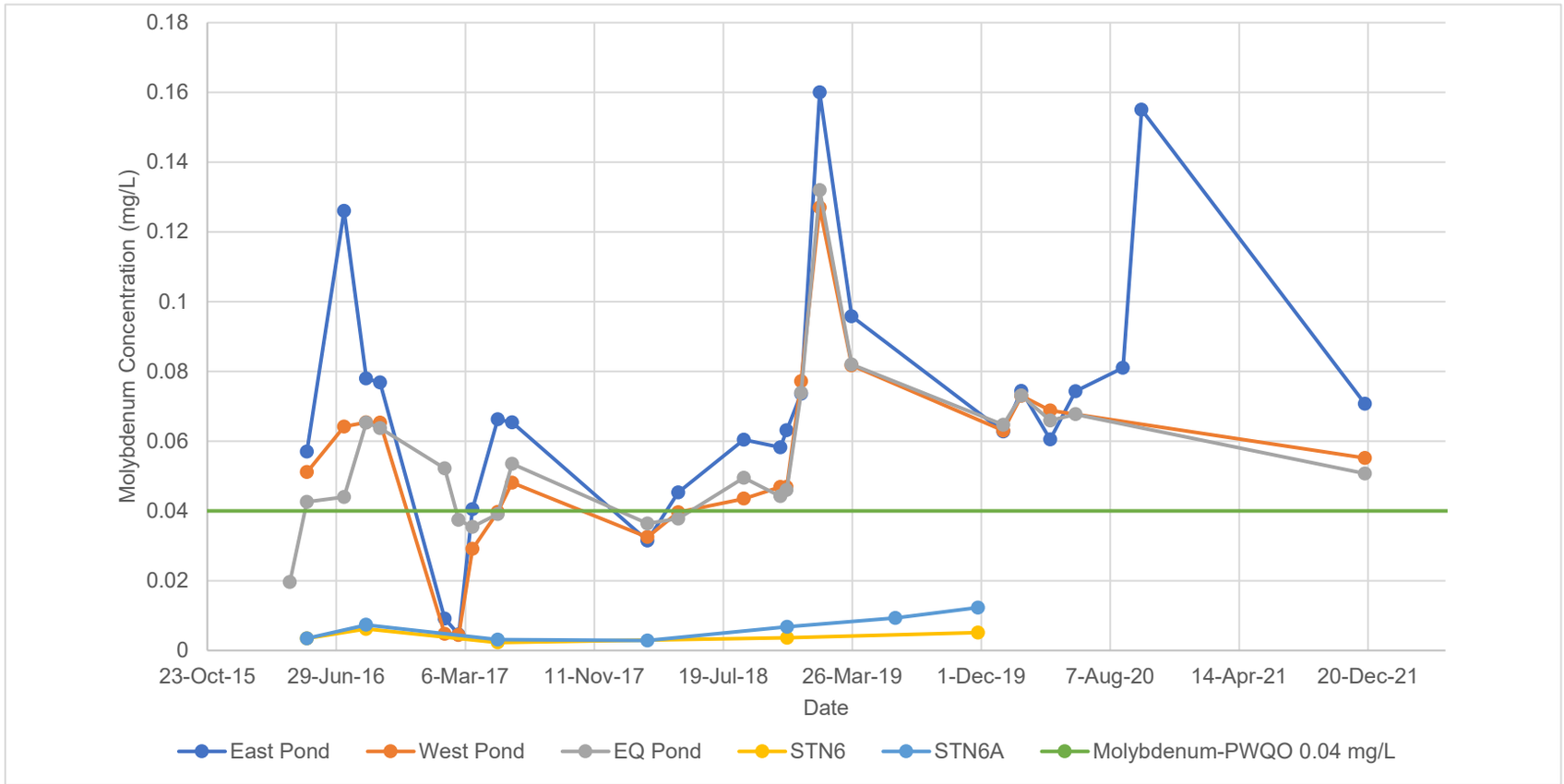
Iron Analytical Results by Location



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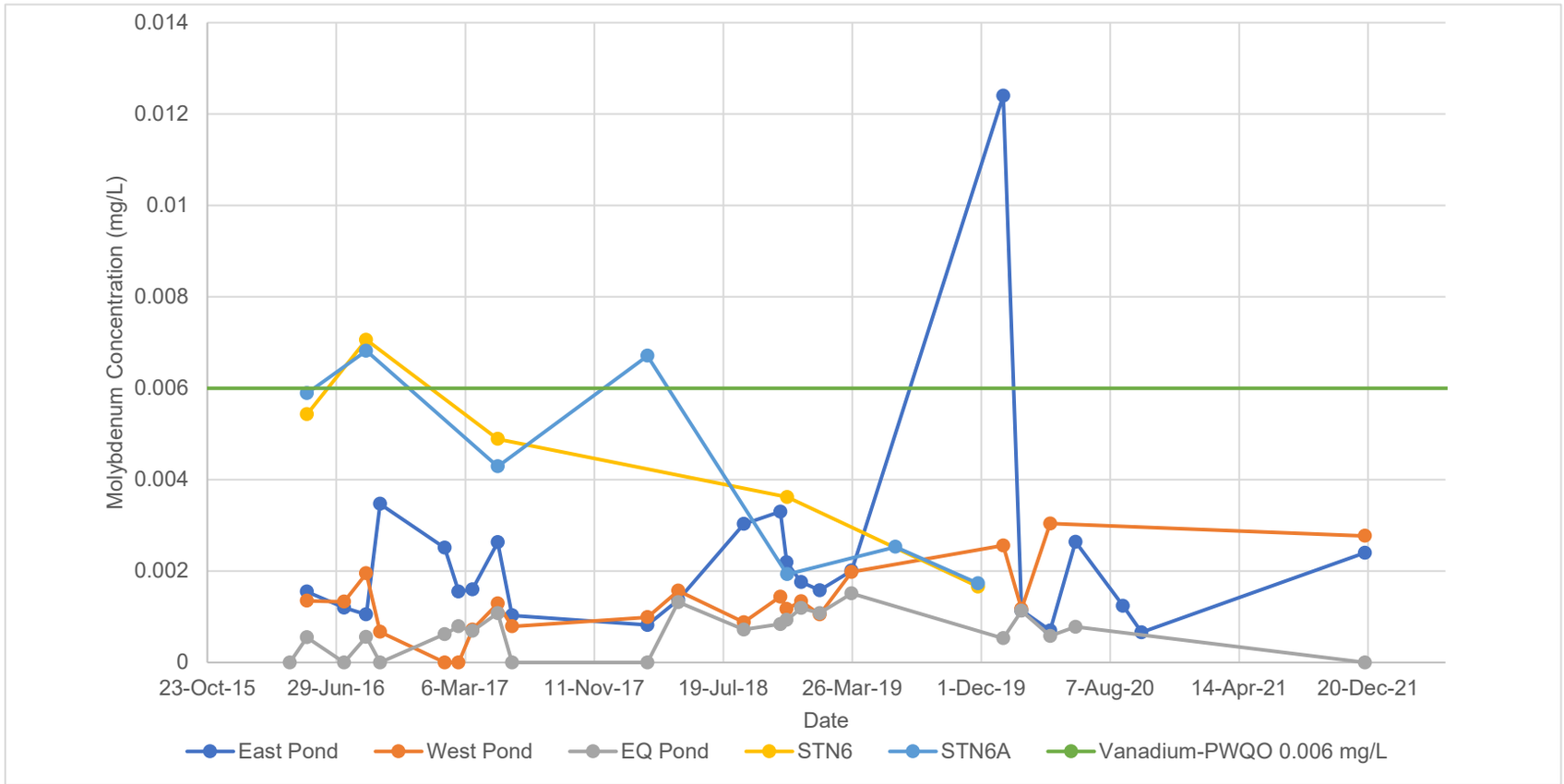
Molybdenum Analytical Results by Location



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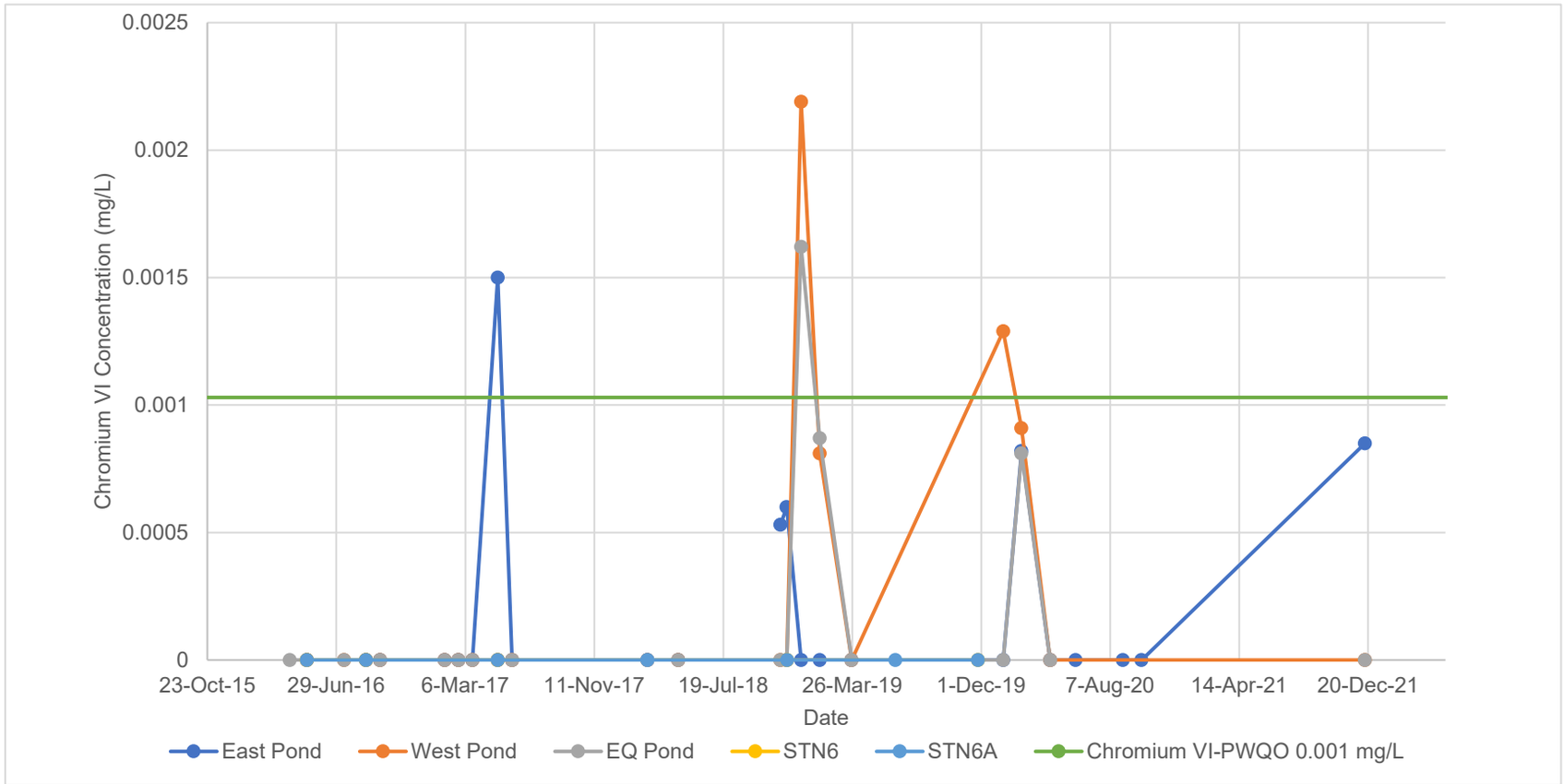
Vanadium Analytical Results by Location



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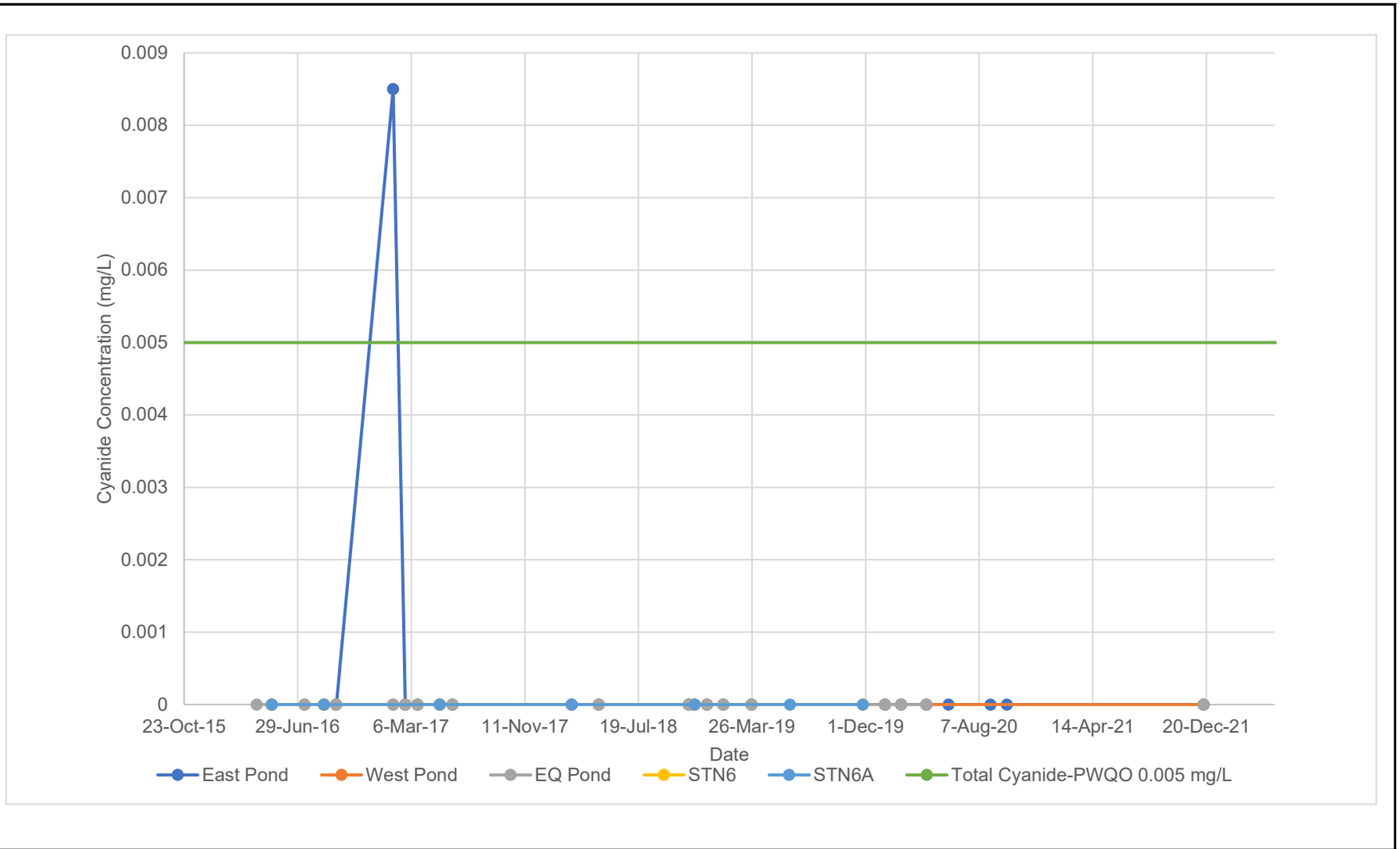
CHROMIUM VI ANALYTICAL RESULTS BY LOCATION



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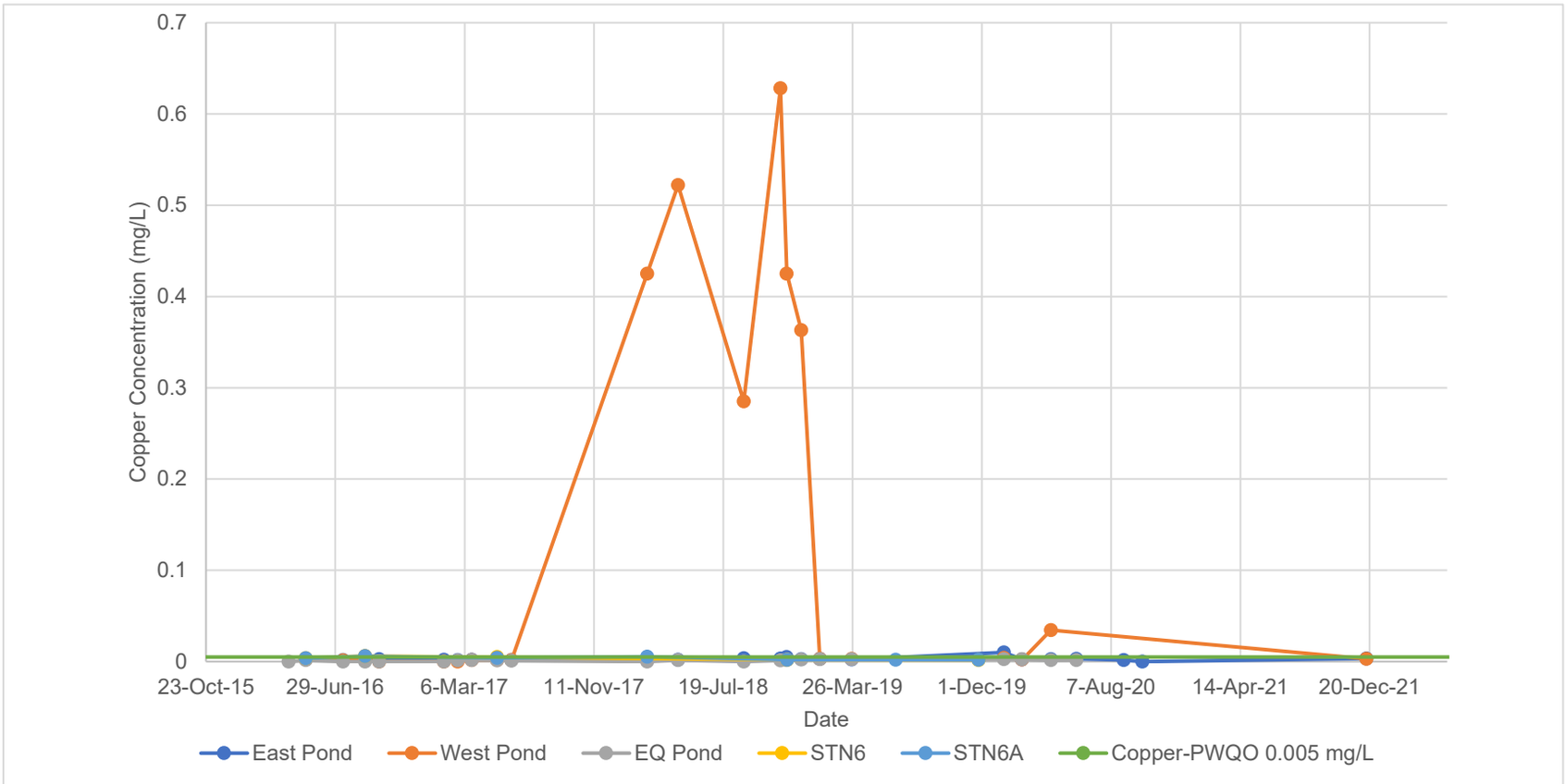
CYANIDE ANALYTICAL RESULTS BY LOCATION



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Copper Analytical Results by Location