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NOVA SCOTIA LANDS

Long Term Maintenance and Monitoring - 2018 Groundwater Monitoring Event

Open Hearth Park and Harbourside East – Final Report

May 2019 14-1360-1600

May 21, 2019

DILLON CONSULTING

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ATTENTION: Mr. Frank Potter
Executive Project Director

Long Term Maintenance and Monitoring - 2018 Groundwater Monitoring Event Open Hearth Park and Harbourside East (Final Report)

Dear Mr. Potter:

Dillon Consulting Limited is pleased to submit the above referenced report. Should you have any questions or comments, please contact the undersigned at (902) 562-9880 extension 5206.

Sincerely,

DILLON CONSULTING LIMITED

Nadine J. Wambolt, B.Tech., CET
Project Manager

NJW:kme

Enclosure

Our file: 14-1360-1600

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Executive Summary

Nova Scotia Lands (NS Lands) is a Crown Corporation of the Province of Nova Scotia responsible for the Long Term Maintenance and Monitoring Program (LTMM) implemented at Open Hearth Park (OHP) and Harbourside East (HE). NS Lands retained Dillon Consulting Limited (Dillon) to conduct the LTMM program, which consists of an annual groundwater sampling program. The LTMM event completed in 2018 included measurement of hydraulic head levels and sample collection from monitor wells around the shorelines of OHP (i.e., North and South Ponds) and across HE (i.e., the former Coke Ovens Site).

Analytical data were assessed in comparison to the July 2013 Nova Scotia Contaminated Sites Regulations (NS CSR) Tier I Environmental Quality Standards (EQS) for groundwater. Where Tier I EQS were not available (e.g., for some polycyclic aromatic hydrocarbons (PAHs) and metals in groundwater at non-potable sites), the Ontario Ministry of the Environment (MOE) Groundwater Standards for use under Ontario's Environmental Protection Act were applied.

Groundwater quality trend analysis was performed for select monitor wells within the OHP and HE areas via Mann-Kendall analysis, and included PAH indicator parameters (i.e., anthracene, benzo(a)pyrene, chrysene, indeno(1,2,3-cd) pyrene and naphthalene) and additional indicator general chemistry and metal parameters (i.e., sulfate, pH, TDS and selenium). The purpose of the comparison of groundwater data collected during the LTMM monitoring event with post-remediation monitoring events is to identify changes (if any) in groundwater over time. In most instances, the concentrations were comparable to the post-remediation data. Trend analysis completed on the above noted select parameters at select monitor well locations indicates that most concentration trends are stable, fluctuating or decreasing.

Results of the 2018 monitoring event at OHP indicate no exceedances of the Tier I EQS or the default MOE standards for the 14 monitor wells sampled on the OHP site.

For HE, concentrations of analyzed parameters at the majority of the sampling wells were below applicable standards. Monitor well CODT-201-MWA, located at the former Domtar site, had multiple PAH concentrations above the respective MOE standard concentrations. Additionally, the anthracene and naphthalene concentrations in one monitor well, CODT-201-MWC, also located in the former Domtar site, exceeded the MOE standard.

During the 2018 monitoring event, no dense non-aqueous phase liquid (DNAPL) was measured in monitor well, CODT-103-MWB (located on the northwest portion of HE in the former Domtar site), which was added to the LTMM program in 2015 for water level/product check only; however, black silt with a sheen and petroleum hydrocarbon odour was noted on the probe following removal from the bottom of the monitor well. DNAPL was not measured at any other location in 2018. Light non-aqueous phase liquid (LNAPL) was not measured at any location in 2018.

This report was prepared by Dillon Consulting Limited for the sole benefit of our client, Nova Scotia Lands. The conclusions reflect Dillon's judgment in light of the information available to it at the time of preparation. Any use which a third party makes of this report or any reliance on or decisions made based on it are the responsibilities of such third parties. Dillon accepts no responsibilities for damages, if any, suffered by any third party as a result of decisions made or actions based on this report.

1.0 Introduction

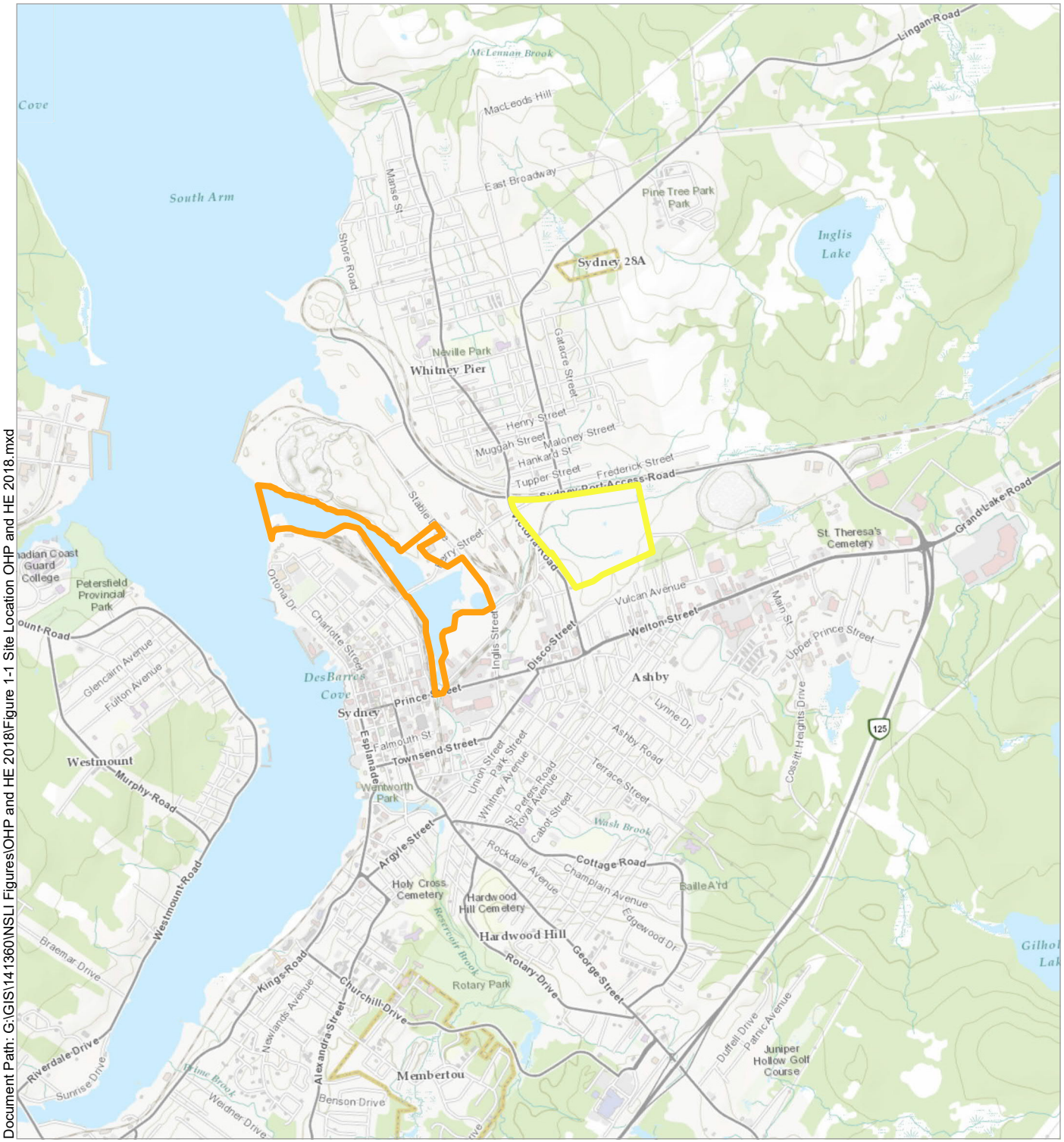
The footprint of the Sydney Tar Ponds and former Coke Ovens Site encompassed approximately 100 hectares of property within the Muggah Creek Watershed in the Cape Breton Regional Municipality of Nova Scotia. Extensive testing identified widespread contamination of soil, groundwater, surface water and sediments due to historical long term industrial use of the property. The remediation project, managed by the Sydney Tar Ponds Agency (STPA), was a complex undertaking, consisting of many design and construction elements completed over several years. An Environmental Effects Monitoring (EEM) and Surface Water Compliance Monitoring Program was established as part of the remediation program to assess performance of construction/remedial measures.

Long term maintenance and monitoring (LTMM) was one of the major components of the proposed remedial strategy designed to be carried out following the completion of the primary remediation project (2009-2014). Nova Scotia Lands (NS Lands) is a Crown Corporation of the Province of Nova Scotia with the responsibility for former lands involved in the Tar Ponds and Coke Ovens cleanup, now known as Open Hearth Park (OHP) and Harbourside East (HE) (Figure 1-1 and Figure 1-2). As such, NS Lands is responsible for the LTMM, which has been implemented at OHP and HE.

This document details the groundwater monitoring completed at OHP and HE in 2018. Section 1.0 describes the scope of work. Methodologies are detailed in Section 2.0. Findings are presented in Section 3.0 and summarized in Section 4.0. Recommendations are presented in Section 5.0. Data tables and supporting information are found in appendices referenced throughout the document.

1.1 Scope of Work

The LTMM program for OHP and HE consists of an annual groundwater sampling program. The LTMM event included measurement of hydraulic head levels and sample collection from specific monitor wells around the shorelines of OHP (i.e., North and South Ponds) and at HE (i.e., the former Coke Ovens Site). In accordance with the request for proposal (RFP) NSLAND57 Groundwater Monitoring Services, the LTMM Groundwater Monitoring Events were scheduled to include 67 water level measurements and the collection of 44 groundwater samples for select analysis. However, based on the findings of the 2014 LTMM program, Dillon recommended the exclusion of one monitor well, MW-2 (Spar Road), from the program due to its location (i.e., up gradient) and consistent/stable concentrations over the previous two years of monitoring from 2012 to 2014. Following approval from Nova Scotia Environment (NSE) and NS Lands, this monitor well was removed from the program in 2015. Additionally, during the 2015 groundwater monitoring program, MCWS-009-MW was found to be damaged beyond repair and was subsequently decommissioned. Prior to commencing the 2016 groundwater monitoring program, monitor well MSES-003-MW was found to be destroyed. Further, during the 2017 monitoring program, monitor well MCES-204-MW was found to be destroyed; thereby decreasing the sampling program to 40 monitor wells.



Document Path: G:\GIS\141360\NSLI Figures\OHP and HE 2018\Figure 1-1 Site Location OHP and HE 2018.mxd

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OPEN HEARTH PARK AND HARBOURSIDE EAST
2018 GROUNDWATER MONITORING EVENT

SITE LOCATION
Figure 1-1

Harbourside East

Open Hearth Park

0 250 500 1,000 1,500 m

SCALE 1:68202

MAP DRAWING INFORMATION:
Government of Canada, Natural Resources Canada,
Earth Science Sector, Center for Topographic Information.
Sydney 11 K/1, ESRI Basemap
Information current as of 1994.

Province of Nova Scotia Mapping

MAP CREATED BY: SCM
MAP CHECKED BY: NJW
MAP PROJECTION: NAD 1983 UTM Zone 20N

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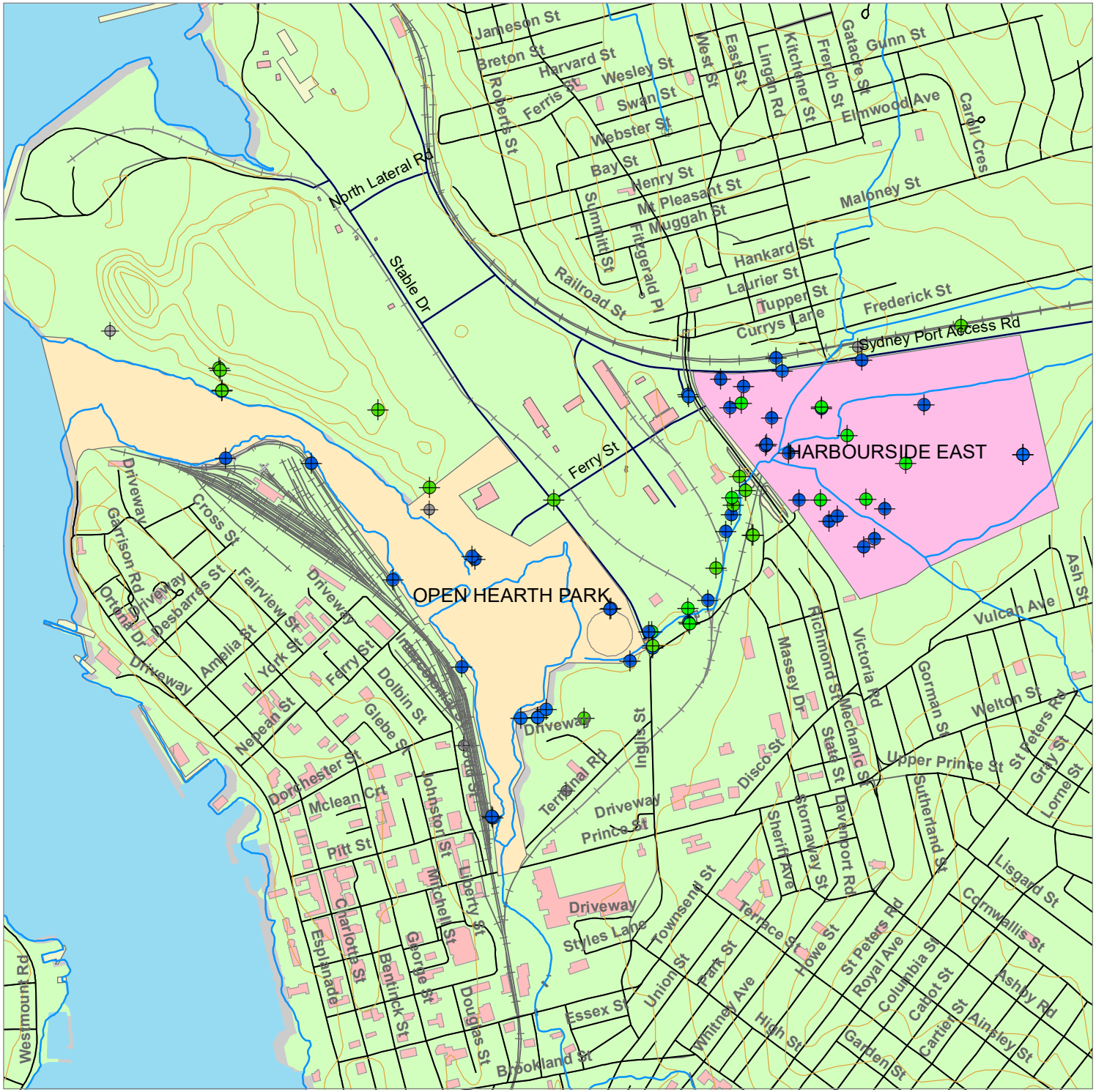

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OPEN HEARTH PARK AND
HARBOURSIDE EAST

2018 GROUNDWATER MONITORING EVENT

STUDY AREAS

FIGURE 1-2

LEGEND

Monitoring Wells

- Active Water Level Only
- Active Sample and Water Level
- Removed From Program, Destroyed and/or Decommissioned

0 50 100 200 300 m

MAP DRAWING INFORMATION:
Province of Nova Scotia Mapping

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Document Path: G:\GIS\141360\NSLI Figures\OHP and HE 2018\Figure 1-2 Study Areas OHP and HE 2018.mxd

As no monitor wells on the HE site initially included in the LTMM program were installed in shallow or deep bedrock, no groundwater contours were available for bedrock in this area during the 2014 LTMM program. Therefore, water level measurements at five monitor wells installed within bedrock (i.e., COBP-001-MWC, COCB-001-MW, COBP-004-MWC, NOCO-014-MWB and COBT-001-MWB) on the HE site were added to the LTMM in 2015 to allow for inclusion of bedrock groundwater contours for this area. A water level measurement could not be obtained from SCU26-209-MW, which could not be located during the 2014 program and is assumed to be destroyed. During the 2016 program, SCU24-007-MWB could not be located. Therefore, the number of water level measurements included in the 2018 LTMM program was 66 (i.e., 40 sampling and 26 water level wells).

As concentrations of petroleum hydrocarbons (PHC) have remained below laboratory detection limits or at concentrations below applicable criteria for the majority of the sampling wells, following approval from NSE and NS Lands, the 2015 LTMM program was reduced to include sampling for PHC at one monitor well location only (i.e., CODT-201-MWC located on the northwest portion of HE at the former Domtar site). Each of the 40 monitor wells scheduled for sampling were analyzed for polycyclic aromatic hydrocarbons (PAHs), metals and general inorganic chemistry parameters.

2.0 Project Methodologies

Methodologies are provided in the following sub-sections:

- Section 2.1 Health and Safety Processes
- Section 2.2 Quality Control Processes
- Section 2.3 Groundwater Sampling
- Section 2.4 Data Compilation/Assessment

2.1 Health and Safety Processes

Dillon developed a site-specific health and safety plan (SSHSP) for groundwater monitoring. Site specific information, such as, local emergency contact information and hospital routes are included in the plan, as well as, but not limited to the following:

- Identification of site activities and potential hazards;
- Description of safe work practices and procedures;
- Description of PPE;
- Identification of safety training and first aid requirements; and,
- Identification of emergency response procedures.

The project manager reviewed the SSHSP with field personnel prior to their mobilizing to the site. Field personnel were responsible for following the SSHSP, including conducting a job hazard analysis upon arrival at the site (i.e., OHP and HE).

2.2 Quality Control Process

Data Quality Objectives (DQOs) and applicable Standard Operating Procedures (SOPs) were reviewed with the team prior to embarking on field work. Other QC measures included, but were not necessarily limited to the following:

- Assignment of a coordinator to oversee field activities;
- Use of dedicated materials and equipment to reduce/prevent the potential of sample contamination;
- For equipment requiring use at multiple stations, appropriate decontamination prior to and after each deployment;
- Use of laboratory supplied sample bottles/containers;
- Collection of an appropriate number of duplicates and blanks;
- Proper storage of samples on ice in coolers immediately after collection;
- Transport of samples to the laboratory (see below) on a daily basis; and,
- Daily documentation/review of notes.

Duplicate and Blank Collection

As summarized in Table B-1 (Appendix B), four field duplicates, two field blanks and two equipment blanks were collected during the 2018 monitoring event.

Laboratory QC

Samples were delivered to Maxxam Analytics in Sydney, Nova Scotia (Maxxam) for analysis. Maxxam is accredited through the Standard Council of Canada (SCC) and is a member of the Canadian Association for Laboratory Accreditation (CALA). Maxxam also applied internal laboratory QC measures including:

- Laboratory duplicates;
- Matrix Spikes (MS);
- Spike Blanks (Process Recovery %); and,
- Method blanks.

Laboratory DQOs, including MS recoveries, process recoveries, relative percent differences, and holding times, were reviewed to assess the quality of the data.

2.3 LTMM Groundwater Monitoring Program

Groundwater characteristics within the boundaries of the Muggah Creek Watershed were previously assessed through the installation and testing of a significant number of monitor wells as part of Phase II and III Environmental Site Assessments (ESAs) (JDAC, 2001 and 2002). The wells were terminated within fill, native till, and shallow, intermediate and deeper bedrock units. Analytical data collected in conjunction with the ESAs, as well as in subsequent sampling events, confirmed widespread impacts, particularly PAHs, metals, and inorganic parameters, resulting from long term industrial use of the land. The JDAC data also suggested that the more permeable fractured shallow bedrock (SRx) unit

represented the primary pathway for contaminant migration. The sampling wells included in the LTMM plan are specifically located in different areas across the sites in an attempt to monitor and assess the performance of remediation.

The field component of the 2018 groundwater monitoring event was consistent with pre-construction/ baseline and quarterly construction monitoring events and involved the following activities:

- Measurement of hydraulic head levels;
- Low flow groundwater sample collection; and,
- Data compilation/assessment and reporting.

2.3.1 Measurement of Hydraulic Head Levels

The number of monitor wells measured for water levels during the 2018 groundwater monitoring event was 66 (i.e., 40 sampling and 26 water level wells).

Depth to water and the presence of light non-aqueous phase liquid (LNAPL) and/or dense non-aqueous phase liquid (DNAPL) in wells were manually measured using an interface probe. Measurements were taken from established reference points and water level information was recorded on field sampling sheets.

2.3.2 Well Purging

Using 12V submersible pumps, installed as part of the EEM program for the Sydney Tar Ponds (STP) remediation project, water was purged from each well scheduled for sample collection until select field parameters stabilized, including water level. The rate of flow (0.1 to 0.4 liters/minute) at each well was controlled by an in-line valve. In instances where the dedicated submersible pumps were no longer working, a peristaltic pump was used. The water level was measured at 3-minute intervals and maintained at a constant head; if the water level started to drop, the flow rate was reduced to maintain a constant head. The sample tube was connected to a flow-through cell containing a Horiba U-22 multi-parameter probe. The general stabilization of the following parameters was used as indication that water representative of the groundwater in the aquifer was being collected:

- pH (+/- 0.1 unit);
- Specific conductance (+ / - 3%);
- Temperature (+ / - 3%); and,
- Turbidity (+ / -10% for values greater than 1 NTU).

The time required for sampling generally ranged from 15 to 30 minutes, and typically 6 to 12 liters (L) of water was removed. Similar to the EEM program, stabilization of turbidity provided some challenges for a number of wells. In these cases, additional parameters, including dissolved oxygen (DO) and oxidation reduction potential (ORP), were referenced to confirm stabilized conditions.

2.3.3 Sample Collection

As detailed in Section 1.1, the 2018 groundwater monitoring program included the sampling of 40 monitor wells. Consistent with previous LTMM monitoring events, monitor well COTS-001-MWA (located on the HE site) could not be sampled due to insufficient groundwater. Therefore, as per direction from NS Lands (in 2015), monitor well COTS-001-MWB was sampled in place of COTS-001-MWA.

2.3.4 Groundwater Analysis

Pursuant to RFP NSLAND57 Groundwater Monitoring Services, groundwater samples were analyzed for PHCs (i.e., CODT-201-MWC only), PAHs, metals and general chemistry parameters, as listed in Table 2-1. PHC and PAH sample bottles were filled with no head space. Metal aliquots were field filtered and preserved with nitric acid in order to maintain constituents in solution. Samples were delivered to the Canadian Association for Laboratory Accreditation (CALA) certified laboratory Maxxam in Sydney, Nova Scotia for analysis.

Table 2-1 Water Quality Analytical Suite of Parameters

PHC[1]	PAHs	General Chemistry	Metals (dissolved)
Benzene	Acenaphthene	Anion/Cation sums	Aluminum
Toluene	Acenaphthylene	Ion Balance (% Difference)	Antimony
Ethylbenzene	Anthracene	Langelier Index @ 4&20 C	Arsenic
Total Xylenes	Benzo(a)anthracene	Saturation pH @ 4&20 C	Barium
C6-C10 (Less BTEX)	Benzo(a)pyrene	Alkalinity (total as $CaCo_3$)	Beryllium
>C10-C16 Hydrocarbons	Benzo(b)fluoranthene	Sodium	Bismuth
>C16-C21 Hydrocarbons	Benzo(j)fluoranthene	Potassium	Boron
>C21-<C32 Hydrocarbons	Benzo(k)fluoranthene	Calcium	Cadmium
Modified TPH (Tier I)	Benzo(g,h,i)perylene	Magnesium	Chromium
	Chrysene	Chloride	Cobalt
	Dibenz(a,h)anthracene	TDS	Copper
	Fluoranthene	Colour	Iron
	Fluorene	Nitrate	Lead
	Indeno(1,2,3-cd)pyrene	Nitrite	Manganese
	Naphthalene	Nitrate + Nitrite	Mercury (Total)
	Perylene	Nitrogen (Ammonic N)	Molybdenum
	Phenanthrene	Total Organic Carbon	Nickel
	Pyrene	Orthophosphate	Phosphorus
	1-methylnaphthalene	pH	Selenium
	2-methylnaphthalene	Silica	Silver
		Sulphate	Strontium Thallium
		Turbidity	Tin
		Conductivity	Titanium Uranium
			Vanadium
			Zinc

Note:
1. Since 2015, only CODT-201-MWC has been sampled for PHC.

2.4 Data Compilation/Assessment

Maxxam provided analytical results in a database compatible format, alleviating potential errors associated with manual entry. Data tables generated as part of the 2018 monitoring event also include available post-remediation data. Based on historical data, the following parameters, with concentrations generally consistently above applicable standards are used as indicator parameters for OHP and HE:

- PAHs: anthracene, benzo(a)pyrene, chrysene, indeno(1,2,3-cd) pyrene and naphthalene.

Additional general chemistry and metal parameters were also selected for Mann-Kendall analysis at three monitor wells, which are located in the vicinity of the solidification/stabilization (S/S) area in consideration of monitoring the S/S performance over the long term period:

- General chemistry and metals: selenium, sulfate, pH and TDS.

Trend analysis was not completed for PHCs, as only monitor well CODT-201-MWC is sampled for PHCs and detected concentrations have been below the Tier I EQSs.

2.4.1 Regulatory Framework

Pursuant to RFP NSLAND57 Groundwater Monitoring Services, the remedial criteria used for this assessment were the Tier I Environmental Quality Standards (EQS) for groundwater established pursuant the July 2013 Nova Scotia Contaminated Sites Regulations (NS CSR). The subject property is classified as having commercial receptors, non-potable groundwater usage, and coarse-grained soil. Where Tier I EQS are not available (e.g., for most PAHs and metals in groundwater at non-potable sites), the Ontario Ministry of the Environment (MOE) Groundwater Standards for use under Ontario's Environmental Protection Act were used.

2.4.2 Groundwater Quality Trend Analysis – Mann Kendall

Mann-Kendall analysis as a non-parametric statistic test routinely used to assess the stability of solute plume. At least four independent sampling events are required to evaluate groundwater quality trends via Mann-Kendall analysis. The Mann-Kendall test procedure starts by comparing the most recent round of water quality data with the results of earlier rounds. Non-detect data values are typically assigned a value that is half the laboratory detection limit. The Mann-Kendall test is not designed to account for seasonal variation in data, rather Mann-Kendall identified the trend of concentrations in individual wells for individual parameters (stable, decreasing, or increasing).

Based on a review of the analytical results from the LTMM and available post-remediation data, parameters with concentrations consistently above applicable standards were selected for Mann-Kendall analysis. These include PAH indicator parameters anthracene, benzo(a)pyrene, chrysene, indeno(1,2,3-cd)pyrene and naphthalene. Additional indicator general chemistry and metal parameters (i.e., selenium, sulfate, pH and TDS) were also selected for Mann-Kendall analysis at three monitor wells, which are located in the vicinity of the S/S area in consideration of monitoring the S/S performance over

the long term period. Up to four rounds (if available) of post-remediation groundwater analytical data were applied for performing the trend analysis for the indicator parameters.

In certain situations, Mann-Kendall analysis results may be biased due to elevated laboratory detection limits. Non-detected data on the Mann-Kendall analysis of indicator parameters was identified and confirmed the influence of non-detected data is minimal.

3.0 Results

Results are presented in the following subsections:

- Section 3.1 Weather Conditions and General Observations
- Section 3.2 Groundwater Flow and Hydraulic Head Levels
- Section 3.3 OHP Findings
- Section 3.4 HE Findings
- Section 3.5 QC Summary

3.1 Weather Conditions and General Observations

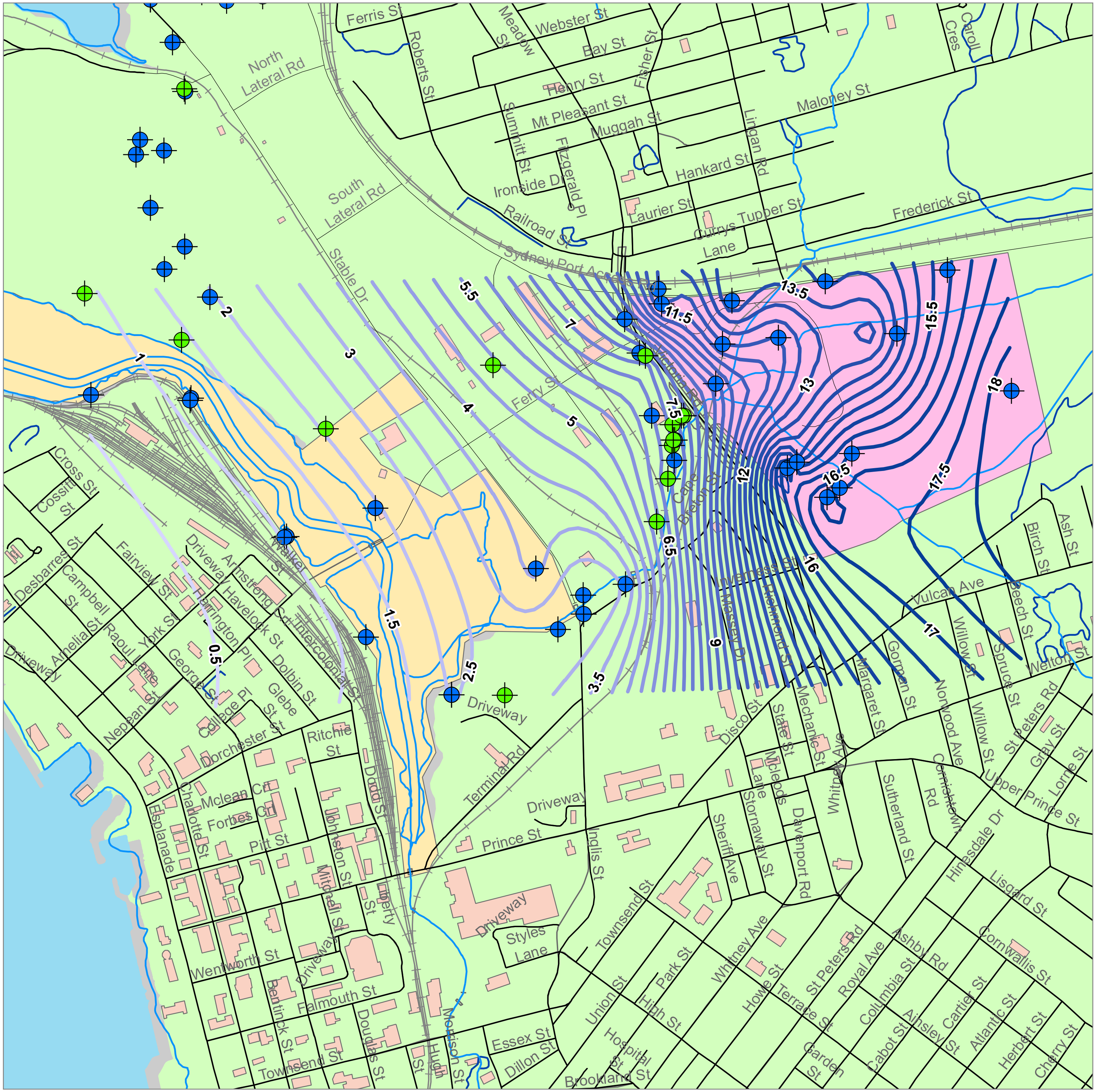
The current meteorological station (i.e., Sydney A, Climate ID: 8205700/8205701) is an official station established by Environment Canada since 1941. Historical precipitation recordings for the Sydney area can be traced back as far as 1870. Comparison of the recordings at the Sydney A station indicates that precipitation of approximately 1688.7 millimeters (mm) was recorded for 2018, which is more than the normal value of yearly precipitation of 1517 mm (i.e., as recorded between 1981 and 2010) (http://climate.weather.gc.ca). The monthly precipitation recorded for November 2018 was 229.5 mm and for December 2018 was 135.4 mm.

3.2 Groundwater Flow and Hydraulic Head Levels

A survey of the EEM program monitor well elevations across the OHP and HE sites was conducted in December 2011 and May 2014. The hydraulic head for the monitor wells at the OHP and HE sites are provided based on these surveys.

The hydraulic head data obtained from the monitoring areas during the 2018 monitoring event were employed to plot the equipotential groundwater contours. The groundwater contours were identified for different media within the unconsolidated till and/or fill unit (Figure 3-1), the upper fractured shallow bedrock (Figure 3-2), and the intermediate/deep bedrock (Figure 3-3).

Review of the available equipotential contour plots for the three media units (i.e., the fill/till, shallow bedrock and intermediate/deep bedrock) indicates that the groundwater flow direction in each of the units is generally consistent between the 2018 event and that observed during the previous LTMM



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2018 GROUNDWATER MONITORING EVENT

Equipotential Groundwater Contours Fill TIII
FIGURE 3-1

LEGEND

Equipotential Groundwater Contours
6m — Groundwater Elevations are measured in meters above sea level (mASL)

Open Hearth Park
Harbourside East
Active Water Level Only
Active Sample and Water Level

0 50 100 200 300 m

N W E S

MAP DRAWING INFORMATION:
Province of Nova Scotia Mapping

MAP CREATED BY: SCM
MAP CHECKED BY: NJW
MAP PROJECTION: NAD 1983 UTM Zone 20N

FILE LOCATION: \\DILLON.CA\DILLON_DFS\SYDNEY\SYDNEYCAD\GIS\141360

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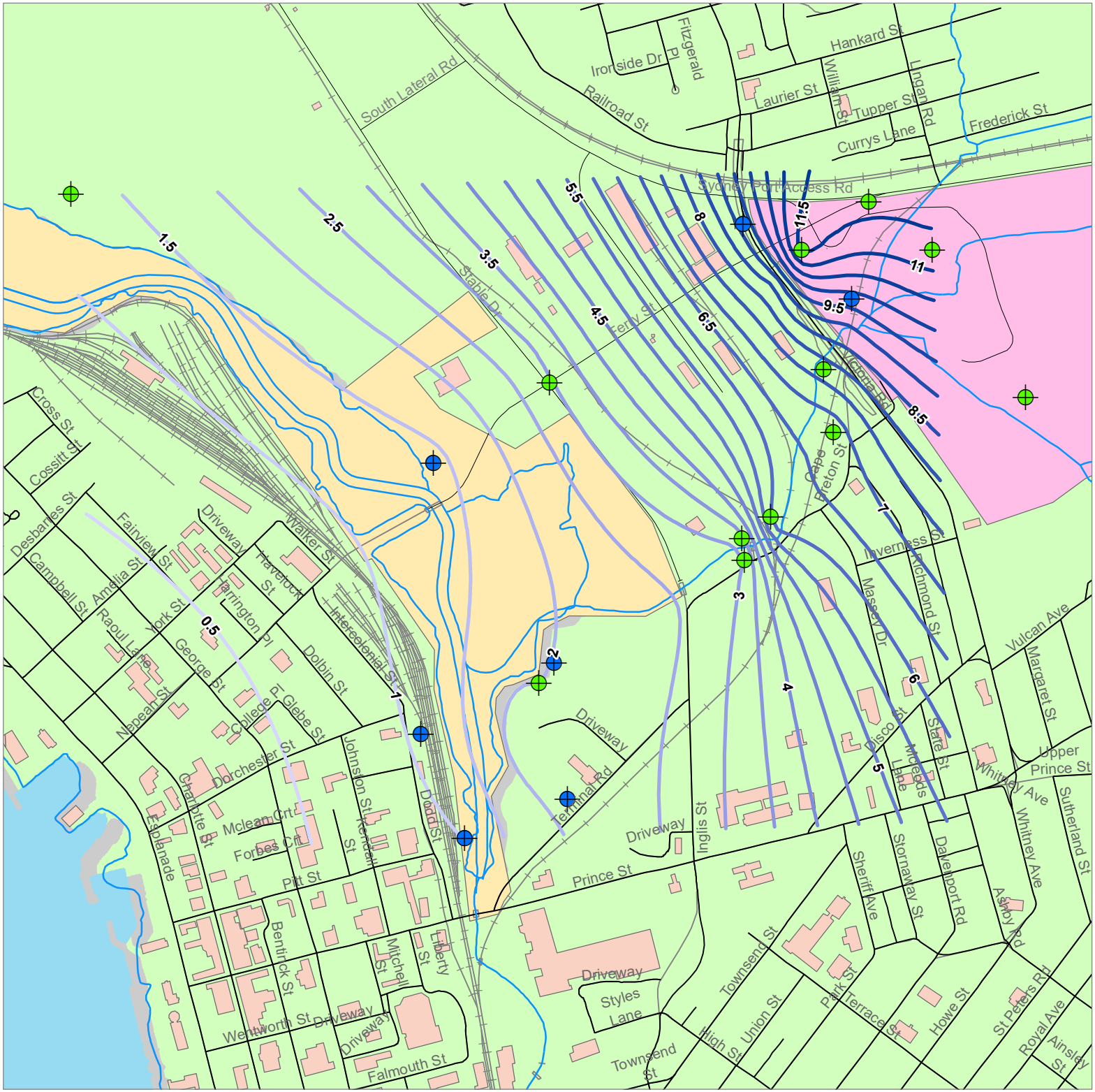
PROJECT: 14-1360
STATUS: FINAL
Date: 01/29/19



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OPEN HEARTH PARK AND
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2018 GROUNDWATER MONITORING EVENT

Equipotential Groundwater Contours Bedrock Aquifer
FIGURE 3-2

LEGEND

Equipotential Groundwater Contours

6m — *Groundwater Elevations are measured in meters above sea level, (mASL)*

Harbourside East

Open Hearth Park

Active Water Level Only

Active Sample and Water Level

0 50 100 200 300 m

N W E S

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Province of Nova Scotia Mapping

MAP CREATED BY: SCM
MAP CHECKED BY: NJW
MAP PROJECTION: NAD 1983 UTM Zone 20N

FILE LOCATION: \\DILLON.CA\DILLON_DFS\SYDNEY\SYDNEYCAD\GIS\141360

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STATUS: FINAL
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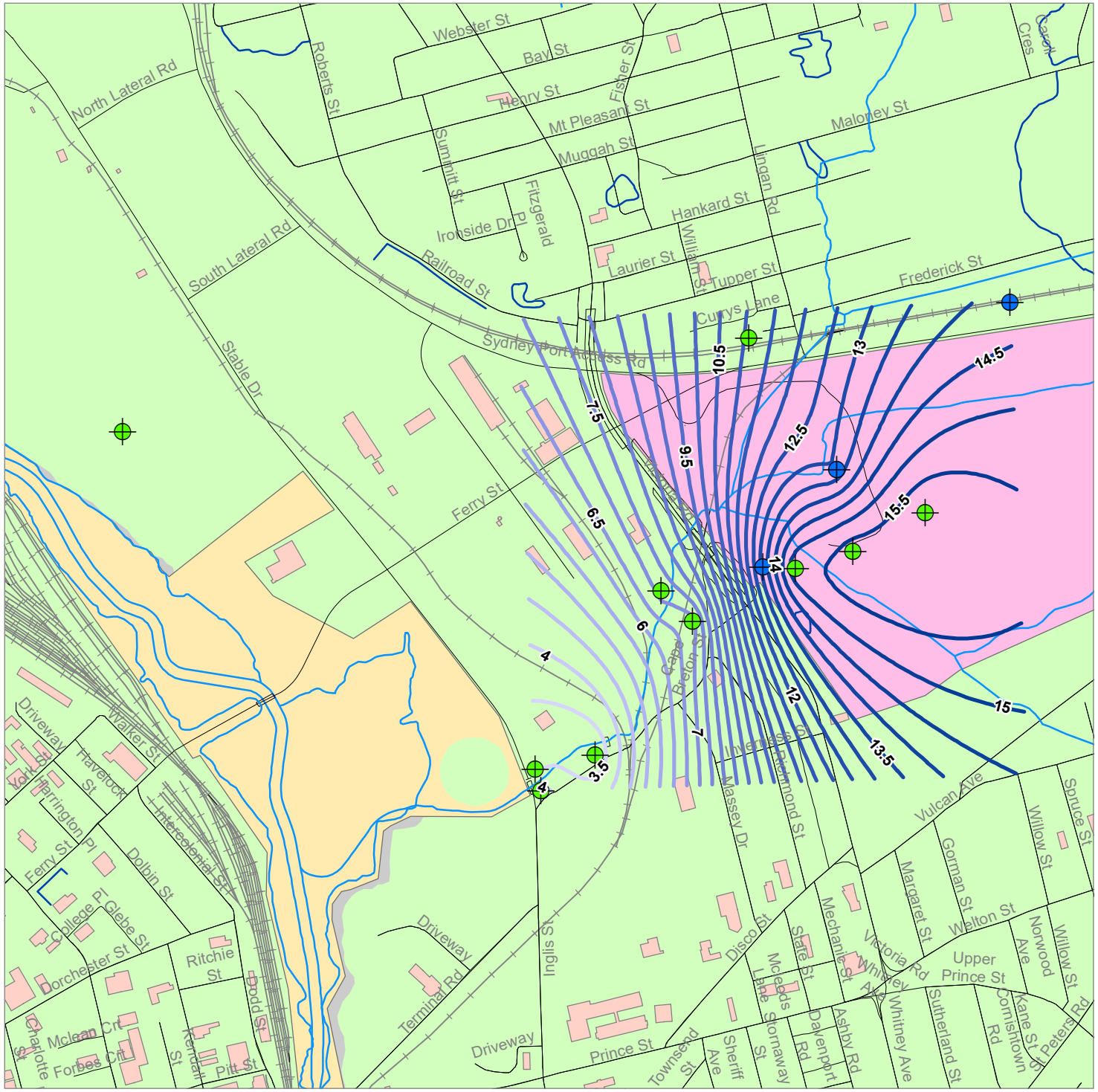

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OPEN HEARTH PARK AND
HARBOURSIDE EAST
2018 GROUNDWATER MONITORING EVENT

Equipotential Groundwater Contours Deep Bedrock Aquifer
FIGURE 3-3

LEGEND

Equipotential Groundwater Contours

6m *Groundwater Elevations are measured in meters above sea level, (mASL)*

Open Hearth Park

Harbourside East

Active Water Level Only

Active Sample and Water Level

0 50 100 200 300 m

N W E S

MAP DRAWING INFORMATION:
Province of Nova Scotia Mapping

MAP CREATED BY: SCM
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programs and the EEM program associated with the STP remediation project. Based on hydraulic head data, the groundwater flows generally from HE towards the southwest into Sydney Harbour.

During the 2018 monitoring event, no DNAPL was measured in monitor well, CODT-103-MWB (located on the northwest portion of HE in the former Domtar site), which was added to the LTMM program in 2015 for water level/product check only; however, black silt with a sheen and petroleum hydrocarbon odour was noted on the probe following removal from the bottom of the monitor well. DNAPL was not measured at any other location in 2018. LNAPL was not measured at any location in 2018.

3.3 OHP Findings

The OHP area (i.e., formerly TP2/TP6/TP7 areas) includes the east, southeast, and western shorelines of the former Tar Ponds, as well as a portion of the former SYSCO property along Inglis Street. This area was remediated as part of the STP project using S/S processes. The LTMM program is used to evaluate groundwater quality post remediation. Results of the 2018 monitoring event are presented and discussed in the following subsections.

Monitor wells used for water level measurements in the OHP area include wells located in the "high dump" area, which is part of the Harbourside Commercial Park (HCP) site and is located at the north end of the eastern shoreline. The high dump was used for disposal of blast furnace slag from the former steel plant. Historical in-filling of the southeast shoreline of the OHP used a variety of materials including slag, coal, brick and scrap wood, in addition to a former municipal disposal area on the south shoreline of OHP. The OHP also includes the footprint of a former open cooling pond used to contain steel plant effluents, a number of municipal outfalls, and a rail yard, bulk fuel terminal and a number of other former industrial sites on the west shoreline.

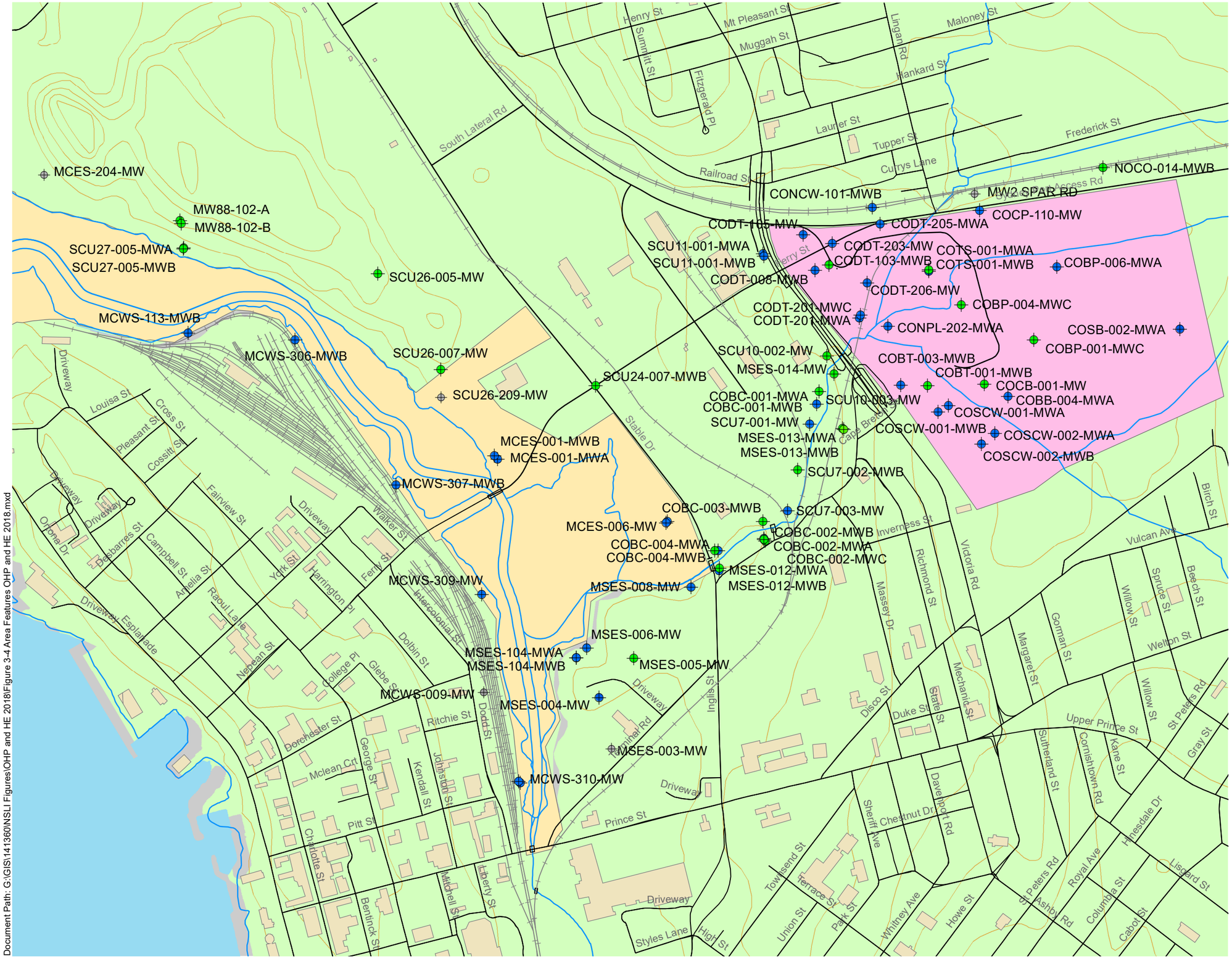
Results of the 2018 monitoring event at OHP indicate no exceedances of the Tier I EQS or the default MOE standards for the 14 monitor wells sampled on the OHP site (Figure 3-4).

3.3.1 OHP Groundwater Quality

Analytical data, including available historical post-remediation data for reference, are presented in Appendix A (Tables A-1 (TPH/BTEX), A-2 (PAHs) and A-3 (general chemistry and metals)). As stated previously, the LTMM 2018 Groundwater Monitoring Program included the collection of samples from 40 locations for analysis, 14 of which were collected from monitor wells located on the OHP site.

Analytical results indicate no exceedances of the Tier I EQS or the default MOE standards for the 14 monitor wells sampled on the OHP site.

Review of analytical data for MCES-001-MWB indicates a possible seal failure (which may be allowing shallower groundwater in infiltrate the monitor well). Further investigative work is being implemented and well replacement may be necessary.



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OPEN HEARTH PARK AND HARBOURSIDE EAST

2018 GROUNDWATER MONITORING EVENT

AREA FEATURES

Figure 3-4

LEGEND

Monitoring Wells

- Active Sample and Water Level
- Active Water Level Only
- Removed From Program, Destroyed and/or Decommissioned

Harbourside East

Open Hearth Park

NOTE:
MCES-204-MW destoyed in 2017
MW 2 SPAR RD removed from program,
MCWS-009-MW decomissioned December 2015,
SCU26-209-MW destroyed,
MSES-003-MW destroyed

0 75 150 300 450 m

MAP DRAWING INFORMATION:
Province of Nova Scotia Mapping

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STATUS: FINAL
Date: 2019-01-30

Table 3-1 summarizes indicator parameter concentrations for select monitor wells, which are located in the vicinity of the S/S area in consideration of monitoring the S/S performance over the long term period.

Table 3-1 Summary of Indicator Parameter Concentrations

Well ID	Inorganic Parameters				
	Date	Selenium (ug/L)	Sulphur (mg/L)	TDS (mg/L)	pH
MOE Table 3[1]		63	-	-	-
MCES-006-MW	Mar 2013	6.3	34	374	7.50
	Jul 2013	<1.0	28	376	7.57
	Nov 2013	<1.0	34	390	7.61
	Dec 2014	2.9	70	260	8.91
	Dec 2015	3.3	88	260	9.44
	Dec 2016	<1.0	48	220	7.95
	Dec 2017	1.7	35	200	7.86
	Nov 2018	1.5	64	200	9.15
MCES-001-MWA	Mar 2013	1.8	85	631	11.8
	July 2013	1.6	160	542	11.8
	Dec 2014	1.8	120	730	11.9
	Dec 2015	1.5	160	540	11.8
	Nov 2016	1.9	190	730	11.9
	Dec 2017	1.8	160	560	12
	Nov 2018	1.5	110	580	12
MCES-001-MWB	Mar 2013	32	29	24,700	7.1
	July 2013	<10	25	21,000	7.42
	Nov 2013	<10	10	22,000	7.32
	Dec 2014	<1.0	6.7	21,000	7.4
	Dec 2015	<10	<2.0	22,000	7.49
	Nov 2016	<10	<2.0	19,000	7.42
	Dec 2017	<10	<2.0	21,000	7.47
	Nov 2018[5]	1.8	94	520	11.9

Notes:
1. Ontario MOE Table 3 Full Depth Generic Site Condition Standards in a Non-potable Groundwater (Coarse Grained Soil) 2011.
2. There are no NSE Tier I EQS for Groundwater on a site with Coarse-Grained Soil, Non-potable Groundwater and Commercial/Industrial land use (2013) for selenium, sulphur, TDS or pH.
3. BOLD Exceeds the MOE Table 3 standards (when no Tier I EQS is available).
4. "-" Denotes no Tier I EQS or MOE standards available.

[5] A possible seal failure is suspected in MCES-001-MWB. Further investigative work is being implemented and well replacement may be necessary.

3.3.2 Trend Analysis - OHP

Mann-Kendall analysis was conducted based on available post-remediation data. Statistical analysis of available indicator parameter data indicated that most select parameter concentration trends are stable or decreasing, as presented in Table 3-2.

Table 3-2 OHP – Trend Analysis Summary

WELL ID	INDICATOR PARAMETER	TREND
MCES-006-MW	Selenium	Stable
	pH	Stable
	TDS	Decreasing
	SO4	Stable
MCES-001-MWA[3]	Selenium	Stable
	pH	Stable
	TDS	Stable
	SO4	Stable
MCES-001-MWB[4]	pH	Potentially Increasing
	TDS	Decreasing
	SO4	Fluctuating

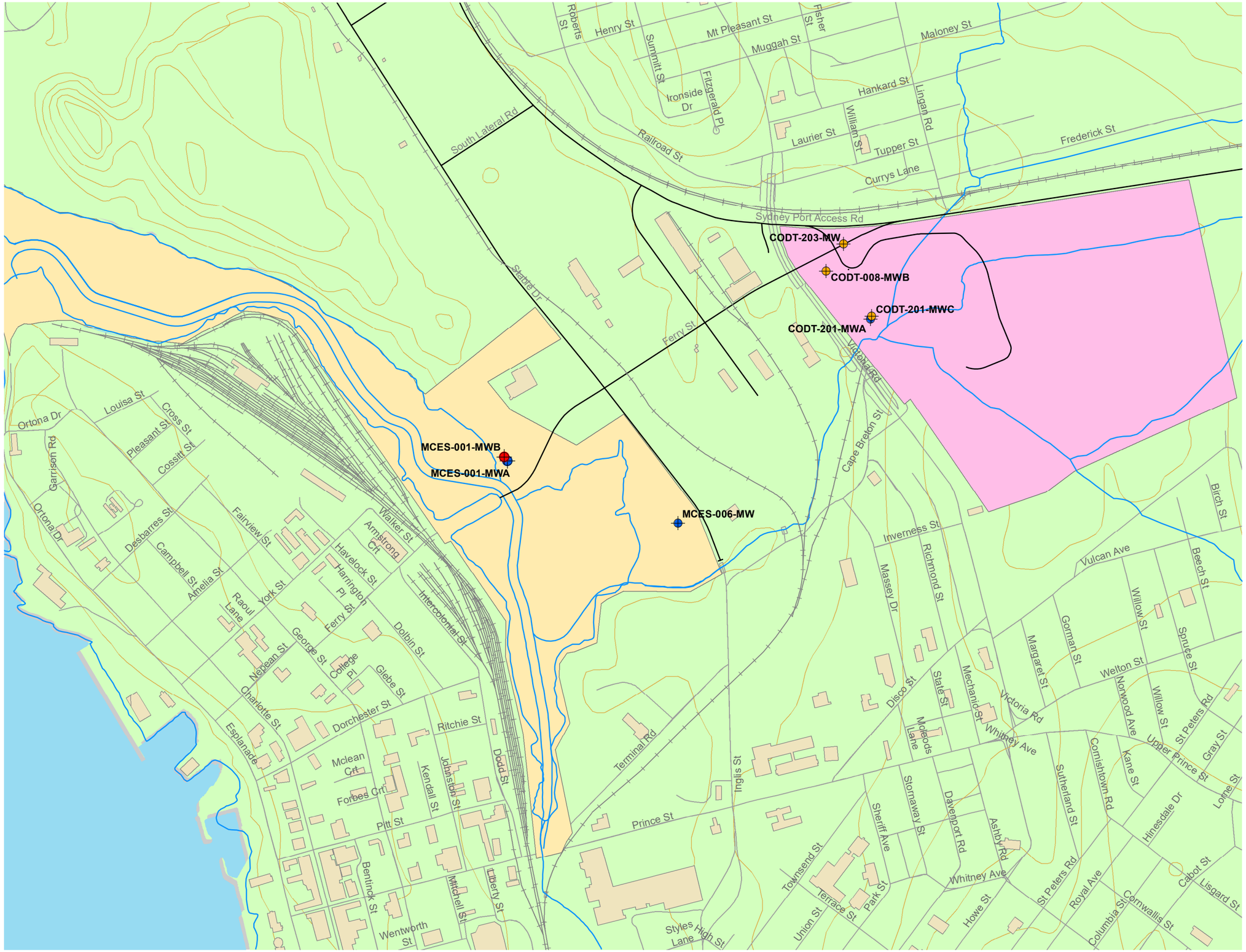
Notes:
1. Trend analysis not completed for selenium in monitor well MCES-001-MWB, as the majority of the analytical results are below laboratory detection limits.
2. Monitor well MCES-204-MW, which has been historically included in trend analysis completed as part of the LTMM, was not included in 2017/18, as this monitor well was found to be destroyed during the 2017 LTMM.
[3] Mann-Kendall analysis indicates an expanding plume for pH in MCES-001-MWA; however, review of the data indicates incremental changes in the data reflective of a stable trend.
[4] A possible seal failure is suspected in MCES-001-MWB. Further investigative work is being implemented and well replacement may be necessary.

In general, review of trend analysis indicates general plume stability. The potentially increasing trend for pH identified in MCES-001-MWB requires further verification, as there is potential that the seal in this monitor well has failed. The groundwater quality trend analysis for the 2018 monitoring event was based on the available analytical results (i.e., four rounds of sampling events are required) for the parameters with concentrations above the applicable guidelines. Trend analysis is presented on Figure 3-5. Mann-Kendall tables are presented in Appendix D.

3.4 HE Area Findings

The HE area includes most of the former Coke Ovens Site; along Coke Ovens Brook from the southern area of the former Domtar site (near Victoria Road) and the mergence of Coke Ovens Brook into the South Pond to the downstream of the Municipal Ash Incinerator Disposal (MAID) area. In particular, the HE area contains part of the former CO1 (Coke Ovens Brook Connector), CO2 (Tar Cell), CO5 (Vertical Cut-Off Walls), CO6 (Surface Cap) and CO7 (Groundwater Collection System).

Historical investigations confirmed the presence of contaminated sediments in the Coke Oven Brook and the Domtar Interceptor trench, as well as the in-filling of coal tar, particularly at the former Domtar site. Elevated concentrations of organics (i.e., PHCs and PAHs) and inorganics, such as metals, were present in the groundwater.



OPEN HEARTH PARK AND HARBOURSIDE EAST

2018 GROUNDWATER MONITORING EVENT

INDICATOR PARAMETER CONCENTRATION TREND

Figure 3-5

LEGEND

Trend Analysis

- Increasing/Potentially Increasing
- Fluctuating
- Stable
- Decreasing
- Monitoring Well

Open Hearth Park

Harbourside East

0 75 150 300 450 m

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PROJECT: 14-1360
STATUS: FINAL
Date: 2019-05-21

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Results of the 2018 monitoring event at HE indicate that the concentrations of analyzed parameters at the majority of the sampling wells were below applicable standards. Monitor well CODT-201-MWA, located within HE at the former Domtar site, contained multiple PAH concentrations above the respective MOE standard concentrations. A second monitor well, CODT-201-MWC, located in the former Domtar site, had anthracene and napthalene concentrations above the MOE standards. Monitor well locations are presented on Figure 3-4.

3.4.1 HE Groundwater Quality

Analytical data, including available post-remediation data for reference, are presented in Appendix A (Tables A-1 (TPH/BTEX), A-2 (PAHs) and A-3 (general chemistry and metals)). As stated previously, the 2018 LTMM Groundwater Monitoring Program included the collection of samples from 40 locations for analysis, 26 of which were collected from monitor wells located on the HE site.

During the 2018 monitoring event, no exceedances of the Tier I EQS were identified. Two of the 26 monitor wells sampled on the HE site had organic parameter concentrations above the default MOE standards (when no Tier I EQS is available), as follows:

- CODT-201-MWA: Concentrations for benzo(a)pyrene (0.99 ug/L), benzo(b)fluoranthene (0.83 ug/L), benzo(g,h,i)perylene (0.51 ug/L), benzo(k)fluoranthene (0.53 ug/L), chrysene (1.4 ug/L) and indeno(1,2,3-cd)pyrene (0.49 ug/L) exceeded the MOE standards of 0.81 ug/L, 0.75 ug/L, 0.2 ug/L, 0.4 ug/L, 1 ug/L and 0.2 ug/L, respectively. These exceedances are consistent with historical LTMM data; however, the 2018 concentrations for the above noted MOE exceedances are generally the lowest observed in this monitor well during the LTMM program since 2013. Mann-Kendall analysis (see Section 3.4.2), indicates the trend in this well is stable.
- CODT-201-MWC: The anthracene and naphthalene concentrations of 4.2 ug/L and 7,800 ug/L, respectively, exceeded the MOE standards 2.4 ug/L and 7,000 ug/L. Anthracene has historically exceeded MOE standards in this well during the LTMM; however, Mann-Kendall analysis indicates that the anthracene concentration trend in this well is stable. In addition to the 2018 results, naphthalene has historically exceeded MOE standards in this well during 2014, 2015 and 2016. Mann-Kendall results for naphthalene in this well also indicate a stable trend.

Elevated organic concentrations in the monitor wells at the former Domtar site may be associated with changes in groundwater conditions as a result of the completion of remedial activities in this area.

Table 3-3 summarizes indicator parameter concentrations for select monitor wells exhibiting concentrations above applicable criteria.

Table 3-3 HE – Summary of Indicator Parameter Concentrations

Well ID	Organic Parameters					
	Date	Anthracene (ug/L)	Benzo(a)pyrene (ug/L)	Chrysene	Indeno(1,2,3-cd) pyrene (ug/L)	Napthalene (ug/L)
NSE Tier I EQS (or defaulted MOE Table 3 Standards (as denoted)		2.4[2]	0.81[2]	1[2]	0.2[2]	7000[1]
CODT-008-MWB	Mar 2013	15	1.7	4.2	0.65	17
	Jul 2013	140	30	57	14	29
	Oct 2013	11	2.6	46	0.64	2.8
CODT-008-MWB	Dec 2014	2.0	0.032	0.058	0.018	<0.20
	Dec 2015	0.13	1.2	0.096	0.31	<0.20
	Nov 2016	43	*<5.0*	6.0	*<5.0*	4100
	Dec 2017	0.19	0.22	0.29	0.10	<0.20
	Dec 2018	0.15	0.11	0.17	0.056	0.69
CODT-201-MWA	Mar 2013	0.45	0.73	0.91	0.33	1.1
	Jul 2013	2.5	3.6	4.8	1.5	0.22
	Oct 2013	1.7	2.5	2.9	1.1	<0.2
	Dec 2014	2.5	3.7	4.5	1.5	46
	Dec 2015	2.3	4.7	5.1	1.9	<0.20
	Nov 2016	0.85	1.8	2.1	0.78	<0.20
	Dec 2017	3.7	6.9	8.6	2.9	<0.20
	Dec 2018	0.49	0.99	1.4	0.49	50
CODT-201-MWC	Mar 2013	4.9	<0.01	0.04	<0.01	5100
	Jul 2013	4.5	0.016	0.064	0.014	4900
	Mar 2013	3.3	<0.01	0.032	<0.01	6300
	Dec 2014	5.9	<0.01	0.048	<0.01	7200
	Dec 2015	*<10*	*<10*	*<10*	*<10*	9500
	Nov 2016	3.3	<0.010	0.036	<0.010	7500
	Dec 2017	4.5	<0.010	0.042	<0.010	6200
	Dec 2018	4.2	0.011	0.056	<0.010	7800
CODT-203-MW	Mar 2013	2.1	0.64	1.1	0.24	0.62
	Jul 2013	2.6	1.1	1.7	0.38	6.3
	Mar 2013	2.5	0.71	1.2	0.29	1.5
	Dec 2014	0.55	0.69	0.83	0.28	<0.2
	Dec 2015	0.42	0.61	0.73	0.29	<0.20
	Nov 2016	0.79	1.5	1.6	0.64	<0.20
	Dec 2017	0.27	0.24	0.35	0.10	0.52
	Dec 2018	0.27	0.27	0.40	0.11	1.6

Notes:
[1] NS Tier I EQS for Groundwater (Coarse Grained Soil, Non-potable Groundwater Commercial/ Industrial Site) 2013.
[2] Ontario MOE Table 3 Full Depth Generic Site Condition Standards in a Non-potable Groundwater (Coarse Grained Soil) 2011.
3. Bold exceeds NSE Tier I EQS or default MOE standards when no Tier I EQS is available.
4. Italics denotes detection limit elevated above applicable standards.

3.4.2 Trend Analysis - HE

Mann-Kendall analysis was conducted based on available post-remediation data. Statistical analysis of available indicator parameter data indicated that most select parameter concentration trends are stable or fluctuating. Trend analysis is presented on Figure 3-5. Results of Mann-Kendall trend analysis for HE are presented in Table 3-4.

Table 3-4 HE – Trend Analysis Summary

WELL ID	INDICATOR PARAMETER	TREND
CODT-008-MWB	Anthracene	Fluctuating
	Benzo(a)pyrene	Fluctuating
	Chrysene	Fluctuating
	Indeno(1,2,3-cd)pyrene	Fluctuating
	Naphthalene	Fluctuating
CODT-201-MWA	Anthracene	Stable
	Benzo(a)pyrene	Stable
	Chrysene	Stable
	Indeno(1,2,3-cd)pyrene	Stable
CODT-201-MWC	Anthracene	Stable
	Chrysene	Fluctuating
	Naphthalene	Stable
CODT-203-MW	Anthracene	Decreasing
	Benzo(a)pyrene	Stable
	Chrysene	Stable
	Indeno(1,2,3-cd)pyrene	Stable
	Naphthalene	Fluctuating

Note:
1. Trend analysis was not completed for naphthalene in monitor well CODT-201-MWA or for benzo(a)pyrene and indeno(1,2,3-cd)pyrene in monitor well CODT-201-MWC, as the majority of the analytical results for these parameters in these wells are below laboratory detection limits.

The groundwater quality trend analysis for the 2018 monitoring event was based on the available post-remediation analytical results (i.e., four rounds of sampling events are required) for the select monitor wells with concentrations above the applicable guidelines. In general, review of trend analysis indicates general plume stability relative to indicator PAH concentrations with isolated parameters in select wells within the plume indicating stable or decreasing trends. Mann-Kendall Tables are presented in Appendix D.

3.5 QC Summary

Supporting QC data are found in Appendix B. The results are discussed in the following five sub-sections:

- Section 3.5.1 Relative Percent Difference (RPD)
- Section 3.5.2 Laboratory Matrix Spikes, Spikes Blank and Method Blanks
- Section 3.5.3 Equipment Blanks
- Section 3.5.4 Holding Times

3.5.1 Relative Percent Difference

Four field duplicates were analyzed and had results suitable for quantitative calculation of Relative Percent Difference (RPD). The RPD was not calculated for those parameters where one or both of the results associated with the original and/or field duplicate sample exhibited concentrations less than five times the RDL.

Comparison of the field duplicate data to the original samples indicated the calculated RPDs were within established limits (i.e., less than 30% RPD) with the exception of the following original sample and field duplicates that exhibited RPDs greater than the respective RPD Data Quality Objectives (DQOs), as presented in Tables B-2 and B-3 (Appendix B):

- One parameter at FD-12 (field duplicate of COBP-006-MW): cadmium; and,
- One parameter at FD-13 (field duplicate of CODT-008-MWB): carb alkalinity.

3.5.2 Laboratory Matrix Spikes, Spikes Blank and Method Blanks

The laboratory analytical certificates have been reviewed for quality assurance/quality control purposes. The laboratory completes quality control analysis including duplicates, blanks, spikes, surrogate recoveries and spiked blanks to assess accuracy and precision as well as the potential for bias, contamination and degradation or matrix effects. The laboratory quality control reports have identified the following minor issues:

- Matrix spike results were outside the acceptance limit, with insufficient sample for repeat analysis, for 1-methylnaphthalene, 2-methylnaphthalene, acenaphthene, acenaphthylene, anthracene, benzo(a)anthracene, benzo(g,h,i)perylene, chrysene, dibenz(a,h)anthracene, fluoranthene, fluorine, indeno(1,2,3-cd)pyrene, napthhalene and phenanthrene for monitor wells: COBC-001-MWA, SCU7-001-MW, MCWS-113-MWB, MCWS-306-MWB, MCWS-307-MWB, MCWS-309-MW and MCWS-310-MW. PAH surrogates D10-Anthracene and D8-Acenaphthylene were also not within acceptance limited, with insufficient sample to repeat.

Overall laboratory data quality is considered acceptable and the results representative with no identification of significant quality issues requiring further investigation or resampling. The QA report is presented with the certificates of analysis in Appendix C.

3.5.3 Field Blanks

Two field blanks were collected and submitted for PAH analysis as part of the 2018 LTMM program for OHP and HE. PAHs were not detected in either of the field blank samples.

3.5.4 Equipment Blanks

In 2017, TPH, select PAHs and select metals concentrations were detected in the equipment blank collected as part of the HCP LTMM program. Based on this, Dillon reviewed decontamination procedures prior to the 2018 LTMM. Further the collection of additional equipment blanks was also added to the LTMM program. Prior to commencing the 2018 LTMM, Dillon reviewed and revised decontamination procedures to include the following: initial flush with Liquinox, second flush with de-ionized water (to remove Liquinox), third flush with methanol, and final flush with de-ionized water (to remove methanol).

Two equipment blanks were collected associated with OHP and HE. The field equipment used for the equipment blank was a stainless steel interface probe; which is the only piece of field equipment that interacts with each of the monitor wells (i.e., as each well has a dedicated pump or dedicated low flow tubing). Results are as follows:

OHP

- PAH concentrations: acenaphthene (0.028 ug/L), anthracene (0.069 ug/L), benzo(a)anthracene (0.057 ug/L), benzo(a)pyrene (0.024 ug/L), benzo(b)fluoranthene (0.025 ug/L), benzo(j)fluoranthene (0.015 ug/L), benzo(k)fluoranthene (0.015 ug/L), chrysene (0.052 ug/L), fluoranthene (0.22 ug/L), fluorene (0.049 ug/L), phenanthrene (0.30 ug/L) and pyrene (0.14 ug/L) were detected in the equipment blank sample; and,
- Metals concentrations including: calcium (230 ug/L), manganese (7.8 ug/L), sodium (270 ug/L) and zinc (6.9 ug/L) were detected in the equipment blank sample.

The OHP equipment blank was collected after sampling of monitor well MSES-104-MWB and prior to sampling MSES-104-MWA. Review of the laboratory data for the monitor wells sampled before and after the equipment blank sample shows the concentrations in both wells to be generally consistent with historical findings. Additionally, no exceedances of applicable criteria were identified in the two monitor wells (i.e., MSES-104-MWB and MSES-104-MWA) or the equipment blank. No exceedances of applicable criteria were identified in the equipment blank.

HE

- PAH concentrations: acenaphthene (0.032 ug/L), anthracene (0.046 ug/L), benzo(a)anthracene (0.021 ug/L), benzo(a)pyrene (0.013 ug/L), chrysene (0.021 ug/L), fluoranthene (0.086 ug/L), fluorene (0.056 ug/L), phenanthrene (0.24 ug/L) and pyrene (0.056 ug/L) were detected in the equipment blank sample; and,
- One metal concentration, sodium (110 ug/L), was detected in the equipment blank sample.

The HE equipment blank was collected after sampling of monitor well CODT-008-MWB and prior to sampling CODT-201-MWC. Review of the laboratory data for the monitor wells sampled before and after the equipment blank sample shows the concentrations in both wells to be generally consistent (or lower) than historical findings. No exceedances of applicable criteria were identified in CODT-008-MWB. Although anthracene and napthalene exceedances were identified in CODT-201-MWC, this is consistent with historical findings. Further, napthalene was not detected in the equipment blank. No exceedances of applicable criteria were identified in the equipment blank.

3.5.5 Holding Times

There were no holding time exceedances.

4.0 Summary

The OHP and HE 2018 monitoring event was conducted in accordance to RFP NSLAND57 Groundwater Monitoring Services. Findings were compared to July 2013 NS CSR Tier I EQS for groundwater. Where Tier I EQS were not available, MOE standards were used.

The groundwater elevation and flow direction for the monitored areas during the 2018 monitoring event was generally comparable to historical monitoring events. The groundwater flows generally from HE towards the southwest to Sydney Harbour.

The following observations are made based on the 2018 data:

OHP

Analytical results indicate no exceedances of the Tier I EQS or the default MOE standards for the 14 monitor wells sampled on the OHP site.

In general, review of trend analysis indicates general plume stability. The potentially increasing trend for pH identified in MCES-001-MWB requires further verification, as there is potential that the seal in this monitor well has failed.

HE

During the 2018 monitoring event, no exceedances of the Tier I EQS were identified. Two of the 26 monitor wells sampled on the HE site had organic parameter concentrations above the default MOE standards (when no Tier I EQS is available). Table 4-1 presents parameters above their respective MOE standards.

Table 4-1 Summary of 2018 HE Groundwater Exceedances – Organic Parameters

Parameter	Location (Concentration / MOE Standard)
Anthracene	• CODT-201-MWC (4.2 ug/L / 2.4 ug/L)
benzo(a)pyrene	• CODT-201-MWA (0.99 ug/L / 0.81 ug/L)
benzo(b)fluoranthene	• CODT-201-MWA (0.83 ug/L / 0.75 ug/L)
benzo(g,h,i)perylene	• CODT-201-MWA (0.51 ug/L / 0.2 ug/L)
benzo(k)fluoranthene	• CODT-201-MWA (0.53 ug/L / 0.4 ug/L)
chrysene	• CODT-201-MWA (1.4 ug/L / 1 ug/L)
indeno(1,2,3-cd)pyrene	• CODT-201-MWA (0.49 ug/L / 0.2 ug/L)
napthalene	• CODT-201-MWC (7,800 ug/L / 7,000 ug/L)

The exceedances reported for CODT-201-MWA and CODT-201-MWC are generally consistent with historical LTMM data; however, the 2018 concentrations for the MOE exceedances in CODT-201-MWA are generally the lowest observed in this monitor well during the LTMM program since 2013.

In general, review of trend analysis indicates general plume stability relative to indicator PAH concentrations, with isolated parameters in select wells within the plume indicating stable or decreasing trends.

5.0 Recommendations

During the 2017 monitoring program, monitor well MCES-204-MW was found to be destroyed. As MCES-204-MW has historically exhibited concentrations of anthracene and selenium above the comparison criteria, it is recommended that this well be replaced. MCES-204-MW was located in an area that is part of current slag mining activities. Therefore, it is anticipated that replacement of this well will take place once planned mining activities are completed (scheduled for fall 2019).

Review of the analytical data for MCES-001-MWB indicates a possible monitor well seal failure. Further investigative work is being implemented and well replacement may be necessary.

Review of the 2018 groundwater sampling results, considered in context of historical data associated with OHP and HE sites, suggests that the fall 2019 groundwater monitoring program could include the following:

- The collection of 67 water levels (including a replacement well for MCES-204-MW);
- The continued inclusion of CODT-103-MWB in the LTMM for water level/product check only. and,
- The sampling of 41 monitor wells (including a replacement well for MCES-204-MW).

It is recommended that the groundwater monitoring program continue to include sampling of PHC at CODT-201-MWC only, with the remaining monitor wells scheduled for sampling to include analysis for PAHs, metals and general inorganic chemistry parameters.

6.0 Disclaimer

This report was prepared exclusively for the purposes, project and site location outlined in the report. The report is based on information provided to, or obtained by Dillon Consulting Limited ("Dillon") as indicated in the report, and applies solely to site conditions existing at the time of the site investigation. Although a reasonable investigation was conducted by Dillon, Dillon's investigation was by no means exhaustive and cannot be construed as a certification of the absence of any contaminants from the site. Rather, Dillon's report represents a reasonable review of available information within an agreed work scope, schedule and budget. It is therefore possible that currently unrecognized contamination or potentially hazardous materials may exist at the site, and that the levels of contamination or hazardous materials may vary across the site. Further review and updating of the report may be required as local and site conditions, and the regulatory and planning frameworks, change over time.

Appendix A

Analytical Tables

TABLE A-1
LTMM GROUNDWATER MONITORING EVENT NOVEMBER AND DECEMBER 2018 OHP AND HE
GROUNDWATER ANALYTICAL RESULTS - BTEX/TPH

Sample Location (Monitor Well Depth)	Sample Date	BTEX Concentration (mg/L)				Petroleum Hydrocarbons (mg/L)						Reached Baseline at C32
		Benzene	Toluene	E. Benzene	Xylenes	C6 - C10	C10 - C21	C10 - C16	C16-C21	C21 - C32	Modified TPH	
NS Tier 1 EQS[1]		20	20	20	20	-	-	-	-	-	20	-
COBB-004-MWA (1.32 m)	03/27/13	<0.001	<0.001	<0.001	<0.002	<0.01	<0.05	-	-	<0.1	<0.1	-
	12/15/14	<0.0013	<0.0013	<0.0013	<0.0026	<0.013	-	<0.05	<0.05	<0.1	<0.1	-
COBC-001-MWA (1.80 m)	03/15/13	<0.001	<0.001	<0.001	<0.002	<0.01	0.13	-	-	<0.1	0.13	Yes
	12/12/14	0.0045	<0.001	<0.001	<0.002	<0.01	-	0.058	<0.05	<0.1	<0.1	-
COBC-002-MWA (4.12 m)	03/15/13	<0.001	<0.001	<0.001	<0.002	<0.01	<0.05	-	-	<0.1	<0.1	-
	12/12/14	<0.001	<0.001	<0.001	<0.002	<0.01	-	<0.05	<0.05	<0.1	<0.1	-
COBC-004-MWA (3.86 m)	03/15/13	<0.001	<0.001	<0.001	<0.002	<0.01	<0.05	-	-	<0.1	<0.1	-
	12/12/14	<0.001	<0.001	<0.001	<0.002	<0.01	-	<0.05	<0.05	<0.1	<0.1	-
COBP-006-MWA (2.12 m)	03/27/13[FD]	0.0043	<0.001	<0.001	<0.002	<0.01	0.34	-	-	0.1	0.43	Yes
	03/27/13	0.004	<0.001	<0.001	<0.002	<0.01	0.195	-	-	<0.1	0.19	Yes
	12/15/14	0.02	<0.001	0.0025	<0.002	<0.01	-	0.17	0.19	<0.1	0.35	Yes
COBT-003-MWB (3.68 m)	03/19/13	<0.001	<0.001	<0.001	<0.002	<0.01	0.07	-	-	<0.1	<0.1	-
	12/12/14	<0.001	<0.001	<0.001	<0.002	<0.01	-	<0.05	<0.05	<0.1	<0.1	-
COCP-110-MW (2.31 m)	04/04/12	<0.001	<0.001	<0.001	<0.002	<0.01	2.95	-	-	14	17	Yes
	09/13/12	<0.001	<0.001	<0.001	<0.002	<0.01	0.12	-	-	0.42	0.54	Yes
	12/11/12	<0.001	<0.001	<0.001	<0.002	<0.01	0.054	-	-	0.1	0.16	Yes
	03/27/13	<0.001	<0.001	<0.001	<0.002	<0.01	<0.05	-	-	0.11	0.11	Yes
	12/15/14	<0.001	<0.001	<0.001	<0.002	<0.01	-	<0.05	0.072	0.29	0.36	Yes
CODT-008-MWB (1.63 m)	03/29/13	<0.001	<0.001	0.0014	0.0053	0.018	1.36	-	-	0.25	1.6	Yes
	12/15/14	<0.001	0.0015	<0.001	0.0028	<0.01	-	<0.05	<0.05	<0.1	<0.1	-
CODT-105-MW (2.94 m)	03/13/13[L]	0.0015	<0.001	<0.001	<0.002	<0.01	NM	-	-	NM	NM	-
	03/13/13	0.0015	<0.001	<0.001	<0.002	<0.01	-	-	-	<0.1	<0.1	-
	12/16/14	<0.001	<0.001	<0.001	<0.002	<0.01	<0.05	<0.05	<0.05	<0.1	<0.1	-
CODT-201-MWA (3.61 m)	03/13/13	<0.001	<0.001	<0.001	<0.002	<0.01	<0.05	-	-	<0.1	<0.1	-
	12/15/14	<0.001	<0.001	0.001	0.0045	<0.01	-	0.086	<0.05	<0.1	<0.1	-
CODT-201-MWC (3.75 m)	03/13/13	0.1	0.22	0.15	0.59	0.9	13.35	-	-	<0.1	15	Yes
	12/15/14	0.1	0.2	0.15	0.61	1.0	-	15	0.49	0.22	17	Yes
	12/09/15	0.11	0.26	0.17	0.71	1.4	-	14	0.38	0.1	16	Yes
	11/28/16	0.072	0.16	0.14	0.57	1.1	-	18	49	<0.01	20	Yes
	12/05/17	0.072	0.13	0.13	0.50	0.87	-	17	0.48	0.1	19	Yes
	12/05/18	0.10	0.20	0.14	0.56	1.2	-	15	<0.50	<1.0	16	Yes
CODT-203-MW (2.76 m)	03/13/13	<0.001	<0.001	<0.001	<0.002	<0.01	<0.05	-	-	<0.1	<0.1	-
	12/12/14	<0.001	<0.001	<0.001	<0.002	<0.01	-	<0.05	<0.05	<0.1	<0.1	-
CODT-205-MWA (1.73 m)	03/13/13[FD]	<0.001	<0.001	<0.001	<0.002	<0.01	<0.05	-	-	<0.1	<0.1	-
	03/13/13	<0.001	<0.001	<0.001	<0.002	<0.01	<0.05	-	-	<0.1	<0.1	-
	12/15/14	<0.001	<0.001	<0.001	<0.002	<0.01	-	<0.05	<0.05	<0.1	<0.1	-
CODT-206-MW (2.14 m)	03/13/13	0.0035	0.0027	0.0036	0.012	0.016	0.53	-	-	<0.1	0.55	Yes
	12/15/14	<0.001	<0.001	<0.001	<0.002	<0.01	-	0.064	<0.05	<0.1	<0.1	-
CONCW-101-MWB (3.63 m)	03/15/13	<0.001	<0.001	<0.001	<0.002	<0.01	0.051	-	-	<0.1	<0.1	-
	12/12/14	<0.001	<0.001	<0.001	<0.002	<0.01	-	<0.05	<0.05	<0.1	<0.1	-
CONPL-202-MWA (5.21 m)	12/15/14	<0.001	<0.001	<0.001	<0.002	<0.01	-	<0.05	<0.05	<0.1	<0.1	-
COSB-002-MWA (1.57 m)	03/18/13[L]	<0.001	<0.001	<0.001	<0.002	<0.01	NM	-	-	NM	NM	-
	03/18/13	<0.001	<0.001	<0.001	<0.002	<0.01	<0.05	-	-	<0.1	<0.1	-
	12/15/14	<0.001	<0.001	<0.001	<0.002	<0.01	-	<0.05	<0.05	<0.1	<0.1	-

TABLE A-1
LTMM GROUNDWATER MONITORING EVENT NOVEMBER AND DECEMBER 2018 OHP AND HE
GROUNDWATER ANALYTICAL RESULTS - BTEX/TPH

Sample Location (Monitor Well Depth)	Sample Date	BTEX Concentration (mg/L)				Petroleum Hydrocarbons (mg/L)						Reached Baseline at C32
		Benzene	Toluene	E. Benzene	Xylenes	C6 - C10	C10 - C21	C10 - C16	C16-C21	C21 - C32	Modified TPH	
NS Tier 1 EQS[1]		20	20	20	20	-	-	-	-	-	20	-
COSCW-001-MWA (3.47 m)	03/19/13	<0.001	<0.001	<0.001	<0.002	<0.01	0.072	-	-	<0.1	<0.1	-
	12/16/14	<0.001	<0.001	<0.001	<0.002	<0.01	-	<0.05	<0.05	<0.1	<0.1	-
COSCW-001-MWB (1.75 m)	03/19/13	<0.001	<0.001	<0.001	<0.002	<0.01	<0.05	-	-	<0.1	<0.1	-
	12/12/14	<0.001	<0.001	<0.001	<0.002	<0.01	-	<0.05	<0.05	<0.1	<0.1	-
COSCW-002-MWA (4.32 m)	03/26/13	<0.001	<0.001	<0.001	<0.002	<0.01	NM	-	-	NM	NM	-
	03/26/13	<0.001	<0.001	<0.001	<0.002	<0.01	<0.05	-	-	<0.1	<0.1	-
	12/12/14	<0.001	<0.001	<0.001	<0.002	<0.01	-	<0.05	<0.05	<0.1	<0.1	-
COSCW-002-MWB (3.29 m)	03/19/13	<0.001	<0.001	<0.001	<0.002	<0.01	<0.05	-	-	<0.1	<0.1	-
	12/12/14	<0.001	<0.001	<0.001	<0.002	<0.01	-	<0.05	<0.05	<0.1	<0.1	-
COTS-001-MWA (3.77 m)	12/15/14	DRY										
MCES-001-MWA (5.19 m)	03/28/13[FD]	<0.001	<0.001	<0.001	<0.002	<0.01	0.129	-	-	0.1	0.23	Yes
	03/28/13	<0.001	<0.001	<0.001	<0.002	<0.01	0.105	-	-	<0.1	0.1	Yes
	12/10/14	<0.001	<0.001	<0.001	<0.002	<0.01	-	<0.05	<0.05	<0.1	<0.1	-
MCES-001-MWB (6.07 m)	03/28/13	<0.001	<0.001	<0.001	<0.002	<0.01	<0.05	-	-	<0.1	<0.1	-
	12/10/14	<0.001	<0.001	<0.001	<0.002	0.022	-	<0.05	<0.05	<0.1	<0.1	-
MCES-006-MW (2.80 m)	03/28/13	0.04	0.012	0.042	0.062	0.11	1.49	-	-	0.14	1.7	Yes
	12/10/14	0.0050	0.0018	0.0041	0.0043	<0.01	-	0.27	<0.05	<0.1	0.26	Yes
MCES-204-MW (4.17 m) (Destroyed 2017)	03/28/13	0.018	0.0078	<0.001	0.0082	0.028	0.53	-	-	0.16	0.72	Yes
	12/18/14[FD]	0.017	0.0072	<0.001	0.0068	0.01	-	0.19	0.11	0.11	0.42	Yes
	12/18/14	0.017	0.0072	<0.001	0.0069	0.013	-	0.19	0.11	<0.1	0.31	Yes
MCWS-009-MW (6.63 m) *Decommissioned 2015*	12/9/14[FD]	<0.001	<0.001	<0.001	<0.002	<0.01	-	<0.05	<0.05	<0.1	<0.1	-
	12/09/14	<0.001	<0.001	<0.001	<0.002	<0.01	-	<0.05	<0.05	<0.1	<0.1	-
MCWS-113-MWB (1.49 m)	03/27/13[L]	<0.001	<0.001	<0.001	<0.002	0.013	NM	-	-	NM	NM	-
	03/27/13	<0.001	<0.001	<0.001	<0.002	0.013	0.5	-	-	<0.1	0.52	Yes
	12/09/14	<0.001	<0.001	<0.001	<0.002	0.019	-	0.48	0.21	0.17	0.87	Yes
MCWS-306-MWB (0.62 m)	03/27/13	<0.001	<0.001	<0.001	<0.002	0.31	<0.05	-	-	<0.1	0.31	Yes
	12/09/14	<0.001	<0.001	<0.001	<0.002	0.47	-	<0.05	<0.05	<0.1	0.47	Yes
MCWS-307-MWB (0.59 m)	03/27/13	<0.001	<0.001	<0.001	<0.002	<0.01	<0.05	-	-	<0.1	<0.1	-
	12/09/14	<0.001	<0.001	<0.001	<0.002	<0.01	-	<0.05	<0.05	<0.1	<0.1	-
MCWS-309-MW (0.85 m)	12/09/14	<0.001	<0.001	<0.001	<0.002	<0.01	-	<0.05	<0.05	<0.1	<0.1	-
MCWS-310-MW (0.77 m)	03/29/13	<0.001	<0.001	<0.001	<0.002	<0.01	<0.05	-	-	<0.1	<0.1	-
	12/09/14	<0.001	<0.001	<0.001	<0.002	<0.01	-	<0.05	<0.05	<0.1	<0.1	-
MSES-003-MW (9.10 m) *Destroyed 2016*	03/26/13	<0.001	<0.001	<0.001	<0.002	<0.01	<0.05	-	-	<0.1	<0.1	-
	12/10/14[FD]	<0.001	<0.001	<0.001	<0.002	<0.01	-	<0.05	<0.05	<0.1	<0.1	-
	12/10/14	<0.001	<0.001	<0.001	<0.002	<0.01	-	<0.05	<0.05	<0.1	<0.1	-
MSES-004-MW (7.36 m)	03/26/13	<0.001	<0.001	<0.001	<0.002	<0.01	<0.05	-	-	<0.1	<0.1	-
	12/10/14	<0.001	<0.001	<0.001	<0.002	<0.01	-	<0.05	<0.05	<0.1	<0.1	-
MSES-006-MW (3.51 m)	03/26/13	0.0012	<0.001	<0.001	<0.002	<0.01	<0.05	-	-	<0.1	<0.1	-
	12/10/14	0.011	<0.001	0.0053	0.0028	<0.01	-	0.32	0.092	0.29	0.70	Yes

TABLE A-1
LTMM GROUNDWATER MONITORING EVENT NOVEMBER AND DECEMBER 2018 OHP AND HE
GROUNDWATER ANALYTICAL RESULTS - BTEX/TPH

Sample Location (Monitor Well Depth)	Sample Date	BTEX Concentration (mg/L)				Petroleum Hydrocarbons (mg/L)						Reached Baseline at C32
		Benzene	Toluene	E. Benzene	Xylenes	C6 - C10	C10 - C21	C10 - C16	C16-C21	C21 - C32	Modified TPH	
NS Tier 1 EQS[1]		20	20	20	20	-	-	-	-	-	20	-
MSES-008-MW (3.95 m)	03/26/13	<0.001	<0.001	<0.001	<0.002	<0.01	0.052	-	-	<0.1	<0.1	-
	12/10/14	<0.001	<0.001	<0.001	<0.002	<0.01	-	0.07	<0.05	<0.1	<0.1	-
MSES-012-MWA (3.38 m)	03/15/13	<0.001	<0.001	<0.001	<0.002	<0.01	<0.05	-	-	<0.1	<0.1	-
	12/16/14	<0.001	<0.001	<0.001	<0.002	<0.01	-	<0.05	<0.05	<0.1	<0.1	-
MSES-104-MWA (1.73 m)	03/28/13	<0.001	<0.001	<0.001	<0.002	<0.01	0.56	-	-	0.51	1.1	Yes
	12/10/14	<0.001	<0.001	<0.001	<0.002	<0.01	-	0.12	0.069	<0.1	0.18	Yes
MSES-104-MWB (2.28 m)	03/26/13	0.012	0.0019	0.0081	0.0071	0.056	0.83	-	-	<0.1	0.89	Yes
	12/10/14	0.0078	0.0014	0.0045	0.0036	0.014	-	0.44	0.11	0.12	0.69	Yes
MW2 SPAR RD (2.62 m) *Removed from the LTMM in 2015*	3/19/13[L]	<0.001	<0.001	<0.001	<0.002	<0.01	NM	-	-	NM	NM	-
	03/19/13	<0.001	<0.001	<0.001	<0.002	<0.01	<0.05	-	-	<0.1	<0.1	-
		<0.001	<0.001	<0.001	<0.002	<0.01	-	<0.05	<0.05	<0.1	<0.1	-
	12/16/14	<0.001	<0.001	<0.001	<0.002	<0.01	-	<0.05	<0.05	<0.1	<0.1	-
SCU11-001-MWA (3.61 m)	03/29/13	<0.001	<0.001	<0.001	<0.002	<0.01	<0.05	-	-	0.11	0.11	-
	12/15/14	<0.001	<0.001	<0.001	<0.002	<0.01	-	<0.05	<0.05	<0.1	<0.1	-
SCU11-001-MWB (2.00 m)	03/29/13	0.0072	<0.001	0.0047	<0.002	<0.01	<0.05	-	-	<0.1	<0.1	-
	12/15/14[FD]	<0.001	<0.001	<0.001	<0.002	<0.01	-	<0.05	<0.05	<0.1	<0.1	-
	12/15/14	<0.001	<0.001	<0.001	<0.002	<0.01	-	<0.05	<0.05	<0.1	<0.1	-
SCU7-001-MW (1.77 m)	12/12/14	<0.001	<0.001	<0.001	<0.002	<0.01	-	<0.05	<0.05	<0.1	<0.1	-
SCU7-003-MW (1.01 m)	03/29/13	<0.001	<0.001	<0.001	<0.002	<0.01	<0.05	-	-	<0.1	<0.1	-
	12/12/14	<0.001	<0.001	<0.001	<0.002	<0.01	-	<0.05	<0.05	<0.1	<0.1	-

NOTES:
FD - Field Duplicate
L - Lab Duplicate
NM - Not measured or not analyzed; lab duplicates do not analyze for all parameters.
mg/L - milligrams per litre
- No applicable guideline criteria.
1 - Nova Scotia Environment (NSE) Tier 1 Environmental Quality Standards (EQS) for Groundwater (Coarse Grained Soil, Non-potable Groundwater Commercial/Industrial Site) 2013 (Revised January 2015)
2 - This summary is to be used in conjunction with, not as a replacement of, the Laboratory Certificates of Analysis, which contain QA/QC information
3 - Underline Exceeds NSE Tier I EQS

TABLE A-2
LTMM GROUNDWATER MONITORING EVENT NOVEMBER AND DECEMBER 2018 OHP AND HE
GROUNDWATER ANALYTICAL RESULTS - PAHs

Sample Location (Monitor Well Depth)	Sample Date	Acenaphthene	Acenaphthylene	Anthracene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(j)fluoranthene	Benzo(k)fluoranthene[4]	Chrysene	Dibenzo(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-cd)pyrene	1-Methylnaphthalene	2-Methylnaphthalene	Naphthalene	Perylene	Phenanthrene	Pyrene
	Units	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
NS Tier 1 EQS[1]		600 [2]	750	2.4 [2]	4.7 [2]	0.81 [2]	0.75 [2]	0.2 [2]	-	0.4 [2]	1 [2]	0.52 [2]	130 [2]	400 [2]	0.2 [2]	38000	38000	7000	-	580 [2]	68 [2]
COBB-004-MWA (1.32 m)	03/27/13	0.022	0.029	<0.01	<0.01	<0.01	<0.01	<0.01	NM	<0.01	<0.01	<0.01	<0.01	0.021	<0.01	0.14	<0.05	0.4	<0.01	0.011	<0.01
	07/26/13	0.025	0.011	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.012	0.017	<0.01	0.074	<0.05	0.45	<0.01	0.016	0.012
	11/06/13	0.013	0.011	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.05	<0.2	<0.01	<0.01	<0.01
	12/15/14	0.023	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.05	<0.2	<0.01	<0.01	<0.01
	12/09/15	0.04	<0.010	0.014	0.021	0.015	<0.010	<0.010	<0.010	<0.010	0.022	<0.010	0.055	0.01	<0.010	<0.050	<0.050	<0.20	<0.010	0.054	0.038
	12/2/16	0.20	<0.010	0.014	0.017	0.012	0.010	<0.010	<0.010	<0.010	0.015	<0.010	0.033	0.063	<0.010	0.57	0.19	3.9	<0.010	0.06	0.025
	12/8/17	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.050	<0.050	<0.20	<0.010	<0.010	<0.010
	12/3/18	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.050	<0.050	<0.20	<0.010	<0.010	<0.010
COBC-001-MWA (1.80 m)	03/15/13	2.0	0.7	0.017	<0.01	<0.01	<0.01	<0.01	NM	<0.01	<0.01	<0.01	0.078	0.025	<0.01	0.061	<0.05	0.24	<0.01	<0.01	0.054
	07/26/13[FD]	1.4	0.58	0.029	0.03	0.017	0.015	<0.01	0.011	<0.01	0.028	<0.01	0.11	0.048	<0.01	0.06	<0.05	0.3	<0.01	0.045	0.085
	07/26/13	1.9	0.82	0.025	0.019	0.012	0.012	<0.01	<0.01	<0.01	0.017	<0.01	0.091	0.05	<0.01	0.052	<0.05	0.22	<0.01	0.024	0.069
	11/07/13	0.74	0.37	0.022	0.019	0.012	0.012	<0.01	<0.01	<0.01	0.020	<0.01	0.11	0.032	<0.01	<0.05	<0.05	<0.2	<0.01	0.023	0.084
	12/12/14	4.2	1.5	0.020	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.075	0.15	<0.01	<0.05	<0.05	<0.2	<0.01	0.011	0.047
	12/10/15	5.8	1.6	0.030	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.095	0.24	<0.010	0.54	0.37	5.4	<0.010	0.049	0.061
	12/2/16	0.42	0.10	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.052	0.061	<0.010	0.36	0.19	4.2	<0.010	0.022	0.052
	12/11/17	6.1	1.40	0.019	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.055	0.17	<0.010	0.065	<0.050	<0.20	<0.010	0.013	0.050
	12/7/18	10	2.4	0.043	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.097	0.53	<0.010	0.75	0.47	6.0	<0.010	0.047	0.065
COBC-002-MWA (4.12 m)	03/15/13	0.043	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	NM	<0.01	<0.01	<0.01	<0.01	0.022	<0.01	0.1	0.053	0.72	<0.01	0.023	<0.01
	07/18/13	0.066	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	NM	<0.01	<0.01	<0.01	0.013	0.039	<0.01	0.15	0.1	2.0	<0.01	0.036	<0.01
	11/05/13	0.018	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	NM	<0.01	<0.01	<0.01	<0.01	0.012	<0.01	<0.05	<0.05	<0.2	<0.01	0.011	<0.01
	12/12/14	0.019	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.012	<0.01	<0.01	<0.05	<0.05	<0.2	<0.01	<0.01	0.011
	12/10/15	0.25	0.013	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.079	<0.010	0.78	0.59	9.7	<0.010	0.048	<0.010
	11/22/16	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.050	<0.050	<0.20	<0.010	<0.010	<0.010
	12/7/17	0.15	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.057	<0.010	0.25	0.14	1.7	<0.010	0.036	<0.010
	12/3/18	0.064	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.050	<0.050	<0.20	<0.010	<0.010	<0.010
COBC-004-MWA (3.86 m)	03/15/13	0.32	0.016	0.05	<0.01	<0.01	<0.01	<0.01	NM	<0.01	<0.01	<0.01	0.01	0.16	<0.01	0.75	0.44	6.7	<0.01	0.3	<0.01
	07/18/13	0.074	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	NM	<0.01	<0.01	<0.01	<0.01	0.045	<0.01	0.19	0.12	2.1	<0.01	0.029	<0.01
	11/05/13	0.018	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	NM	<0.01	<0.01	<0.01	<0.01	0.011	<0.01	<0.05	<0.05	<0.2	<0.01	0.013	<0.01
	12/12/14	0.015	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.05	<0.2	<0.01	<0.01	0.01
	12/10/15	0.26	0.017	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.084	<0.010	0.84	0.63	11	<0.010	0.053	<0.010
	11/25/16	<0.010	<0.01	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.012	0.01	<0.010	<0.050	<0.050	<0.20	<0.010	<0.010	0.011
	11/25/16[R]	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.011	<0.010	<0.010	<0.050	<0.050	<0.20	<0.010	<0.010	<0.010
	12/7/17	0.20	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.076	<0.010	0.36	0.21	2.7	<0.010	0.039	<0.010
	12/3/18	<0.10 [8]	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.084	<0.050	<0.20	<0.010	<0.010	<0.010
COBP-006-MWA (2.12 m)	03/27/13[FD]	4.8	0.23	0.081	0.07	0.029	0.024	0.013	NM	0.034	0.075	<0.01	0.26	0.19	0.015	0.53	0.055	0.97	<0.01	0.23	0.21
	03/27/13	3.9	0.2	0.15	0.14	0.046	0.029	0.014	NM	0.054	0.13	<0.01	0.51	0.21	0.015	0.48	0.084	0.92	0.012	0.46	0.4
	07/26/13	1.4	0.44	0.019	0.024	0.014	0.012	<0.01	<0.01	<0.01	0.021	<0.01	0.045	0.044	<0.01	0.26	<0.05	0.67	<0.01	0.036	0.048
	11/06/13	0.84	0.041	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	0.028	<0.01	<0.05	<0.05	<0.20	<0.01	0.02	0.026
	12/15/14	13	0.44	0.034	0.050	0.044	0.033	0.021	0.020	0.020	0.043	<0.01	0.10	0.67	0.020	1.2	<0.05	0.95	0.012	0.067	0.10
	12/9/15[FD]	8.3	0.23	0.013	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.012	<0.010	0.024	0.26	<0.010	0.12	<0.050	0.48	<0.010	0.029	0.027
	12/09/15	8.4	0.25	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.020	0.24	<0.010	0.095	<0.050	0.21	<0.010	0.020	0.024
	11/28/16	14	0.22	0.02	0.011	<0.010	<0.010	<0.010	<0.010	<0.010	0.01	<0.010	0.029	0.83	<0.010	4	0.69	16	<0.010	0.12	0.027
	12/21/17	18	0.21	0.024	0.030	0.025	0.018	0.012	0.013	0.012	0.031	<0.010	0.062	1.0	0.011	6.7	<0.050	18	<0.010	0.094	0.061
	12/3/18[FD]	23	0.29	0.028	0.021	0.019	0.016	0.011	<0.010	<0.010	0.023	<0.010	0.047	1.8	<0.010	14	<0.050	28	<0.010	0.21	0.045
	12/3/18	22	0.28	0.030	0.035	0.029	0.024	0.016	0.016	0.016	0.036	<0.010	0.071	1.8	0.016	13	<0.050	27	<0.010	0.21	0.068

TABLE A-2
LTMM GROUNDWATER MONITORING EVENT NOVEMBER AND DECEMBER 2018 OHP AND HE
GROUNDWATER ANALYTICAL RESULTS - PAHs

Sample Location (Monitor Well Depth)	Sample Date	Acenaphthene	Acenaphthylene	Anthracene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(j)fluoranthene	Benzo(k)fluoranthene[4]	Chrysene	Dibenzo(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-cd)pyrene	1-Methylnaphthalene	2-Methylnaphthalene	Naphthalene	Perylene	Phenanthrene	Pyrene
	Units	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	ug/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
NS Tier 1 EQS[1]		600 [2]	750	2.4 [2]	4.7 [2]	0.81 [2]	0.75 [2]	0.2 [2]	-	0.4 [2]	1 [2]	0.52 [2]	130 [2]	400 [2]	0.2 [2]	38000	38000	7000	-	580 [2]	68 [2]
COBT-003-MWB (3.68 m)	03/19/13	0.024	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	NM	<0.01	<0.01	<0.01	<0.01	0.017	<0.01	0.063	<0.05	0.38	<0.01	<0.01	<0.01
	07/18/13	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.018	<0.01	0.066	<0.05	0.84	<0.01	0.018	<0.01
	11/07/13	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.05	<0.2	<0.01	<0.01	<0.01
	12/12/14	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.05	<0.2	<0.01	<0.01	<0.01
	12/09/15	0.053	<0.010	0.012	0.020	0.019	0.016	0.012	<0.010	0.010	0.018	<0.010	0.052	0.010	0.010	<0.050	<0.050	<0.20	<0.010	0.044	0.042
	11/28/16	0.41	0.015	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.13	<0.010	1.4	0.86	15	<0.010	0.066	<0.010
	12/7/17	0.13	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.20	0.12	1.3	<0.010	0.034	<0.010
	12/3/18	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.050	<0.050	<0.20	<0.010	<0.010	<0.010
COCP-110-MW (2.31 m)	03/27/13	0.22	0.021	0.051	0.019	<0.01	<0.01	<0.01	NM	<0.01	0.022	<0.01	0.11	0.081	<0.01	0.32	0.057	0.75	<0.01	0.45	0.14
	07/18/13	0.41	0.047	0.043	0.027	0.016	0.014	0.011	<0.01	<0.01	0.034	<0.01	0.14	0.16	<0.01	0.49	0.093	2.6	<0.01	0.7	0.19
	11/06/13	0.20	0.048	0.10	0.16	0.086	0.081	0.043	0.045	0.046	0.18	0.012	0.37	0.10	0.037	0.20	<0.05	0.23	0.017	0.40	0.50
	12/15/14	0.062	0.021	0.056	0.10	0.071	0.056	0.042	0.035	0.033	0.12	0.012	0.19	0.042	0.035	0.060	<0.05	<0.2	0.017	0.16	0.24
	12/09/15	0.17	0.017	0.041	0.063	0.044	0.037	0.027	0.025	0.023	0.080	<0.010	0.16	0.037	0.022	0.065	<0.050	<0.20	<0.010	0.11	0.21
	11/28/16	0.014	<0.010	0.013	0.026	0.02	0.016	0.015	<0.010	<0.010	0.027	<0.010	0.054	0.011	<0.010	<0.050	<0.050	<0.20	<0.010	0.04	0.05
	12/8/17[FD]	0.023	<0.010	0.015	0.011	<0.010	<0.010	<0.010	<0.010	<0.010	0.017	<0.010	0.034	<0.010	<0.010	<0.050	<0.050	<0.20	<0.010	0.012	0.087
	12/8/17	0.024	<0.010	0.017	0.011	<0.010	<0.010	<0.010	<0.010	<0.010	0.017	<0.010	0.033	<0.010	<0.010	<0.050	<0.050	<0.20	<0.010	0.011	0.096
	12/3/18	0.035	0.015	0.072	0.16	0.11	0.092	0.065	0.053	0.054	0.19	0.018	0.30	0.041	0.057	<0.050	<0.050	<0.20	0.026	0.24	0.32
CODT-008-MWB (1.63 m)	03/29/13	16	0.6	**15**	**5.3**	**1.7**	**1.3**	**0.54**	NM	**1.7**	**4.2**	0.15	27	18	**0.65**	10	0.62	17	0.44	40	18
	07/24/13	110	2.8	**140**	**57**	**30**	**33**	**12**	24	**22**	**57**	**5.3**	**310**	90	**14**	35	1.9	29	9.1	260	**210**
	10/23/13	64	3.4	**11**	**5.9**	**2.6**	**1.9**	**0.60**	NM	**1.3**	**4.6**	0.22	29	34	**0.64**	40	0.31	2.8	0.47	6.5	19
	12/15/14	0.12	0.026	2.0	0.029	0.032	0.022	0.020	0.016	0.016	0.058	<0.01	0.11	0.060	0.018	0.15	0.064	<0.20	0.010	0.052	0.11
	12/10/15	0.064	0.047	0.13	1.1	**1.2**	**0.84**	**0.32**	0.71	0.63	0.96	0.097	2.4	0.11	**0.31**	0.057	<0.050	<0.20	0.28	0.054	4.1
	11/30/16	410	5.3	**43**	**7.6**	*<5.0*	*<5.0*	*<5.0*	<5.0	*<5.0*	**6.0**	*<5.0*	34	200	*<5.0*	970	1000	4100	<5.0	180	21
	12/7/17	0.076	0.02	0.19	0.26	0.22	0.20	0.13	0.11	0.11	0.29	0.033	0.69	0.083	0.10	<0.050	<0.050	<0.20	0.046	0.35	0.66
	12/5/18[FD]	0.21	0.039	0.15	0.14	0.11	0.098	0.061	0.059	0.059	0.17	0.017	0.41	0.11	0.056	0.43	0.18	0.69	0.028	0.21	0.47
	12/5/18	0.21	0.036	0.13	0.14	0.11	0.091	0.059	0.055	0.055	0.15	0.016	0.39	0.10	0.052	0.41	0.17	0.56	0.026	0.21	0.46
CODT-105-MW (2.94 m)	03/13/13[L]	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
	03/13/13	0.2	0.67	0.081	0.036	0.025	0.019	0.014	NM	0.025	0.034	<0.01	0.17	0.35	0.013	0.69	0.094	0.58	<0.01	0.34	0.12
	07/16/13	0.24	0.27	0.048	<0.01	<0.01	<0.01	<0.01	NM	<0.01	<0.01	<0.01	0.11	0.32	<0.01	0.61	0.19	13	<0.01	0.25	0.08
	10/23/13[L]	0.17	0.034	0.044	0.049	0.041	0.031	0.025	NM	0.018	0.05	<0.01	0.19	0.17	0.02	0.11	<0.05	<0.2	0.011	0.19	0.17
	10/23/13	0.11	0.029	0.013	<0.01	<0.01	<0.01	<0.01	NM	<0.01	<0.01	<0.01	0.065	0.10	<0.01	0.065	<0.05	<0.2	<0.01	0.023	0.063
	12/16/14	0.079	<0.01	<0.01	0.015	0.014	<0.01	<0.01	<0.01	<0.01	0.012	<0.01	0.090	0.012	<0.01	<0.05	<0.05	<0.2	<0.01	0.042	0.072
	12/10/15	0.26	0.044	<0.030	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.07	0.21	<0.010	0.62	0.23	0.97	<0.010	0.11	0.058
	11/23/16[FD]	0.017	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.049	<0.010	<0.010	<0.050	<0.050	<0.20	<0.010	<0.010	0.042
	11/23/16	0.018	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.047	<0.010	<0.010	<0.050	<0.050	<0.20	<0.010	<0.010	0.041
	12/7/17	0.24	0.011	0.011	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.025	0.10	<0.010	0.41	0.15	2.3	<0.010	0.037	0.027
	12/5/18	0.013	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.028	<0.010	<0.010	<0.050	<0.050	<0.20	<0.010	0.013	0.022
CODT-201-MWA (3.61 m)	03/13/13	0.3	0.012	0.45	1.0	0.73	0.5	**0.32**	NM	**0.66**	0.91	0.097	1.8	0.21	**0.33**	0.21	0.1	1.1	0.17	1.5	1.5
	07/16/13	0.98	0.083	**2.5**	**5.0**	**3.6**	**3.1**	**1.6**	1.8	**1.7**	**4.8**	0.49	11	0.98	**1.5**	0.15	0.15	0.22	0.75	8.6	8.7
	10/23/13	0.65	0.053	1.7	3.2	**2.5**	**1.9**	**1.1**	NM	**1.2**	**2.9**	0.34	6.9	0.67	**1.1**	0.087	0.094	<0.2	0.60	6.2	5.6
	12/15/14	1.6	0.16	**2.5**	4.5	**3.7**	**2.9**	**1.6**	1.9	**1.9**	**4.5**	**0.57**	10	1.3	**1.5**	3.3	2.1	46	0.83	8.1	8.1
	12/09/15	0.96	0.078	2.3	**4.9**	**4.7**	**3.5**	**2.0**	2.4	**2.3**	**5.1**	**0.67**	12	0.95	**1.9**	0.12	0.12	<0.20	1.0	9.0	9.3
	11/28/16	0.35	0.033	0.85	2.1	**1.8**	**1.4**	**0.81**	0.88	**0.85**	**2.1**	0.26	4.4	0.38	**0.78**	0.05	0.053	<0.20	0.4	3.2	3.6
	12/5/17	1.2	0.084	**3.7**	**9.5**	**6.9**	**5.9**	**3.1**	3.3	**3.4**	**8.6**	**1.1**	18	1.2	**2.9**	0.12	0.12	<0.20	1.5	12	13
	12/5/18	1.9	0.10	0.49	1.3	**0.99**	**0.83**	**0.51**	0.49	**0.53**	**1.4**	0.16	2.8	0.77	**0.49**	5.1	3.5	50	0.23	2.4	2.2

TABLE A-2
LTMM GROUNDWATER MONITORING EVENT NOVEMBER AND DECEMBER 2018 OHP AND HE
GROUNDWATER ANALYTICAL RESULTS - PAHs

Sample Location (Monitor Well Depth)	Sample Date	Acenaphthene	Acenaphthylene	Anthracene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(j)fluoranthene	Benzo(k)fluoranthene[4]	Chrysene	Dibenzo(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-cd)pyrene	1-Methylnaphthalene	2-Methylnaphthalene	Naphthalene	Perylene	Phenanthrene	Pyrene
	Units	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	ug/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
NS Tier 1 EQS[1]		600 [2]	750	2.4 [2]	4.7 [2]	0.81 [2]	0.75 [2]	0.2 [2]	-	0.4 [2]	1 [2]	0.52 [2]	130 [2]	400 [2]	0.2 [2]	38000	38000	7000	-	580 [2]	68 [2]
CODT-201-MWC (3.75 m)	03/13/13	220	3.8	**4.9**	0.058	<0.01	<0.01	<0.01	NM	<0.01	0.04	<0.01	3.3	90	<0.01	490	310	5100	<0.01	76	1.6
	07/16/13	160	8.0	**4.5**	0.08	0.016	0.02	0.017	0.01	0.015	0.064	<0.01	2.7	66	0.014	360	300	4900	<0.01	51	1.3
	10/23/13[FD]	190	10	**2.5**	0.036	<0.01	<0.01	<0.01	NM	<0.01	0.029	<0.01	2.2	77	<0.01	450	320	6000	<0.01	57	1.1
	10/23/13	190	10	**3.3**	0.038	<0.01	<0.01	<0.01	NM	<0.01	0.032	<0.01	2.2	78	<0.01	470	330	6300	<0.01	56	1.1
	12/15/14	230	12	**5.9**	0.058	<0.01	<0.01	<0.01	<0.01	<0.01	0.048	<0.01	3.7	110	<0.01	670	450	**7200**	<0.01	76	1.8
	12/9/15	300	18	*<10*	*<10*	*<10*	*<10*	*<10*	<10	*<10*	*<10*	*<10*	<10	120	*<10*	750	610	**9500**	<10	89	<10
	11/28/16	250	11	**3.3**	0.044	<0.010	<0.010	<0.010	<0.010	<0.010	0.036	<0.010	1.9	120	<0.010	660	430	**7500**	<0.010	78	1
	12/5/17	240	11	**4.5**	0.054	<0.010	<0.010	<0.010	<0.010	<0.010	0.042	<0.010	3.5	96	<0.010	560	340	6200	<0.010	74	1.4
	12/5/18	270	10	**4.2**	0.068	0.011	<0.010	<0.010	<0.010	<0.010	0.056	<0.010	4.5	120	<0.010	670	490	**7800**	<0.010	90	2.0
CODT-203-MW (2.76 m)	03/13/13	4.8	0.083	2.1	1.3	0.64	0.43	0.2	NM	**0.57**	**1.1**	0.064	4	2.2	**0.24**	0.63	0.22	0.62	0.14	5.1	3
	07/16/13[FD]	7.2	0.11	**2.6**	1.8	**1.2**	**0.93**	**0.48**	0.6	**0.58**	**1.6**	0.16	6.2	3.4	**0.4**	1.6	0.57	6.8	0.2	7.5	4.6
	07/16/13	7.0	0.13	**2.6**	1.8	**1.1**	**0.91**	**0.43**	0.53	**0.56**	**1.7**	0.14	6.2	3.3	**0.38**	1.6	0.53	6.3	0.22	7.6	4.6
	10/23/13[L]	10	0.19	**3.2**	1.8	**1.1**	**0.84**	**0.42**	0.59	**0.53**	**1.5**	0.15	6.6	4.8	**0.43**	2.0	0.31	1.6	0.25	9.8	4.6
	10/23/13	10	0.19	**2.5**	1.7	0.71	0.53	**0.27**	0.35	0.33	**1.2**	0.11	5.1	4.4	**0.29**	1.8	0.23	1.5	0.22	7.0	3.6
	12/12/14	0.23	<0.01	0.55	0.81	0.69	0.49	**0.29**	0.35	0.35	0.83	0.10	1.9	0.29	**0.28**	<0.05	<0.05	<0.2	0.14	1.7	1.4
	12/8/15[FD]	3.0	0.094	0.46	0.6	0.46	0.34	0.17	0.21	0.2	0.59	0.063	1.6	0.96	0.17	0.22	<0.050	<0.20	0.089	1.3	1.1
	12/8/15	0.61	0.026	0.42	0.75	0.61	0.42	**0.29**	0.27	0.26	0.73	0.11	1.8	0.24	**0.29**	<0.050	<0.050	<0.20	0.12	1.5	1.3
	11/23/16	0.37	<0.010	0.79	1.7	**1.5**	**1.1**	**0.65**	0.69	**0.67**	**1.6**	0.23	3.4	0.4	**0.64**	0.063	0.06	<0.20	0.31	2.6	2.7
	12/7/17	1.0	0.027	0.27	0.36	0.24	0.20	0.11	0.14	0.13	0.35	0.035	0.93	0.41	0.10	0.12	<0.050	0.52	0.049	0.74	0.65
	12/10/18	0.66	0.031	0.27	0.40	0.27	0.22	0.11	0.13	0.14	0.40	0.033	1.0	0.26	0.11	0.28	<0.050	1.6	0.054	0.79	0.74
CODT-205-MWA (1.73 m)	03/13/13[FD]	0.016	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	NM	<0.01	<0.01	<0.01	0.027	0.021	<0.01	<0.05	<0.05	<0.2	<0.01	0.061	0.028
	03/13/13	<0.01	<0.01	<0.01	0.012	<0.01	<0.01	<0.01	NM	0.011	<0.01	<0.01	0.025	0.013	<0.01	<0.05	<0.05	<0.2	<0.01	0.055	0.024
	07/16/13	0.53	1.0	0.041	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.065	0.56	<0.01	0.54	<0.05	0.76	<0.01	0.29	0.041
	10/23/13	1.7	1.5	0.082	0.011	<0.01	<0.01	<0.01	<0.01	<0.01	0.013	<0.01	0.13	1.0	<0.01	4.9	2.7	53	<0.01	1.0	0.08
	12/15/14	0.37	0.35	0.030	0.018	0.012	0.012	<0.01	<0.01	<0.01	0.018	<0.01	0.15	0.31	<0.01	0.40	0.16	4.3	<0.01	0.15	0.088
	12/8/15	0.019	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.022	<0.010	<0.010	<0.050	<0.050	<0.20	<0.010	<0.010	0.017
	11/23/16	0.38	0.6	0.033	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.043	0.43	<0.010	0.3	<0.050	<0.20	<0.010	0.1	0.023
	12/5/17	0.26	0.30	0.018	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.031	0.26	<0.010	0.099	<0.050	<0.20	<0.010	0.043	0.020
	11/28/18	0.053	0.079	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.021	0.047	<0.010	<0.050	<0.050	<0.20	<0.010	0.025	0.014
CODT-206-MW (2.14 m)	03/13/13	32	1.2	1.6	0.16	0.089	0.08	0.03	NM	0.076	0.13	0.01	3.1	18	0.03	16	3.2	72	0.019	12	1.7
	07/16/13	90	4.4	**4.1**	0.16	0.074	0.068	0.025	0.028	0.035	0.13	<0.01	7.2	56	0.018	43	1.5	140	0.012	54	3.8
	10/23/13	3.6	0.12	0.041	0.048	0.068	0.054	0.03	NM	0.023	0.057	<0.01	0.81	0.073	0.025	<0.05	<0.05	<0.2	0.013	0.095	0.3
	12/15/14	0.89	0.060	0.076	0.083	0.12	0.10	0.057	0.052	0.052	0.16	0.015	0.27	0.36	0.049	0.86	0.38	8.7	0.023	0.31	0.19
	12/8/15	0.034	<0.010	0.023	0.04	0.072	0.05	0.038	0.029	0.028	0.059	0.011	0.089	0.018	0.032	<0.050	<0.050	<0.20	0.015	0.059	0.064
	11/28/16[FD]	0.059	0.015	0.041	0.066	0.095	0.092	0.057	0.042	0.039	0.095	0.014	0.19	0.055	0.045	<0.050	<0.050	<0.20	0.023	0.13	0.14
	11/28/16	0.032	<0.010	0.021	0.038	0.054	0.046	0.034	0.022	0.021	0.058	<0.010	0.11	0.029	0.028	<0.050	<0.050	<0.20	0.016	0.084	0.08
	12/5/17 FD	63	3.0	2.4	0.20	0.25	0.23	0.096	0.082	0.095	0.27	0.033	3.1	39	0.096	18	1.1	30	0.043	25	1.5
	12/5/17	46	2.3	1.2	0.11	0.15	0.13	0.076	0.055	0.061	0.13	0.022	1.8	26	0.066	13	1.3	36	0.027	14	0.86
	12/5/18	0.68	0.034	0.016	0.017	0.033	0.029	0.026	0.015	0.014	0.022	<0.010	0.044	0.22	0.021	1.7	1.2	15	0.010	0.085	0.033

TABLE A-2
LTMM GROUNDWATER MONITORING EVENT NOVEMBER AND DECEMBER 2018 OHP AND HE
GROUNDWATER ANALYTICAL RESULTS - PAHs

Sample Location (Monitor Well Depth)	Sample Date	Acenaphthene	Acenaphthylene	Anthracene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(j)fluoranthene	Benzo(k)fluoranthene[4]	Chrysene	Dibenzo(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-cd)pyrene	1-Methylnaphthalene	2-Methylnaphthalene	Naphthalene	Perylene	Phenanthrene	Pyrene
	Units	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
NS Tier 1 EQS[1]		600 [2]	750	2.4 [2]	4.7 [2]	0.81 [2]	0.75 [2]	0.2 [2]	-	0.4 [2]	1 [2]	0.52 [2]	130 [2]	400 [2]	0.2 [2]	38000	38000	7000	-	580 [2]	68 [2]
CONCW-101-MWB (3.63 m)	03/15/13	0.19	0.03	0.024	<0.01	<0.01	<0.01	<0.01	NM	<0.01	<0.01	<0.01	0.028	0.095	<0.01	0.42	0.27	3.0	<0.01	0.14	0.021
	07/17/13	0.11	0.034	0.028	0.017	0.013	0.014	<0.01	<0.01	<0.01	0.018	<0.01	0.057	0.079	<0.01	0.21	0.14	2.2	<0.01	0.11	0.042
	10/24/13	0.071	0.026	0.02	0.013	0.013	<0.01	<0.01	NM	<0.01	0.015	<0.01	0.039	0.049	<0.01	0.058	<0.05	0.23	<0.01	0.087	0.034
	12/12/14	0.055	0.043	0.016	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.032	0.035	<0.01	0.060	<0.05	0.20	<0.01	0.066	0.024
	12/8/15	0.064	0.027	0.033	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.08	0.07	<0.010	0.065	0.06	0.29	<0.010	0.21	0.052
	11/23/16	0.059	0.052	0.042	0.062	0.045	0.037	0.03	0.023	0.021	0.053	<0.010	0.15	0.078	0.026	0.091	0.073	0.55	0.011	0.22	0.11
	12/11/17	0.014	0.015	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.024	0.024	<0.010	<0.050	<0.050	<0.20	<0.010	0.038	0.020
	11/28/18[FD]	0.021	0.022	0.013	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.026	0.026	<0.010	<0.050	<0.050	<0.20	<0.010	0.068	0.019
	11/28/18	0.024	0.026	0.017	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.033	0.030	<0.010	<0.050	<0.050	<0.20	<0.010	0.078	0.024
CONPL-202-MWA (5.21 m)	12/15/14	0.054	0.030	0.031	0.062	0.059	0.045	0.030	0.026	0.027	0.053	<0.01	0.12	0.028	0.027	<0.05	<0.05	<0.2	0.014	0.086	0.096
	12/9/15	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.011	<0.010	<0.010	<0.050	<0.050	<0.20	<0.010	<0.010	<0.010
	11/23/16	<0.010	<0.010	<0.010	0.021	0.015	0.011	<0.010	<0.010	<0.010	0.018	<0.010	0.037	<0.010	<0.010	<0.050	<0.050	<0.20	<0.010	0.033	0.028
	12/21/17	0.022	0.016	0.047	0.095	0.071	0.055	0.035	0.041	0.034	0.089	0.011	0.18	0.038	0.034	<0.050	<0.050	<0.20	0.020	0.14	0.14
	11/28/18	0.025	0.035	0.079	0.16	0.12	0.095	0.066	0.063	0.067	0.14	0.021	0.34	0.042	0.062	<0.050	<0.050	<0.20	0.031	0.29	0.27
COSB-002-MWA (1.57 m)	03/18/13[L]	0.026	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	NM	<0.01	<0.01	<0.01	0.01	0.014	<0.01	0.056	<0.05	0.42	<0.01	0.018	<0.01
	03/18/13	0.023	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	NM	<0.01	<0.01	<0.01	<0.01	0.012	<0.01	<0.05	<0.05	0.34	<0.01	0.016	<0.01
	07/26/13	0.2	0.21	0.44	0.53	0.52	0.4	**0.31**	0.25	0.23	0.52	0.073	1.3	0.35	**0.26**	0.17	0.21	0.25	0.13	1.4	1.2
	11/06/13[FD]	0.018	0.021	0.014	0.022	0.013	<0.01	<0.01	<0.01	<0.01	0.018	<0.01	0.055	0.02	<0.01	<0.05	<0.05	<0.2	<0.01	0.033	0.055
	11/06/13	0.022	0.023	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.027	0.019	<0.01	<0.05	<0.05	<0.2	<0.01	0.021	0.039
	12/15/14	0.013	0.018	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.015	<0.01	<0.05	<0.05	<0.2	<0.01	0.014	0.012
	12/9/15	0.014	0.019	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.012	<0.010	<0.050	<0.050	<0.20	<0.010	0.010	0.012
	11/28/16	0.74	0.053	0.019	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.02	0.32	<0.010	2.5	1.6	33	<0.010	0.21	0.013
	12/8/17	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.050	<0.050	<0.20	<0.010	0.011	<0.010
	11/28/18	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.013	<0.010	<0.010	<0.050	<0.050	<0.20	<0.010	0.015	0.011
COSCW-001-MWA (3.47 m)	03/19/13	0.12	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	NM	<0.01	<0.01	<0.01	<0.01	0.06	<0.01	0.3	0.2	2.3	<0.01	0.034	<0.01
	07/17/13[L]	<0.01	<0.01	<0.01	0.014	<0.01	<0.01	<0.01	<0.01	<0.01	0.012	<0.01	0.046	0.017	<0.01	<0.05	<0.05	<0.2	<0.01	0.07	0.022
	07/17/13	<0.01	<0.01	0.01	0.014	<0.01	<0.01	<0.01	<0.01	<0.01	0.011	<0.01	0.049	0.015	<0.01	<0.05	<0.05	<0.2	<0.01	0.068	0.027
	10/24/13	0.043	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.022	<0.01	<0.05	<0.05	<0.2	<0.01	0.016	<0.01
	12/12/14	0.045	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	<0.01	0.12	0.05	1	<0.01	0.022	<0.01
	12/8/15	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.013	0.013	<0.010	<0.050	<0.050	<0.20	<0.010	0.022	0.01
	11/22/16	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.011	<0.010	<0.010	<0.050	<0.050	<0.20	<0.010	0.012	<0.010
	12/8/17	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.050	<0.050	<0.20	<0.010	0.014	<0.010
	12/3/18	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.027	<0.010	<0.010	<0.050	<0.050	<0.20	<0.010	0.024	0.014
COSCW-001-MWB (1.75 m)	03/19/13	0.012	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	NM	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.05	<0.2	<0.01	<0.01	<0.01
	07/17/13	0.091	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.052	<0.01	0.24	0.16	3.2	<0.01	0.032	<0.01
	10/24/13	0.22	0.017	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.075	<0.01	0.85	0.57	12	<0.01	0.056	<0.01
	12/12/14	0.017	0.011	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.010	<0.01	<0.01	<0.05	<0.05	<0.2	<0.01	<0.01	<0.01
	12/8/15	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.017	<0.010	<0.010	<0.050	<0.050	<0.20	<0.010	0.023	0.015
	11/22/16	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.050	<0.050	<0.20	<0.010	<0.010	<0.010
	12/8/17	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.050	<0.050	<0.20	<0.010	<0.010	<0.010
	12/3/18	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.050	<0.050	<0.20	<0.010	<0.010	<0.010

TABLE A-2
LTMM GROUNDWATER MONITORING EVENT NOVEMBER AND DECEMBER 2018 OHP AND HE
GROUNDWATER ANALYTICAL RESULTS - PAHs

Sample Location (Monitor Well Depth)	Sample Date	Acenaphthene	Acenaphthylene	Anthracene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(j)fluoranthene	Benzo(k)fluoranthene[4]	Chrysene	Dibenzo(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-cd)pyrene	1-Methylnaphthalene	2-Methylnaphthalene	Naphthalene	Perylene	Phenanthrene	Pyrene
	Units	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	ug/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
NS Tier 1 EQS[1]		600 [2]	750	2.4 [2]	4.7 [2]	0.81 [2]	0.75 [2]	0.2 [2]	-	0.4 [2]	1 [2]	0.52 [2]	130 [2]	400 [2]	0.2 [2]	38000	38000	7000	-	580 [2]	68 [2]
COSCW-002-MWA (4.32 m)	03/26/13[L]	0.074	0.13	<0.01	<0.01	<0.01	<0.01	<0.01	NM	<0.01	<0.01	<0.01	0.012	0.071	<0.01	0.25	<0.05	0.49	<0.01	0.053	<0.01
	03/26/13	0.055	0.1	<0.01	<0.01	<0.01	<0.01	<0.01	NM	<0.01	<0.01	<0.01	<0.01	0.052	<0.01	0.19	<0.05	0.39	<0.01	0.034	<0.01
	07/17/13	0.036	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.011	0.022	<0.01	0.083	0.055	1.0	<0.01	0.025	<0.01
	10/24/13	0.46	0.034	<0.01	<0.01	<0.01	<0.01	<0.01	NM	<0.01	<0.01	<0.01	<0.01	0.15	<0.01	1.9	1.2	29	<0.01	0.11	<0.01
	12/12/14	0.039	0.020	<0.01	0.011	<0.01	<0.01	<0.01	<0.01	<0.01	0.011	<0.01	0.031	0.028	<0.01	0.057	<0.05	0.22	<0.01	0.042	0.023
	12/8/15	0.015	<0.010	0.011	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.01	<0.010	0.03	0.019	<0.010	<0.050	<0.050	<0.20	<0.010	0.046	0.024
	11/22/16	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.013	<0.010	<0.010	<0.050	<0.050	<0.20	<0.010	0.011	<0.010
	12/8/17	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.050	<0.050	<0.20	<0.010	0.024	<0.010
	12/3/18	<0.010	<0.010	<0.010	0.012	<0.010	<0.010	<0.010	<0.010	<0.010	0.013	<0.010	0.034	0.011	<0.010	<0.050	<0.050	<0.20	<0.010	0.034	0.023
COSCW-002-MWB (3.29 m)	03/19/13	0.023	0.012	<0.01	0.01	<0.01	<0.01	<0.01	NM	<0.01	<0.01	<0.01	0.023	0.022	<0.01	<0.05	<0.05	0.3	<0.01	0.036	0.018
	07/17/13	0.13	<0.01	0.011	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.033	0.076	<0.01	0.28	0.15	3.1	<0.01	0.08	0.021
	10/24/13	0.062	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	NM	<0.01	<0.01	<0.01	0.015	0.031	<0.01	<0.05	<0.05	<0.2	<0.01	0.026	0.014
	12/12/14	0.020	0.010	0.013	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.019	0.011	<0.01	<0.05	<0.05	<0.2	<0.01	0.011	0.011
	12/8/15	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.050	<0.050	<0.20	<0.010	0.014	<0.010
	11/22/16	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.050	<0.050	<0.20	<0.010	<0.010	<0.010
	12/8/17	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.050	<0.050	<0.20	<0.010	<0.010	<0.010
	12/3/18	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	<0.010	<0.010	<0.050	<0.050	<0.20	<0.010	0.019	<0.010
COTS-001-MWA[3] (3.77 m)	11/15/13	0.052	0.18	0.16	0.28	0.33	0.27	0.17	0.14	0.14	0.25	0.046	0.48	0.12	0.13	0.1	<0.05	0.22	0.062	0.29	0.37
	12/15/14	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
	12/08/15	NM	NM	NM	NM	NM	NM	NM	NM	NM		NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
COTS-001-MWB[3] (4.17 m)	12/08/15	<0.010	<0.010	<0.010	0.011	0.011	<0.010	<0.010	<0.010	<0.010	0.012	<0.010	0.029	<0.010	<0.010	<0.050	<0.050	<0.20	<0.010	0.023	0.023
	11/28/16	0.19	1.2	0.027	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.013	0.091	<0.010	0.49	<0.050	1.7	<0.010	0.017	<0.010
	12/21/17	<0.010	0.018	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.050	<0.050	<0.20	<0.010	<0.010	<0.010
	11/28/18	<0.010	0.013	0.027	0.015	0.010	<0.010	<0.010	<0.010	<0.010	0.014	<0.010	0.089	0.017	<0.010	<0.050	<0.050	<0.20	<0.010	0.095	0.062
MCES-001-MWA (5.19 m)	03/28/13[FD]	0.21	0.45	0.078	0.071	0.012	0.01	<0.01	NM	0.02	0.06	<0.01	0.38	0.36	<0.01	0.68	0.39	0.82	<0.01	0.39	0.75
	03/28/13	0.22	0.46	0.083	0.08	0.017	0.016	<0.01	NM	0.03	0.07	<0.01	0.41	0.35	<0.01	0.69	0.39	0.79	<0.01	0.41	0.81
	07/24/13	0.23	0.43	0.1	0.15	0.047	0.057	0.03	0.037	0.04	0.14	0.01	0.46	0.39	0.028	0.67	0.39	1.0	0.018	0.46	0.98
	12/10/14	0.069	0.098	0.023	0.039	0.021	0.022	0.014	0.014	0.014	0.044	<0.01	0.19	0.099	0.015	0.18	<0.05	<0.2	<0.01	0.068	0.25
	12/2/15	0.1	0.16	0.07	0.048	<0.010	<0.010	<0.010	<0.010	<0.010	0.046	<0.010	0.44	0.18	<0.010	0.28	0.1	<0.20	<0.010	0.21	0.7
	11/25/16	0.059	0.098	0.019	0.021	<0.010	<0.010	<0.010	<0.010	<0.010	0.025	<0.010	0.13	0.1	<0.010	0.18	0.05	<0.20	<0.010	0.04	0.16
	12/12/17[FD]	0.048	0.067	0.013	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.011	<0.010	0.09	0.074	<0.010	0.12	<0.050	<0.20	<0.010	0.034	0.13
	12/12/17	0.052	0.073	0.021	0.021	<0.010	<0.010	<0.010	<0.010	<0.010	0.024	<0.010	0.22	0.076	<0.010	0.13	<0.050	<0.20	<0.010	0.041	0.13
	11/28/18	0.059	0.083	0.024	0.018	<0.010	<0.010	<0.010	<0.010	<0.010	0.018	<0.010	0.11	0.094	<0.010	0.13	<0.050	<0.20	<0.010	0.055	0.20
MCES-001-MWB (6.07 m)	03/28/13	0.022	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	NM	<0.01	<0.01	<0.01	0.031	0.015	<0.01	0.064	<0.05	0.5	<0.01	0.019	0.05
	07/25/13	0.021	0.013	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.019	0.018	<0.01	0.064	<0.05	0.44	<0.01	0.023	0.031
	11/14/13	0.012	<0.01	<0.01	0.012	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	0.026	0.01	<0.01	<0.05	<0.05	<0.2	<0.01	0.013	0.037
	12/10/14	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.05	<0.2	<0.01	0.015	<0.01
	12/02/15	<0.010	<0.010	<0.010	0.02	0.012	0.01	<0.010	<0.010	<0.010	0.019	<0.010	0.045	<0.010	<0.010	<0.050	<0.050	<0.20	<0.010	0.036	0.037
	11/25/16	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.050	<0.050	<0.20	<0.010	<0.010	<0.010
	12/15/17	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.050	<0.050	<0.20	<0.010	<0.010	<0.010
	11/28/2018 [10]	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.050	<0.050	<0.20	<0.010	<0.020 [8]	<0.010

TABLE A-2
LTMM GROUNDWATER MONITORING EVENT NOVEMBER AND DECEMBER 2018 OHP AND HE
GROUNDWATER ANALYTICAL RESULTS - PAHs

Sample Location (Monitor Well Depth)	Sample Date	Acenaphthene	Acenaphthylene	Anthracene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(j)fluoranthene	Benzo(k)fluoranthene[4]	Chrysene	Dibenzo(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-cd)pyrene	1-Methylnaphthalene	2-Methylnaphthalene	Naphthalene	Perylene	Phenanthrene	Pyrene
	Units	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
NS Tier 1 EQS[1]		600 [2]	750	2.4 [2]	4.7 [2]	0.81 [2]	0.75 [2]	0.2 [2]	-	0.4 [2]	1 [2]	0.52 [2]	130 [2]	400 [2]	0.2 [2]	38000	38000	7000	-	580 [2]	68 [2]
MCES-006-MW (2.80 m)	03/28/13	52	0.79	1.1	0.16	0.019	0.021	<0.01	NM	0.02	0.14	<0.01	1.7	12	<0.01	34	7.0	34	<0.01	3.1	1.3
	07/26/13	62	1.1	0.84	0.3	0.11	0.11	0.02	0.051	0.06	0.29	<0.01	2.4	11	0.021	46	4.7	15	0.018	3.2	1.8
	11/05/13	60	1.4	0.69	0.15	0.035	0.037	<0.01	0.012	0.02	0.17	<0.01	2.1	13	<0.01	55	10	83	<0.01	2.9	1.7
	12/10/14	11	0.26	0.15	0.017	<0.01	<0.01	<0.01	<0.01	<0.01	0.024	<0.01	0.25	3.3	<0.01	8.7	2.5	63	<0.01	1.1	0.22
	12/3/15	1.7	0.031	0.027	0.01	<0.010	<0.010	<0.010	<0.010	<0.010	0.011	<0.010	0.059	0.061	<0.010	<0.050	<0.050	<0.20	<0.010	0.029	0.048
	12/2/16	22	0.24	0.30	0.016	<0.010	<0.010	<0.010	<0.010	<0.010	0.016	<0.010	0.42	7.4	<0.010	17	0.53	<0.20	<0.010	2.6	0.30
	12/13/17	<0.010	0.014	0.012	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.050	<0.050	<0.20	<0.010	<0.010	0.091
	11/28/18	4.1	0.096	0.12	0.088	0.034	0.029	0.017	0.015	0.018	0.083	<0.010	0.37	1.1	0.013	4.1	2.0	36	<0.010	0.68	0.27
MCES-204-MW (4.17 m) *(Destroyed 2017)*	03/28/13	2.5	1.7	**3.6**	1.2	0.64	0.46	**0.27**	NM	**0.57**	1.00	0.052	5.6	5.9	**0.28**	5.9	8.9	68	0.16	14	3.7
	07/24/13	2.9	1.8	**3.3**	0.39	0.22	0.17	0.11	0.1	0.10	0.34	0.028	3.7	6.5	0.095	7.1	12	65	0.049	15	2.5
	11/07/13	3.2	2.5	**4.2**	0.79	0.39	0.36	0.20	0.18	0.25	0.70	0.049	6.1	7.1	0.18	8.2	12	90	0.094	16	4.0
	12/18/14[FD]	0.41	<0.04	<0.05	0.033	<0.01	<0.01	<0.01	<0.01	<0.01	0.043	<0.01	0.65	0.13	<0.01	0.087	0.08	0.35	<0.01	<0.04	0.45
	12/18/14	1.6	1.9	1.9	0.13	0.035	0.031	0.015	0.021	0.020	0.14	<0.01	2.6	4.7	0.013	4.6	7.1	34	<0.01	9.2	1.5
	12/10/15	1.8	1.8	**2.6**	0.13	0.018	0.014	<0.010	0.015	0.013	0.12	<0.010	2.7	4.6	<0.010	5	7.8	49	<0.010	11	1.6
	11/25/16[FD]	1.6	1.7	**2.7**	0.14	0.022	0.015	<0.010	0.015	0.01	0.14	<0.010	2.9	4.2	<0.010	4.8	7.2	46	<0.010	9.5	1.7
	11/25/16[FDR]	1.4	1.6	1.8	0.11	0.013	0.012	<0.010	<0.010	<0.010	0.099	<0.010	2.1	3.7	<0.010	4.1	6.2	43	<0.010	7.1	1.2
	11/25/16	1.6	1.7	**2.5**	0.12	0.021	0.018	<0.010	0.014	0.012	0.12	<0.010	2.4	4.2	<0.010	4.8	7.3	47	<0.010	8.2	1.5
	11/25/16[R]	1.7	1.8	2.0	0.12	0.016	0.014	<0.010	0.011	<0.010	0.12	<0.010	2.4	4.4	<0.010	4.9	7.4	49	<0.010	6.3	1.4
MCWS-009-MW[4] (6.63 m) *Decommissioned 2015*	12/9/14[FD]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.05	<0.2	<0.01	0.014	<0.01
	12/9/14	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.05	<0.2	<0.01	0.011	<0.01
MCWS-113-MWB (1.49 m)	03/27/13	0.86	0.035	0.082	0.034	0.016	0.011	<0.01	NM	0.02	0.03	<0.01	0.18	0.54	<0.01	9.2	0.14	2.4	<0.01	0.19	0.12
	07/24/13	1.0	0.043	0.11	0.12	0.11	0.087	0.06	0.05	0.05	0.11	0.02	0.27	0.65	0.058	16	0.55	8.2	0.028	0.49	0.21
	11/15/13	1.2	0.06	0.23	0.18	0.16	0.12	0.10	0.075	0.07	0.17	0.023	0.44	0.89	0.072	19	0.59	11	0.036	0.64	0.31
	12/9/14	0.74	0.042	0.097	0.042	0.032	0.022	0.019	0.013	0.015	0.044	<0.01	0.15	0.44	0.018	8.7	0.72	0.39	<0.01	0.26	0.12
	12/2/15	0.97	0.035	0.12	0.031	<0.010	0.012	<0.010	<0.010	<0.010	0.033	<0.010	0.24	0.52	<0.010	19	3.5	0.33	<0.010	0.35	0.14
	11/30/16	<0.010	0.013	0.03	0.024	0.038	0.034	0.025	0.033	0.028	0.044	<0.010	0.067	0.011	0.016	<0.050	<0.050	<0.20	<0.010	0.023	0.16
	12/12/17	<0.010	<0.010	<0.010	0.012	0.021	0.021	0.013	0.010	0.012	0.022	<0.010	0.014	<0.010	0.011	<0.050	<0.050	<0.20	<0.010	<0.010	0.13
	12/7/18	<0.010	0.011	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	<0.010	<0.050	<0.050	<0.20	<0.010	<0.010	0.16
MCWS-306-MWB (0.62 m)	03/27/13	0.028	<0.01	0.02	0.028	0.013	0.011	<0.01	NM	0.02	0.03	<0.01	0.087	0.018	<0.01	0.072	<0.05	0.6	<0.01	0.068	0.07
	07/24/13	0.011	<0.01	0.016	0.027	0.022	0.023	0.02	0.013	0.01	0.03	<0.01	0.052	0.016	0.016	<0.05	<0.05	0.22	<0.01	0.06	0.043
	11/15/13	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.022	<0.01	<0.01	<0.05	<0.05	<0.2	<0.01	0.015	0.017
	12/9/14	<0.01	<0.01	0.011	0.018	0.019	0.016	0.011	<0.01	<0.01	0.018	<0.01	0.037	<0.01	0.01	<0.05	<0.05	<0.2	<0.01	0.033	0.034
	12/2/15	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.023	<0.010	<0.010	<0.050	<0.050	<0.20	<0.010	0.021	0.021
	11/30/16	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.050	<0.050	<0.20	<0.010	<0.010	<0.010
	12/12/17	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.050	<0.050	<0.20	<0.010	<0.010	<0.010
	12/7/18	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.050	<0.050	<0.20	<0.010	<0.010	<0.010

TABLE A-2
LTMM GROUNDWATER MONITORING EVENT NOVEMBER AND DECEMBER 2018 OHP AND HE
GROUNDWATER ANALYTICAL RESULTS - PAHs

Sample Location (Monitor Well Depth)	Sample Date	Acenaphthene	Acenaphthylene	Anthracene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(j)fluoranthene	Benzo(k)fluoranthene[4]	Chrysene	Dibenzo(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-cd)pyrene	1-Methylnaphthalene	2-Methylnaphthalene	Naphthalene	Perylene	Phenanthrene	Pyrene
	Units	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	ug/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
NS Tier 1 EQS[1]		600 [2]	750	2.4 [2]	4.7 [2]	0.81 [2]	0.75 [2]	0.2 [2]	-	0.4 [2]	1 [2]	0.52 [2]	130 [2]	400 [2]	0.2 [2]	38000	38000	7000	-	580 [2]	68 [2]
MCWS-307-MWB (0.59 m)	03/27/13[L]	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
	03/27/13	0.017	0.017	<0.01	<0.01	<0.01	<0.01	<0.01	NM	<0.01	<0.01	<0.01	<0.01	0.012	<0.01	0.055	<0.05	0.25	<0.01	0.011	<0.01
	07/24/13	0.014	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	0.078	<0.05	0.42	<0.01	<0.01	<0.01
	11/14/13	0.011	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.05	<0.2	<0.01	<0.01	<0.01
	12/9/14	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.017	0.01	<0.01	<0.05	<0.05	<0.2	<0.01	0.030	0.013
	12/2/15	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.050	<0.050	<0.20	<0.010	<0.010	<0.010
	12/2/16	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.050	<0.050	<0.20	<0.010	<0.010	<0.010
	12/12/17	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.050	<0.050	<0.20	<0.010	<0.010	<0.010
	12/7/18	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.050	<0.050	<0.20	<0.010	<0.010	<0.010
MCWS-309-MW (0.85 m)	07/26/13	0.041	0.067	0.074	0.16	0.17	0.13	0.11	0.078	0.08	0.16	0.025	0.35	0.056	0.089	<0.05	<0.05	<0.2	0.05	0.25	0.29
	11/14/13	0.09	0.049	0.033	0.029	0.027	0.024	0.02	0.013	0.01	0.03	<0.01	0.14	0.075	<0.01	0.13	0.06	1.3	<0.01	0.077	0.11
	12/9/14	0.028	0.13	0.22	0.51	0.50	0.37	**0.28**	0.24	0.24	0.48	0.084	1.0	0.13	0.28	<0.05	0.062	<0.2	0.13	0.60	0.79
	12/3/15	0.049	0.15	0.18	0.44	0.36	0.26	**0.22**	0.18	0.16	0.41	0.061	1.0	0.13	0.20	0.099	<0.050	<0.20	0.096	0.56	0.79
	12/2/16	<0.010	0.013	0.019	0.029	0.033	0.027	0.02	0.018	0.016	0.031	<0.010	0.093	0.014	0.018	<0.050	<0.050	<0.20	<0.010	0.052	0.080
	12/12/17	<0.010	0.021	0.039	0.10	0.09	0.13	0.064	0.051	0.053	0.11	0.019	0.29	0.024	0.059	<0.050	<0.050	<0.20	0.028	0.11	0.22
	12/7/18	<0.010	0.012	0.020	0.045	0.043	0.035	0.026	0.022	0.024	0.045	<0.010	0.14	0.016	0.024	<0.050	<0.050	<0.20	0.013	0.059	0.11
MCWS-310-MW (0.77 m)	03/29/13	0.014	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	NM	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.05	0.32	<0.01	<0.01	<0.01
	07/26/13[L]	0.029	0.011	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.021	<0.01	0.076	<0.05	0.59	<0.01	<0.01	<0.01
	07/26/13	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.014	<0.01	0.056	<0.05	0.38	<0.01	<0.01	<0.01
	11/14/13[L]	0.11	0.047	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.011	0.051	<0.01	0.43	0.22	4.5	<0.01	0.061	<0.01
	11/14/13	0.069	0.028	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.038	<0.01	0.26	0.13	2.3	<0.01	0.041	<0.01
	12/9/14	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.05	<0.2	<0.01	0.016	<0.01
	12/10/15[FD]	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.050	<0.050	<0.20	<0.010	<0.010	<0.010
	12/10/15	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.050	<0.050	<0.20	<0.010	<0.010	<0.010
	12/2/16	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.050	<0.050	<0.20	<0.010	0.013	<0.010
	12/12/17	0.037	0.032	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.021	0.010	<0.010	<0.050	<0.050	<0.20	<0.010	<0.010	0.014
	12/7/18	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.050	<0.050	<0.20	<0.010	<0.010	<0.010
MSES-003-MW (9.10 m) *Destroyed 2016*	03/26/13	0.018	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	NM	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	0.056	<0.05	0.44	<0.01	<0.01	<0.01
	07/24/13[FD]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.05	<0.2	<0.01	<0.01	<0.01
	07/24/13	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.05	<0.2	<0.01	<0.01	<0.01
	11/05/13	0.012	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.05	<0.2	<0.01	<0.01	<0.01
	12/10/14[FD]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.05	<0.2	<0.01	<0.01	<0.01
	12/10/14	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.05	<0.2	<0.01	<0.01	<0.01
	12/3/15	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	<0.010	<0.010	<0.050	<0.050	<0.20	<0.010	0.011	<0.010
MSES-004-MW (7.36 m)	03/26/13	0.033	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	NM	<0.01	<0.01	<0.01	0.015	0.019	<0.01	0.087	0.053	0.63	<0.01	0.018	0.012
	07/26/13	0.039	<0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.019	<0.01	0.08	<0.05	0.57	<0.01	0.011	<0.01
	11/15/13	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.013	<0.01	<0.01	<0.05	<0.05	<0.2	<0.01	<0.01	0.011
	12/10/14	0.038	0.069	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.014	0.023	<0.01	0.11	<0.05	<0.2	<0.01	0.017	0.011
	12/3/15	<0.010	<0.010	0.024	0.046	0.034	0.025	0.019	0.017	0.016	0.053	<0.010	0.12	0.015	0.015	<0.050	<0.050	<0.20	<0.010	0.10	0.10
	11/25/16	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.011	<0.010	<0.010	<0.050	<0.050	<0.20	<0.010	<0.010	<0.010
	11/25/16[R]	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.012	<0.010	<0.010	<0.050	<0.050	<0.20	<0.010	<0.010	<0.010
	12-13-17 FD	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.050	<0.050	<0.20	<0.010	<0.010	0.010
	12/13/17	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.050	<0.050	<0.20	<0.010	<0.010	<0.010
	12/10/18	0.18	0.039	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.014	0.074	<0.010	0.47	0.31	3.2	<0.010	0.035	0.013

TABLE A-2
LTMM GROUNDWATER MONITORING EVENT NOVEMBER AND DECEMBER 2018 OHP AND HE
GROUNDWATER ANALYTICAL RESULTS - PAHs

Sample Location (Monitor Well Depth)	Sample Date	Acenaphthene	Acenaphthylene	Anthracene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(j)fluoranthene	Benzo(k)fluoranthene[4]	Chrysene	Dibenzo(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-cd)pyrene	1-Methylnaphthalene	2-Methylnaphthalene	Naphthalene	Perylene	Phenanthrene	Pyrene
	Units	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
NS Tier 1 EQS[1]		600 [2]	750	2.4 [2]	4.7 [2]	0.81 [2]	0.75 [2]	0.2 [2]	-	0.4 [2]	1 [2]	0.52 [2]	130 [2]	400 [2]	0.2 [2]	38000	38000	7000	-	580 [2]	68 [2]
MSES-006-MW (3.51 m)	03/26/13	0.73	1.1	0.013	<0.01	<0.01	<0.01	<0.01	NM	<0.01	<0.01	<0.01	0.1	0.36	<0.01	0.46	<0.05	0.74	<0.01	0.048	0.062
	07/24/13	0.46	0.79	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.06	0.22	<0.01	0.37	<0.05	0.67	<0.01	0.033	0.041
	11/05/13[L]	0.43	0.88	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.064	0.16	<0.01	0.22	<0.05	0.57	<0.01	0.02	0.042
	11/05/13	0.2	0.36	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.044	0.077	<0.01	0.073	<0.05	0.24	<0.01	0.017	0.03
	12/10/14	0.75	1.4	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.015	0.23	<0.01	0.52	<0.05	1.5	<0.01	0.015	<0.01
	12/3/15	0.89	1.2	0.015	0.013	<0.010	<0.010	<0.010	<0.010	<0.010	0.013	<0.010	0.046	0.27	<0.010	0.82	<0.050	1.4	<0.010	0.049	0.035
	11/25/16	0.66	0.94	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.035	0.16	<0.010	0.21	<0.050	<0.20	<0.010	<0.010	0.02
	11/25/16[R]	0.65	0.96	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.031	0.16	<0.010	0.2	<0.050	<0.20	<0.010	<0.010	0.02
	12/13/17	0.44	0.69	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.12	<0.010	0.25	<0.050	0.33	<0.010	<0.010	<0.010
	12/10/18	0.93	1.2	0.011	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.039	0.23	<0.010	0.54	<0.050	<0.20	<0.010	0.015	0.023
MSES-008-MW (3.95 m)	03/26/13	2.3	4.2	0.37	0.096	0.011	<0.01	<0.01	NM	0.02	0.06	<0.01	1.7	5.2	<0.01	1.8	<0.05	0.88	<0.01	4.2	1.2
	07/26/13	2.5	3.2	0.29	0.078	<0.01	<0.01	<0.01	<0.01	<0.01	0.06	<0.01	1.4	4.7	<0.01	1.4	<0.05	0.36	<0.01	2.9	1.0
	11/15/13	3.1	4.1	0.53	0.10	0.011	0.012	<0.01	<0.01	<0.01	0.08	<0.01	1.9	5.7	<0.01	2.0	<0.05	0.23	<0.01	3.8	1.3
	12/10/14	1.9	2.7	0.21	0.070	<0.01	<0.01	<0.01	<0.01	<0.01	0.049	<0.01	1.2	3.6	<0.01	0.94	<0.05	<0.2	<0.01	1.9	0.94
	12/3/15[FD]	2.1	2.5	0.23	0.07	<0.010	<0.010	<0.010	<0.010	<0.010	0.05	<0.010	1.5	3.8	<0.010	0.7	<0.050	<0.20	<0.010	1.7	1.1
	12/3/15	2.1	2.4	0.23	0.065	<0.010	<0.010	<0.010	<0.010	<0.010	0.051	<0.010	1.4	3.8	<0.010	0.69	<0.050	<0.20	<0.010	1.6	1.0
	11/25/16[FD]	1.4	1.8	0.16	0.049	<0.010	<0.010	<0.010	<0.010	<0.010	0.04	<0.010	1	3.1	<0.010	0.42	<0.050	<0.20	<0.010	0.8	0.77
	11/25/16[FDR]	1.6	2.0	0.15	0.063	<0.010	<0.010	<0.010	<0.010	<0.010	0.047	<0.010	1.3	3.6	<0.010	0.45	<0.050	<0.20	<0.010	0.88	0.92
	11/25/16	1.4	1.7	0.15	0.054	<0.010	<0.010	<0.010	<0.010	<0.010	0.045	<0.010	1	3.1	<0.010	0.4	<0.050	<0.20	<0.010	0.84	0.79
	11/25/16[R]	1.4	1.7	0.13	0.049	<0.010	<0.010	<0.010	<0.010	<0.010	0.036	<0.010	0.96	3.1	<0.010	0.39	<0.050	<0.20	<0.010	0.68	0.70
	12/13/17	1.6	1.9	0.13	0.062	<0.010	<0.010	<0.010	<0.010	<0.010	0.050	<0.010	1.3	2.9	<0.010	0.34	<0.050	<0.20	<0.010	0.83	0.88
	12/10/18	1.7	2.3	0.16	0.065	<0.010	<0.010	<0.010	<0.010	<0.010	0.053	<0.010	1.3	3.6	<0.010	0.58	0.24	2.1	<0.010	0.58	0.99
MSES-012-MWA (3.38 m)	03/15/13	0.19	0.021	0.071	0.024	0.022	0.011	<0.01	NM	0.03	0.05	<0.01	0.14	0.3	0.01	0.37	0.19	2.6	<0.01	0.19	0.099
	07/25/13[FD]	0.026	0.015	0.023	0.029	0.02	0.013	<0.01	<0.01	0.01	0.03	<0.01	0.084	0.061	<0.01	<0.05	<0.05	0.26	<0.01	0.066	0.063
	07/25/13	0.038	0.034	0.1	0.16	0.11	0.075	0.04	0.052	0.04	0.13	0.017	0.31	0.11	0.044	0.053	<0.05	0.32	0.027	0.27	0.23
	11/05/13	0.12	0.029	0.085	0.051	0.032	0.023	0.01	0.016	0.01	0.05	<0.01	0.23	0.19	0.013	0.19	0.094	2.5	<0.01	0.14	0.16
	12/16/14	0.15	0.033	0.17	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.059	0.12	<0.01	0.43	0.19	4.0	<0.01	0.036	0.039
	12/3/15	0.014	0.017	0.014	0.018	0.010	<0.010	<0.010	<0.010	<0.010	0.015	<0.010	0.059	0.033	<0.010	<0.050	<0.050	<0.20	<0.010	0.037	0.042
	11/22/16	<0.010	<0.010	0.015	0.023	0.018	0.014	<0.010	<0.010	<0.010	0.028	<0.010	0.057	0.018	<0.010	<0.050	<0.050	<0.20	<0.010	0.034	0.041
	12/13/17	0.019	0.020	0.060	0.13	0.083	0.067	0.037	0.052	0.046	0.12	0.013	0.31	0.048	0.035	<0.050	<0.050	<0.20	0.021	0.16	0.22
	12/10/18	0.15	0.021	0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	<0.010	0.029	0.080	<0.010	0.35	0.26	2.2	<0.010	0.037	0.018
MSES-104-MWA (1.73 m)	03/28/13	9.5	6.9	**2.8**	**5.8**	**2.7**	**2.0**	**1.10**	NM	**2.40**	**4.80**	0.28	29	2.2	**1.3**	0.69	0.52	2.4	0.6	3.1	18
	12/10/14	5.4	5.6	0.38	0.20	0.079	0.060	0.031	0.040	0.036	0.16	0.011	2.3	1.1	0.034	0.51	0.21	3.7	0.015	0.29	1.4
	12/3/15	8.1	7.5	0.70	0.24	0.035	0.028	<0.010	0.023	0.018	0.20	<0.010	4.2	1.6	<0.010	0.73	0.29	4.6	<0.010	0.55	2.6
	11/25/16	6.8	6.2	0.55	0.26	0.12	0.085	0.055	0.057	0.054	0.23	0.018	3.1	1.3	0.051	1.1	0.35	6.5	0.023	0.44	1.9
	11/25/16[R]	6.7	6.4	0.41	0.26	0.12	0.081	0.051	0.053	0.053	0.23	0.018	2.8	1.2	0.053	0.99	0.32	6	0.024	0.44	1.8
	12/13/17	7.3	6.3	0.53	0.20	0.028	0.026	<0.010	0.021	0.016	0.17	<0.010	3.4	1.9	<0.010	1.2	0.36	6.5	<0.010	0.60	2.0
	12/10/18	6.7	6.5	0.50	0.18	0.021	0.020	<0.010	0.016	0.013	0.15	<0.010	3.1	2.1	<0.010	1.5	0.48	8.7	<0.010	0.68	1.8

TABLE A-2
LTMM GROUNDWATER MONITORING EVENT NOVEMBER AND DECEMBER 2018 OHP AND HE
GROUNDWATER ANALYTICAL RESULTS - PAHs

Sample Location (Monitor Well Depth)	Sample Date	Acenaphthene	Acenaphthylene	Anthracene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(j)fluoranthene	Benzo(k)fluoranthene[4]	Chrysene	Dibenzo(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-cd)pyrene	1-Methylnaphthalene	2-Methylnaphthalene	Naphthalene	Perylene	Phenanthrene	Pyrene
	Units	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	ug/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
NS Tier 1 EQS[1]		600 [2]	750	2.4 [2]	4.7 [2]	0.81 [2]	0.75 [2]	0.2 [2]	-	0.4 [2]	1 [2]	0.52 [2]	130 [2]	400 [2]	0.2 [2]	38000	38000	7000	-	580 [2]	68 [2]
MSES-104-MWB (2.28 m)	03/26/13	17	30	1.7	0.11	0.014	0.012	<0.01	NM	0.02	0.08	<0.01	1.4	13	<0.01	53	0.17	47	<0.01	11	0.86
	07/24/13	21	36	2.0	0.16	0.044	0.039	0.01	0.032	0.03	0.11	<0.01	1.4	16	0.013	58	0.12	37	0.015	12	0.96
	11/05/13[FD]	19	30	1.6	0.081	<0.01	<0.01	<0.01	<0.01	<0.01	0.06	<0.01	1.2	15	<0.01	55	0.19	26	<0.01	10	0.79
	11/05/13	20	32	1.7	0.11	0.018	0.012	<0.01	0.012	0.01	0.080	<0.01	1.3	15	<0.01	63	0.20	28	<0.01	11	0.84
	12/10/14	18	33	1.4	0.10	0.018	0.012	<0.01	0.013	0.011	0.074	<0.01	1.1	14	<0.01	45	0.12	17	<0.01	9.7	0.72
	12/3/15	18	31	1.4	0.038	<0.010	<0.010	<0.010	<0.010	<0.010	0.024	<0.010	0.83	13	<0.010	52	<0.050	9.1	<0.010	8.6	0.47
	11/25/16	25	39	1.4	0.034	<0.010	<0.010	<0.010	<0.010	<0.010	0.024	<0.010	0.8	18	<0.010	64	0.08	12	<0.010	2.9	0.45
	11/25/16[R]	24	45	1.1	0.032	<0.010	<0.010	<0.010	<0.010	<0.010	0.018	<0.010	0.71	17	<0.010	66	0.079	11	<0.010	3	0.39
	12/13/17	16	28	1.1	0.031	<0.010	<0.010	<0.010	<0.010	<0.010	0.024	<0.010	0.71	11	<0.010	39	<0.050	3.3	<0.010	6.9	0.38
	12/10/18[FD]	13	24	0.98	0.028	<0.010	<0.010	<0.010	<0.010	<0.010	0.019	<0.010	0.65	11	<0.010	33	<0.050	4.4	<0.010	7.4	0.36
	12/10/18	13	24	1.0	0.029	<0.010	<0.010	<0.010	<0.010	<0.010	0.020	<0.010	0.64	11	<0.010	33	<0.050	4.5	<0.010	7.4	0.38
MW2 SPAR RD (2.62 m) *Removed from the LTMM program in 2015*	03/19/13[FD]	0.037	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	NM	<0.01	<0.01	<0.01	<0.01	0.018	<0.01	0.092	0.057	0.69	<0.01	0.013	<0.01
	03/19/13	0.039	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	NM	<0.01	<0.01	<0.01	<0.01	0.02	<0.01	0.099	0.063	0.74	<0.01	0.016	<0.01
	07/24/13	0.015	<0.01	0.013	0.041	0.03	0.028	0.021	NM	0.016	0.041	<0.01	0.065	0.013	0.019	<0.05	<0.05	0.36	<0.01	0.06	0.06
	11/06/13	0.026	0.028	0.012	0.017	0.014	0.015	0.012	NM	<0.01	0.021	<0.01	0.043	0.023	<0.01	<0.05	<0.05	<0.20	<0.01	0.038	0.03
	12/16/14[FD]	0.077	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.014	0.034	<0.01	0.25	0.12	1.7	<0.01	0.031	0.014
	12/16/14	0.055	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.024	<0.010	0.15	0.081	1.1	<0.010	0.016	<0.010
SCU11-001-MWA (3.61 m)	03/29/13	0.097	<0.01	0.18	0.041	0.012	<0.01	<0.01	NM	0.013	0.04	<0.01	0.21	0.21	<0.01	<0.05	<0.05	<0.2	<0.01	0.49	0.17
	07/17/13	0.076	0.013	0.23	0.14	0.081	0.072	0.039	0.048	0.043	0.13	0.011	0.43	0.13	0.035	<0.05	<0.05	<0.2	0.016	0.47	0.36
	10/24/13	0.074	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	NM	0.018	<0.01	<0.01	0.012	0.025	<0.01	0.18	<0.05	0.58	0.087	0.059	0.011
	12/15/14	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.05	<0.2	<0.01	0.015	<0.01
	12/11/15	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.012	0.01	<0.010	<0.050	<0.050	<0.20	<0.010	0.016	<0.010
	11/23/16	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.050	<0.050	<0.20	<0.010	0.016	<0.010
	12/13/17	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.050	<0.050	<0.20	<0.010	<0.010	<0.010
	12/10/18	0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	<0.010	<0.050	<0.050	<0.20	<0.010	0.024	<0.010
SCU11-001-MWB (2.00 m)	03/29/13	0.79	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	NM	<0.01	<0.01	<0.01	<0.01	0.071	<0.01	1.8	<0.05	3.2	<0.01	0.033	<0.01
	07/17/13	0.55	0.017	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.021	0.06	<0.01	0.7	<0.05	1.1	<0.01	0.024	0.015
	10/24/13	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	NM	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.05	<0.2	<0.01	<0.01	<0.01
	12/15/14[FD]	0.019	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.012	0.014	<0.01	<0.05	<0.05	<0.2	<0.01	0.021	0.012
	12/15/14	0.019	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.013	0.013	<0.01	<0.05	<0.05	<0.2	<0.01	0.019	0.012
	12/11/15	0.012	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.014	0.011	<0.010	<0.050	<0.050	<0.20	<0.010	0.015	0.012
	11/23/16	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.050	<0.050	<0.20	<0.010	<0.010	<0.010
	12/13/17	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.050	<0.050	<0.20	<0.010	<0.010	<0.010
	12/5/18	0.016	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.013	<0.010	<0.010	<0.050	<0.050	<0.20	<0.010	0.024	<0.010
SCU7-001-MW (1.77 m)	12/12/14	0.029	0.045	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.010	<0.01	0.030	0.024	<0.01	<0.05	<0.05	<0.2	<0.01	0.026	0.019
	12/10/15	<0.010	0.011	0.017	0.026	0.025	0.015	0.017	0.013	0.013	0.031	<0.010	0.064	0.012	0.013	<0.050	<0.050	<0.20	<0.010	0.056	0.053
	12/2/16	0.012	0.054	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.014	0.028	<0.010	<0.050	<0.050	<0.20	<0.010	0.014	0.011
	12/15/17	<0.010	0.013	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.012	<0.010	<0.010	<0.050	<0.050	<0.20	<0.010	<0.010	0.011
	12/7/18	0.29	0.051	0.035	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.024	0.26	<0.010	0.095	0.12	<0.20	<0.010	0.22	0.017

TABLE A-2
LTMM GROUNDWATER MONITORING EVENT NOVEMBER AND DECEMBER 2018 OHP AND HE
GROUNDWATER ANALYTICAL RESULTS - PAHs

Sample Location (Monitor Well Depth)	Sample Date	Acenaphthene	Acenaphthylene	Anthracene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(j)fluoranthene	Benzo(k)fluoranthene[4]	Chrysene	Dibenzo(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-cd)pyrene	1-Methylnaphthalene	2-Methylnaphthalene	Naphthalene	Perylene	Phenanthrene	Pyrene
Units		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	ug/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
NS Tier 1 EQS[1]		600 [2]	750	2.4 [2]	4.7 [2]	0.81 [2]	0.75 [2]	0.2 [2]	-	0.4 [2]	1 [2]	0.52 [2]	130 [2]	400 [2]	0.2 [2]	38000	38000	7000	-	580 [2]	68 [2]
SCU7-003-MW (1.01 m)	03/29/13[L]	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
	03/29/13	0.016	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	NM	<0.01	<0.01	<0.01	0.014	<0.01	<0.01	<0.05	<0.05	<0.2	<0.01	0.011	0.013
	07/17/13	0.097	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.031	0.059	<0.01	0.18	0.11	2.5	<0.01	0.13	0.026
	11/07/13	0.013	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.013	<0.01	<0.01	<0.05	<0.05	<0.2	<0.01	<0.01	0.012
	12/12/14	0.060	0.011	0.026	0.044	0.025	0.022	0.012	0.013	0.013	0.047	<0.01	0.19	0.047	<0.01	<0.05	<0.05	<0.2	<0.01	0.10	0.11
	12/10/15	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.015	<0.010	<0.010	<0.050	<0.050	<0.20	<0.010	0.014	0.018
	11/30/16	0.096	0.013	0.027	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.035	0.087	<0.010	0.11	0.19	0.68	<0.010	0.1	0.022
	12/15/17	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.050	<0.050	<0.20	<0.010	<0.010	<0.010
	12/11/18	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.022	<0.010	<0.010	<0.050	<0.050	<0.20	<0.010	0.034	0.016

NOTES:

FD - Field Duplicate
L - Lab Duplicate
R - Sample analysis repeated due to a laboratory error.
FDR - Field duplicate sample analysis repeated due to a laboratory error.
NM - Not measured or not analyzed; lab duplicates do not analyze for all parameters.
µg/L - micrograms per litre
- No applicable guideline criteria.
1 - Nova Scotia Environment (NSE) Tier I Environmental Quality Standards (EQS) for Groundwater (Coarse Grained Soil, Non-potable Groundwater Commercial/Industrial Site) 2013 (Revised January 2015)
2 - Ontario Ministry of Environment, Table 3 Full Depth Generic Site Condition Standards in a Non-potable Groundwater (Coarse Grained Soil) 2011
3 - COTS-001-MWA could not be sampled during the December 2014 event due to insufficient water. COTS-001-MWB added to the LTMM in 2015 in place of COTS-001-MWA.
4 - Benzo(j)fluoranthene was historically not included in PAH analysis.
5 - Bold and Shaded Exceeds NSE Tier I EQS or default MOE standards when no Tier I EQS is available.
6 - *Italics indicates laboratory detection limit elevated above criteria*
7 - This summary is to be used in conjunction with, not as a replacement of, the Laboratory Certificates of Analysis, which contain QA/QC information
8 - Elevated PAH RDL(s) due to matrix / co-extractive interference.
9 - Elevated PAH RDL(s) due to sample dilution.
10 - A possible seal failure is suspected in MCES-001-MWB. Further investigative work is being implemented and well replacement may be necessary.

TABLE A-3 LTMM GROUNDWATER MONITORING EVENT NOVEMBER AND DECEMBER 2018
OHP AND HE GROUNDWATER ANALYTICAL RESULTS - INORGANIC CHEMISTRY

Sample Location (Monitor Well Depth)	Sample Date	Na	K	Ca	Mg	ALK	SO4	Cl	SiO2	OPO4	P	NO3	NO2	NO2-NO3	NH3	Colour	TOC	TURBIDITY	CONDUCTIVITY	pH	HARDNESS	BICARB ALK	CARB ALK	TDS	Anion Sum	Ion Bal_	Langelier Ind_ (@20C)	Langelier Ind_ (@4C)	Sat_ pH (@20C)	Sat_ pH (@4C)
Units		µg/L	µg/L	µg/L	µg/L	mg/L	mg/L	mg/L	mg/L	mg/L	µg/L	mg/L	mg/L	mg/L	mg/L	TCU	mg/L	NTU	µS/cm	pH	mg/L	mg/L	mg/L	mg/L	me/L	%	unitless	unitless	unitless	unitless
MOE Table 3[2]		2300000	-	-	-	-	-	2300000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
COBB-004-MWA (1.32 m)	03/27/13	7800	<3000	100000	4300	90	200	18	19	0.014	<500	0.19	<0.01	0.19	<0.05	<5	2.3	0.5	600	7.8	270	89	<1	402	6.38	4.76	0.314	0.065	7.49	7.74
	07/26/13	8990	3460	119000	5010	120	190	19	27	0.021	<100	<0.05	<0.01	<0.05	<0.05	<5	4.1	1.7	670	7.8	320	120	<1	444	6.84	0.07	0.489	0.241	7.31	7.56
	11/06/13	6800	3100	76000	2500	62	130	14	27	0.029	<100	<0.05	<0.01	<0.05	<0.05	15	6.7	1	430	7.65	200	62	<1	300	4.36	0	-0.096	-0.345	7.75	8
	12/15/14	8000	3500	130000	4800	100	210	16	27	0.022	<100	0.16	<0.01	0.16	<50	10	7.4	1.8	680	7.56	340	100	<1	460	6.9	3.02	0.212	-0.036	7.35	7.59
	12/9/15	8000	3700	140000	5900	160	210	14	24	0.02	<100	<0.050	<0.010	<0.050	0.094	5	NM	2.2	720	7.72	370	150	<1.0	500	7.86	0.32	0.583	0.335	7.14	7.39
	12/02/16	8900	4200	170000	6900	140	300	20	26	0.023	<100	<0.050	<0.010	<0.050	0.052	10	5.6	3.8	830	7.52	460	140	<1.0	630	9.72	0.26	0.424	0.177	7.09	7.34
	12/08/17	11000	4600	210000	9200	210	310	22	27	0.015	<100	0.076	<0.010	0.076	0.51	5.3	7.0	4.5	1100	7.69	560	210	<1.0	730	11.4	1.93	0.829	0.582	6.86	7.11
	12/03/18	10000	4200	220000	7700	180	380	18	27	0.013	<100	<0.050	<0.010	<0.050	0.060	5.5	7.6	0.71	1000	7.68	580	180	<1.0	770	12.0	0.540	0.769	0.523	6.92	7.16
COBC-001-MWA (1.80 m)	03/15/13[L]	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	770	7.4	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
	03/15/13	29000	2000	110000	5700	170	140	64	8.5	<0.01	<100	<0.05	<0.01	<0.05	0.47	65	3	32	770	7.4	300	170	<1	470	8.17	4.08	0.22	-0.028	7.18	7.43
	07/26/13[LFD]	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	720	7.26	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
	07/26/13[FD]	34400	2300	98800	5930	150	120	73	11	0.013	212	<0.05	<0.01	<0.05	0.9	<5	4	96	720	7.27	270	150	<1	446	7.46	0	-0.024	-0.272	7.29	7.54
	07/26/13	34000	2260	107000	6110	120	120	73	11	<0.01	193	<0.05	<0.01	<0.05	0.9	<5	3.4	110	740	7.33	290	150	<1	454	7.56	1.69	0.086	-0.162	7.24	7.49
	11/07/13[L]	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	1200	7.25	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
	11/07/13	41000	2300	190000	12000	150	350	67	8.6	<0.01	140	<0.05	<0.01	<0.05	0.4	5.2	2.5	40	1200	7.24	520	150	<1	770	12.2	0.85	0.183	-0.063	7.06	7.3
	12/12/14	39000	2400	130000	7200	160	170	78	11	<10	<100	0.1	0.017	0.12	0.69	6.5	3.8	49	860	7.1	350	160	<1	550	9.12	1.22	-0.06	-0.308	7.16	7.41
	12/10/15	40000	2600	130000	7700	200	170	77	10	<0.010	160	<0.050	<0.010	<0.050	0.7	6	NM	57	880	7.32	360	200	<1.0	570	9.69	2.76	0.249	0.002	7.08	7.32
	12/02/16	45000	2600	270000	16000	170	560	68	8.6	0.012	<100	<0.050	0.013	<0.050	0.66	<5.0	3.1	31	1400	7.3	730	170	<1.0	1100	16.9	0.21	0.402	0.157	6.9	7.15
	12/11/17	42000	2600	170000	9900	160	430	76	9	<0.010	<100	<0.05	<0.010	<0.050	1.1	<5.0	4.3	42	1300	7.55	460	160	<1.0	840	14.4	12.1	0.455	0.208	7.10	7.34
	12/07/18	42000	2400	130000	7800	160	220	83	11	<0.010	150	<0.050	0.010	<0.050	0.78	5.7	4.1	61	920	7.23	360	160	<1.0	600	10.1	3.90	0.0650	-0.182	7.17	7.41
COBC-002-MWA (4.12 m)	03/15/13	160000	2500	170000	15000	48	270	320	3.3	<0.01	<100	0.23	<0.01	0.23	<0.05	<5	1.2	2.2	1600	6.3	500	48	<1	971	15.6	3.68	-1.33	-1.57	7.63	7.87
	07/18/13	115000	2440	129000	13900	51	170	230	4.6	<0.01	<100	0.35	<0.01	0.35	<0.05	<5	1.5	1.3	1400	6.19	380	51	<1	696	11	6.96	-1.5	-1.75	7.69	7.94
	11/05/13	150000	2800	150000	16000	50	250	310	4.9	<0.01	<100	0.25	<0.01	0.25	<0.05	<5	1.4	4.1	1600	5.98	450	50	<1	920	14.9	2.43	-1.68	-1.92	7.66	7.90
	12/12/14	110000	2200	130000	13000	61	300	190	4.4	<10	<100	0.15	<0.01	0.15	0.057	<5	1.5	1.4	1300	5.99	380	61	<1	790	12.8	1.38	-1.64	-1.88	7.62	7.87
	12/10/15	120000	2500	140000	16000	48	180	320	3.2	<0.010	<100	0.27	<0.010	0.27	0.056	<5.0	NM	4.1	1500	6.25	410	48	<1.0	820	13.9	0.62	-1.45	-1.7	7.7	7.94
	11/22/16	160000	2600	150000	16000	58	230	340	3.8	0.011	<100	0.5	<0.010	0.5	0.056	<5.0	1.4	7.1	1600	6.29	430	58	<1.0	930	15.4	0.19	-1.32	-1.57	7.62	7.86
	11/22/16	160000	2600	150000	16000	58	230	340	3.8	0.011	<100	0.5	<0.010	0.5	0.056	<5.0	1.4	7.1	1600	6.29	430	58	<1.0	930	15.4	0.19	-1.32	-1.57	7.62	7.86
	12/02/17	210000	3300	190000	22000	53	190	590	2.9	<0.010	<100	0.21	<0.010	0.21	<0.050	<5.0	1.8	1.8	2300	6.37	570	53	<1.0	1300	21.9	2.53	-1.20	-1.44	7.57	7.82
	12/03/18	260000	3300	190000	20000	66	200	620	2.8	<0.010	<100	0.17	<0.010	0.17	<0.050	<5.0	1.8	2.7	2400	6.44	550	66	<1.0	1300	23.0	1.35	-1.06	-1.31	7.50	7.74
COBC-004-MWA (3.86 m)	03/15/13	100000	5000	320000	28000	220	710	170	17	0.07	<100	<0.05	0.013	<0.05	<0.05	<5	1.2	<0.1	1900	7.6	920	210	<1.0	1480	23.9	2.09	0.837	0.593	6.76	7.01
	07/18/13[L]	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	1600	7.82	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
	07/18/13	86300	5180	221000	35800	190	360	160	18	0.066	117	0.21	<0.01	0.21	0.18	<5	1.5	0.24	1700	7.8	700	190	1.1	999	15.7	6.45	0.88	0.634	6.92	7.17
	11/05/13	43000	4100	83000	14000	120	110	52	22	0.092	200	0.44	<0.01	0.44	<0.05	5.3	0.87	4.3	610	7.89	270	120	<1.0	410	6.26	7.74	0.449	0.201	7.44	7.69
	12/12/14	29000	2200	34000	5100	99	20	41	13	0.086	140	0.18	<0.01	0.18	<50	<5	0.53	3	350	7.83	110	98	<1	210	3.59	1.84	-0.035	-0.285	7.86	8.11
	12/10/15	32000	2300	34000	4800	100	18	49	13	0.13	210	0.079	<0.010	0.079	0.05	<5.0	NM	1.1	370	7.92	110	100	<1.0	220	3.85	3.77	0.072	-0.178	7.84	8.09
	11/25/16	34000	4100	120000	18000	130	240	54	21	0.19	200	0.53	<0.010	0.53	0.069	<5.0	1.5	8	780	7.81	360	130	<1.0	570	9.13	1.5	0.519	0.272	7.3	7.54
	12/07/17	90000	4800	150000	21000	160	280	140	21	0.16	180	0.053	<0.010	0.053	0.068	<5.0	1.9	2.0	1300	7.93	460	160	1.3	810	13.1	0.340	0.792	0.545	7.14	7.39
	12/03/18	50000	4100	140000	24000	180	290	76	24	0.16	200	1.5	<0.010	1.5	<0.050	<5.0	1.4	1.3	1100	7.94	460	180	1.5	730	12.0	2.13	0.836	0.589	7.1	7.35
COBP-006-MWA (2.12 m)	03/27/13[FDL]	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	6	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
	03/27/13[FD]	14000	3900	150000	17000	220	300	25	14	<0.01	<500	<0.05	<0.01	<0.05	1.00	370	6.4	250	940	6.9	440	220	<1	683	11.2	3.41	-0.094	-0.341	6.99	7.24
	03/27/13[L]	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	1.00	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
	03/27/13	14000	3900	150000	18000	220	300	25	14	<0.01	<500	<0.05	<0.01	<0.05	0.99	310	7.4	270	940	6.9	460	220	<1	690	11.2	1.81	-0.077	-0.324	6.98	7.22
	07/26/13	15300	4090	169000	21000	210	320	25	15	<0.01	<100	<0.05	<0.01	<0.05	0.89	37	6.7	190	1000	7.16	510	210	<1	723	11.5	1.25	0.192	-0.054	6.97	7.21
	11/06/13	14000	4300	170000	21000	200	330	24	14	<0.01	110	<0.05	<0.01	<0.05	0.92	48	5.1	170	1000	7.01	520	200	<1	740	11.6	0.94	0.046	-0.200	6.96	7.21
	12/15/14	21000	4000	130000	17000	250	150	34	16	<10	130	<0.05	<0.01	<0.05	1.2	17	7.8	170	820	6.95	400	250	<1	550	8.98	4.42	-0.007	-0.254	6.96	7.2
	12/9/15[FD]	19000	3900	130000	15000	250	140	36	16	0.012	120	<0.050	<0.010	<0.050	1.1	<5.0	NM	240	800	7.11	380	250	<1.0	530	8.85	1.88	0.122	-0.126	6.99	7.23
	12/9/15	19000	3800	120000	15000	260	120	35	16	0.013	120	<0.050	<0.010	<0.050	1.1	11	NM	270	790	7.13	370	260	<1.0	510	8.65	2.7	0.166	-0.082	6.97	7.22
	11/28/16	21000	4200	110000	15000	280	98	38	16	0.016	<100	<0.050	<0.010	<0.050	1.4	5.6	12	280	720	7.06	350	280	<1.0	500	8.78	0.8	0.104	-0.144	6.96	7.2
	12/21/17	21000	4000	110000	14000	270	81	40	16	<0.01	110	<0.050	<0.010	<0.050	1.3	6.8	11	170	770	7.29	340	270	<1.0	470	8.30	0.42	0.316	0.068	6.98	7.23
	12/3/18[FD]	24000	4000	110000	14000	270	77	44	15	<0.010	110	<0.050	<0.010	<0.050	1.2	16	8.5	170	730	7.33	340	270	<1.0	470	8.22	1.26	0.340	0.092	6.99	7.24
	12/3/18	24000	4000	110000	14000	270	79	45	15	<0.010	130	<0.050	<0.010	<0.050	1.2	80	8.8	160	760	7.73	330	260	1.3	470	8.21	0.610	0.735	0.487	7.00	7.25

TABLE A-3 LTMM GROUNDWATER MONITORING EVENT NOVEMBER AND DECEMBER 2018
OHP AND HE GROUNDWATER ANALYTICAL RESULTS - INORGANIC CHEMISTRY

Sample Location (Monitor Well Depth)	Sample Date	Al	Sb	As	Ba	Be	Bi	B	Cd	Cr	Co	Cu	Fe	Pb	Mn	Hg	Mo	Ni	Se	Ag	Sr	Tl	Sn	Ti	U	V	Zn
Units		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
MOE Table 3[2]		-	20000	1900	29000	67	-	45000	2.7	810	66	87	-	25	-	0.29	9200	490	63	1.5	-	510	-	-	420	250	1100
COBB-004-MWA (1.32 m)	03/27/13	<25	<5	<3	44	<2.5	<10	<500	0.12	<5	<5	<10	<500	<5	<20	0.013	<20	<15	<5	<0.5	430	<4	<100	<15	1.8	<10	26
	07/26/13	12.9	<1	3.3	56.1	<1	<2	75	0.096	<1	<0.4	<2	77	<0.5	972	NM	19	2.2	<1	<0.1	481	<0.1	<2	<2	2.03	<2	16
	11/06/13	10	<1	3.3	37	<1	<2	59	0.1	<1	<0.4	4.4	<50	<0.5	390	NM	7.8	2.5	<1	<0.1	360	<0.1	<2	<2	0.6	<2	12
	12/15/14	27	<1	2.2	57	<1	<2	55	0.46	<1	<0.4	5.7	<50	<0.5	41	<0.013	3.2	<2	1.5	<0.1	600	<0.1	<2	<2	1.6	<2	20
	12/9/15	23	<1.0	3	76	<1.0	<2.0	65	0.058	<1.0	1.1	<2.0	360	<0.50	2300	<0.013	13	3.5	<1.0	<0.10	600	<0.10	<2.0	<2.0	2.7	<2.0	12
	12/02/16	10	<1.0	3.2	87	<1.0	<2.0	66	0.03	<1.0	0.76	2.3	320	<0.50	1700	<0.013	11	2.5	<1.0	<0.10	740	<0.10	<2.0	<2.0	3.2	<2.0	48
	12/08/17	5.5	<1.0	2.9	94	<1.0	<2.0	82	0.069	<1.0	0.60	<2.0	280	<0.50	2300	<0.013	12	<2.0	<1.0	<0.10	880	<0.10	<2.0	<2.0	8.2	<2.0	<5.0
	12/03/18	<5.0	<1.0	2.3	89	<1.0	<2.0	85	0.12	<1.0	0.60	<2.0	170	<0.50	1300	<0.013	13	2.2	<1.0	<0.10	880	<0.10	<2.0	<2.0	8.0	<2.0	<5.0
COBC-001-MWA (1.80 m)	03/15/13[L]	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	<0.013	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
	03/15/13	16	<1	1.6	33	<0.5	<2.0	<100	0.056	<1.0	<1.0	<2.0	2600	<1.0	950	<0.013	<4	<3	<1.0	<0.1	3500	<0.8	<20	<3	<0.15	<2.0	37
	07/26/13[LFD]	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
	07/26/13[FD]	293	<1.0	3.9	43.9	<1.0	<2.0	<50	0.028	<1.0	0.53	<2.0	11900	<0.5	1060	NM	<2.0	<2.0	<1.0	<0.1	2380	<0.1	<2.0	<2.0	0.15	2.1	35.5
	07/26/13	23.3	<1.0	3.8	42.2	<1.0	<2.0	<50	<0.017	<1.0	0.48	<2.0	11100	<0.5	1080	NM	<2.0	<2.0	<1.0	<0.1	2550	<0.1	<2.0	<2.0	<0.1	<2.0	19.2
	11/07/13[L]	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
	11/07/13	21	<1.0	2.7	34	<1.0	<2.0	<50	<0.01	<1.0	0.61	<2.0	4400	<0.5	1600	NM	<2.0	<2.0	<1.0	<0.1	7300	<0.1	<2.0	<2.0	0.17	<2.0	36
	12/12/14	10	<1	2	50	<1	<2	<50	0.058	<1	0.44	<2	3900	<0.5	1200	<0.013	<2	<2	<1	<0.1	3600	<0.1	<2	<2	<0.1	<2	20
	12/10/15	29	<1.0	2.1	58	<1.0	<2.0	<50	0.095	<1.0	0.48	<2.0	4400	<0.50	1300	<0.013	<2.0	<2.0	<1.0	<0.10	3800	<0.10	<2.0	<2.0	0.12	<2.0	21
	12/02/16	7.7	<1.0	2.1	42	<1.0	<2.0	<50	0.058	<1.0	0.86	<2.0	3800	1.3	2500	<0.013	<2.0	<2.0	<1.0	<0.10	10000	<0.10	<2.0	<2.0	0.17	<2.0	61
	12/11/17	<5.0	<1.0	1.8	71	<1.0	<2.0	50	0.054	<1.0	0.42	<2.0	3300	<0.50	1700	<0.013	<2.0	<2.0	<1.0	<0.10	5000	<0.10	<2.0	<2.0	0.11	<2.0	11
	12/07/18	<5.0	<1.0	2.3	76	<1.0	<2.0	<50	<0.010	<1.0	0.47	<2.0	4900	<0.50	1400	<0.013	<2.0	<2.0	<1.0	<0.10	3700	<0.10	<2.0	<2.0	<0.10	<2.0	29
COBC-002-MWA (4.12 m)	03/15/13	47	<1	<0.6	15	<0.5	<2	<100	0.6	<1	<1	30	<100	<1	67	<0.013	<4	6.2	10	<0.1	730	<0.8	<20	<3	<0.15	<2	370
	07/18/13	40.2	<1	<1	12.7	<1	<2	82	0.203	<1	0.46	40.4	84	0.93	56.1	NM	<2	2.2	8.4	<0.1	547	<0.1	<2	<2	<0.1	<2	189
	11/05/13	95	<1	<1	14	<1	<2	87	0.26	<1	0.85	46	<50	0.92	80	NM	<2	5.3	7.6	<0.1	610	<0.1	<2	<2	<0.1	<2	240
	12/12/14	60	<1	<1	11	<1	<2	79	0.47	<1	0.41	7.2	<50	0.57	51	<0.013	<2	<2	8.3	<0.1	500	<0.1	<2	<2	<0.1	<2	110
	12/10/15	36	<1.0	<1.0	17	<1.0	<2.0	77	0.17	<1.0	<0.40	5.9	57	0.63	62	<0.013	<2.0	<2.0	5.8	<0.10	600	<0.10	<2.0	<2.0	<0.10	<2.0	84
	11/22/16	66	<1.0	<1.0	15	<1.0	<2.0	79	0.21	<1.0	0.75	44	<50	0.61	98	<0.013	<2.0	2.5	6.9	<0.10	650	<0.10	<2.0	<2.0	<0.10	<2.0	160
	11/22/16	66	<1.0	<1.0	15	<1.0	<2.0	79	0.21	<1.0	0.75	44	<50	0.61	98	<0.013	<2.0	2.5	6.9	<0.10	650	<0.10	<2.0	<2.0	<0.10	<2.0	160
	12/02/17	27	<1.0	<1.0	21	<1.0	<2.0	75	0.21	<1.0	<0.40	9.6	<50	<0.50	59	<0.013	<2.0	<2.0	5.6	<0.10	950	<0.10	<2.0	<2.0	<0.10	<2.0	140
	12/03/18	20	<1.0	<1.0	21	<1.0	<2.0	69	0.21	<1.0	<0.40	8.8	<50	<0.50	53	<0.013	<2.0	<2.0	5.1	<0.10	850	<0.10	<2.0	<2.0	<0.10	<2.0	120
COBC-004-MWA (3.86 m)	03/15/13	6.4	1.9	4.1	20	<0.5	<2.0	<100	0.064	<1.0	<1.0	<2.0	<100	<1.0	270	<0.013	4.1	4.3	1.2	<0.10	710	<0.80	<20	<3.0	1	13	23
	07/18/13[L]	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
	07/18/13	8.4	1.5	3.6	15.3	<1.0	<2.0	93	0.054	<1.0	<0.4	4.2	72	<0.5	908	NM	7.5	<2.0	1.2	<0.10	682	<0.10	<2.0	<2.0	0.6	10.6	24.7
	11/05/13	16	5.0	5.4	8.5	<1.0	<2.0	67	0.043	<1.0	<0.4	<2.0	370	<0.5	310	NM	4.2	2.4	1.7	<0.10	200	<0.10	<2.0	<2.0	0.21	9.2	41
	12/12/14	11	1.5	4.6	3.9	<1	<2	<50	0.12	<1	<0.4	2.9	<50	<0.5	7.6	<0.013	<2	<2	<1	<0.1	210	<0.1	<2	<2	0.14	8.6	18
	12/10/15	7.7	<1.0	3.9	5.1	<1.0	<2.0	<50	0.037	<1.0	<0.40	2.6	<50	<0.50	<2.0	<0.013	<2.0	<2.0	<1.0	<0.10	300	<0.10	<2.0	<2.0	0.17	7.3	17
	11/25/16	9.4	2.5	4.6	41	<1.0	<2.0	80	0.023	<1.0	<0.40	6.6	<50	<0.50	35	<0.013	3.8	<2.0	1.7	<0.10	400	<0.10	<2.0	<2.0	0.59	13	41
	12/07/17	19	1.0	5.2	25	<1.0	<2.0	86	0.036	<1.0	<0.40	2.4	<50	<0.50	160	<0.013	7.3	<2.0	<1.0	<0.10	510	<0.10	<2.0	<2.0	0.64	15	20
	12/03/18	340	2.5	4.9	30	<1.0	<2.0	80	0.096	1.0	<0.40	3.6	<50	<0.50	21	<0.013	3.8	<2.0	8.7	<0.10	400	<0.10	<2.0	<2.0	0.68	11	20
COBP-006-MWA (2.12 m)	03/27/13[FDL]	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
	03/27/13[FD]	31	<5	3.1	30	<2.5	<10	<500	<0.085	<5	<5	<10	23000	<5	8400	0.022	<20	<15	<5	1	500	<4	<100	<15	<0.75	<10	34
	03/27/13[L]	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
	03/27/13	<25	<5	<3	31	<2.5	<10	<500	<0.085	<5	<5	<10	23000	<5	8400	<0.013	<20	<15	<5	<0.5	510	<4	<100	<15	<0.75	<10	32
	07/26/13	33.9	<1	2.7	32.8	<1	<2	71	0.06	<1	1.53	<2	20700	0.74	10500	NM	<2	<2	<1	<0.1	501	<0.1	<2	<2	0.26	<2	35
	11/06/13	15	<1.0	3.4	30.0	<1.0	<2.0	64	<0.01	<1	0.93	<2	20000	<0.50	10000	NM	<2	<2	<1	<0.1	550	<0.1	<2	<2	0.18	<2	35
	12/15/14	26	<1	1.4	37	<1	<2	61	0.18	<1	<0.40	<2	19000	<0.5	6200	<0.013	<2	<2	<1	<0.1	480	<0.1	<2	<2	<0.1	<2	29
	12/9/15[FD]	<5.0	<1.0	<1.0	37	<1.0	<2.0	59	0.012	<1.0	<0.40	<2.0	19000	<0.50	5800	<0.013	<2.0	<2.0	<1.0	<0.10	440	<0.10	<2.0	<2.0	<0.10	<2.0	27
	12/9/15	6.6	<1.0	<1.0	36	<1.0	<2.0	61	0.016	<1.0	<0.40	<2.0	19000	<0.50	5800	<0.013	<2.0	<2.0	<1.0	<0.10	440	<0.10	<2.0	<2.0	<0.10	<2.0	28
	11/28/16	9	<1.0	<1.0	58	<1.0	<2.0	62	<0.010	<1.0	<0.40	<2.0	16000	<0.50	5300	<0.013	<2.0	<2.0	<1.0	<0.10	450	<0.10	<2.0	<2.0	<0.10	<2.0	47
	12/21/17	9.1	<1.0	<1.0	75	<1.0	<2.0	57	0.067	<1.0	<0.40	<2.0	15000	<0.50	5000	<0.013	<2.0	<2.0	<1.0	<0.10	450	<0.10	<2.0	<2.0	<0.10	<2.0	56
	12/3/18[FD]	10	<1.0	<1.0	110	<1.0	<2.0	60	0.15	<1.0	<0.40	<2.0	13000	<0.50	4900	<0.013	<2.0	<2.0	<1.0	<0.10	470	<0.10	<2.0	<2.0	<0.10	<2.0	52
	12/3/18	9.8	<1.0	<1.0	110	<1.0	<2.0	59	0.086	<1.0	<0.40	<2.0	13000	<0.50	4800	<0.013	<2.0	<2.0	<1.0	<0.10	460	<0.10	<2.0	<2.0	<0.10	<2.0	52

TABLE A-3 LTMM GROUNDWATER MONITORING EVENT NOVEMBER AND DECEMBER 2018
OHP AND HE GROUNDWATER ANALYTICAL RESULTS - INORGANIC CHEMISTRY

Sample Location (Monitor Well Depth)	Sample Date	Na	K	Ca	Mg	ALK	SO4	Cl	SiO2	OPO4	P	NO3	NO2	NO2-NO3	NH3	Colour	TOC	TURBIDITY	CONDUCTIVITY	pH	HARDNESS	BICARB ALK	CARB ALK	TDS	Anion Sum	Ion Bal_	Langelier Ind_ (@20C)	Langelier Ind_ (@4C)	Sat_ pH (@20C)	Sat_ pH (@4C)
Units		µg/L	µg/L	µg/L	µg/L	mg/L	mg/L	mg/L	mg/L	mg/L	µg/L	mg/L	mg/L	mg/L	mg/L	TCU	mg/L	NTU	µS/cm	pH	mg/L	mg/L	mg/L	mg/L	me/L	%	unitless	unitless	unitless	unitless
MOE Table 3[2]		2300000	-	-	-	-	-	2300000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
COBT-003-MWB (3.86 m)	03/13/12[L]	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	0.98	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
	03/13/12[FD]	99000	2700	100000	11000	210	81	180	13	<0.01	<100	<0.05	<0.01	<0.05	<0.05	7.9	0.94	1	1100	7.7	300	210	1	621	11.1	3.73	0.535	0.288	7.17	7.41
	03/13/12	100000	2700	100000	12000	210	81	180	13	0.014	<100	<0.05	<0.01	<0.05	<0.05	9	<0.5	1.4	1100	7.7	300	210	1	620	11	2.89	0.535	0.288	7.17	7.41
	06/07/12	120000	3400	99000	12000	210	89	210	13	<0.01	<100	<0.05	<0.01	<0.05	0.064	<5	<0.5	0.96	1100	7.6	300	210	<1	677	11.9	2.36	0.408	0.161	7.19	7.44
	09/12/12[L]	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	1.2	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
	09/12/12	130000	3300	100000	12000	210	87	230	12	<0.01	<100	<0.05	<0.01	<0.05	0.061	<5	0.55	1.3	1200	7.6	300	210	<1	695	12.4	3.3	0.409	0.162	7.19	7.44
	12/12/12[L]	NM	2900	110000	NM	NM	NM	NM	13	NM	<100	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
	12/12/12	110000	3000	100000	12000	210	85	220	13	<0.01	<100	<0.05	<0.01	<0.05	<0.05	12	<0.5	0.37	1200	7.7	310	210	1	674	12.1	4.79	0.538	0.291	7.16	7.41
	03/19/13	130000	3200	120000	12000	210	89	220	12	<0.01	<100	<0.05	<0.01	<0.05	0.06	<5	<0.5	0.8	1200	7.7	340	210	1	717	12.4	1.12	0.578	0.331	7.12	7.37
	07/18/13	111000	2910	104000	11900	210	80	180	13	<0.01	<100	0.052	<0.01	0.052	0.058	<5	0.54	0.43	1200	7.41	310	210	<1	638	11.2	0.41	0.26	0.013	7.15	7.4
	11/07/13	110000	3100	110000	13000	210	80	200	13	<0.01	<100	<0.05	<0.01	<0.05	<0.05	<5	<0.5	0.86	1200	7.31	330	210	<1	670	11.7	0.56	0.177	-0.07	7.13	7.38
	12/12/14	120000	3100	110000	13000	220	78	220	13	<10	<100	0.14	<0.01	0.14	0.074	<5	<0.5	1.3	1200	7.32	340	220	<1	700	12.2	0.62	0.222	-0.025	7.1	7.35
	12/9/15	110000	2800	110000	12000	230	76	200	13	0.012	<100	<0.050	<0.010	<0.050	0.14	<5.0	NM	1.3	1200	7.64	320	230	<1.0	670	11.9	2.11	0.549	0.302	7.09	7.34
	11/28/16	110000	3100	110000	12000	220	74	210	13	0.015	<100	0.052	<0.010	0.052	0.073	9.1	0.72	1.6	1100	7.55	320	220	<1.0	670	11.9	2.33	0.43	0.183	7.12	7.37
	12/07/17	100000	2900	110000	12000	210	69	200	13	<0.010	<100	<0.050	<0.010	<0.050	<0.050	<5.0	1.3	0.51	1200	7.64	320	210	<1.0	640	11.3	1.57	0.516	0.269	7.13	7.37
	12/03/18	97000	2700	110000	12000	220	74	190	14	<0.010	<100	<0.050	<0.010	<0.050	0.058	<5.0	1.1	0.53	1100	7.86	320	220	1.5	630	11.3	2.92	0.726	0.478	7.13	7.38
COCP-110-MW (2.31 m)	03/27/13[L]	NM	NM	NM	NM	NM	NM	NM	25	NM	<500	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
	03/27/13	14000	6900	110000	7600	140	130	59	25	<0.01	<500	0.11	<0.01	0.11	1.3	5.8	1.8	56	680	7.5	320	140	<1	449	7.18	1.37	0.235	-0.013	7.27	7.51
	07/18/13	17900	8680	139000	7800	170	130	62	37	<0.01	159	0.055	<0.01	0.055	2.3	7.9	3	79	860	7.44	380	170	<1	513	7.91	5.72	0.352	0.105	7.09	7.34
	11/06/13[L]	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	85	1000	7.4	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
	11/06/13	15000	9600	160000	10000	210	260	58	40	<0.01	240	0.076	0.012	0.088	2.5	17	5.5	85	1000	7.35	450	210	<1	690	11.3	4.87	0.392	0.145	6.96	7.21
	12/15/14	20000	10000	150000	11000	210	190	35	35	<10	170	0.15	0.012	0.16	1.2	9.2	5	73	880	7.48	430	210	<1	590	9.15	4.34	0.501	0.254	6.98	7.23
	12/9/15	29000	11000	150000	10000	190	220	61	34	0.019	<100	0.17	0.011	0.18	2.3	7.4	NM	70	980	7.5	410	190	<1.0	640	10.2	0.39	0.45	0.202	7.05	7.29
	11/28/16	24000	11000	120000	11000	180	150	55	35	0.041	140	0.18	<0.010	0.18	0.22	10	3	23	720	7.82	340	180	1.1	520	8.44	2.18	0.677	0.429	7.14	7.39
	12-8-17 FD	33000	12000	150000	13000	210	210	75	35	<0.01	310	0.16	<0.010	0.16	1.3	6	4.1	86	1000	7.69	430	210	<1.0	660	10.6	0.38	0.68	0.433	7.01	7.26
	12/8/17	33000	12000	150000	13000	210	200	75	34	<0.010	290	0.20	<0.010	0.20	1.4	5.7	4.1	69	990	7.67	420	210	<1.0	640	10.4	0.14	0.654	0.406	7.02	7.26
	12/3/18	28000	11000	140000	13000	200	210	62	31	<0.010	200	<0.050	<0.010	<0.050	1.0	6.3	6.1	68	930	7.80	410	200	1.2	620	10.0	1.16	0.750	0.502	7.05	7.30
CODT-008-MWB (1.63 m)	03/29/13	27000	5500	56000	1700	95	31	75	20	0.042	<100	0.56	0.087	0.65	0.1	23	4.9	36	420	9.1	150	84	10	275	4.71	5.49	1.36	1.11	7.74	7.99
	07/16/13	30400	10200	76500	1390	120	85	61	18	0.074	141	<0.05	0.015	0.056	0.79	52	12	120	570	8.53	200	110	3.6	354	5.82	2.11	1.03	0.781	7.5	7.75
	10/23/13	8700	5200	79000	1600	87	130	6.8	26	<0.01	<100	0.53	0.11	0.63	0.12	33	12	>1000	450	7.56	200	86	<1.0	310	4.63	0.43	-0.029	-0.278	7.59	7.84
	12/15/14	18000	7800	69000	330	80	58	31	23	<10	<100	0.23	0.15	0.39	0.31	20	3.6	1.8	460	10.9	170	38	5.5	260	3.73	8.91	2.04	1.79	8.83	9.08
	12/10/15	13000	8500	60000	190	74	97	17	18	0.03	110	0.24	0.37	0.61	0.37	46	NM	12	400	9.75	150	47	25	260	4.02	2.29	1.79	1.54	7.96	8.21
	11/30/16	40000	2300	38000	3500	100	12	87	6.1	0.067	<100	<0.050	0.011	<0.050	0.5	37	<5.0	16	470	7.55	110	100	<1.0	250	4.76	8.18	-0.267	-0.517	7.82	8.07
	12/07/17	13000	5200	75000	700	67	130	14	23	0.011	<100	0.81	0.19	1.0	<0.050	19	6.0	6.3	450	10.1	190	28	33	300	4.44	0.670	2.00	1.75	8.10	8.35
	12/05/18[FD]	45000	5200	83000	310	110	73	84	19	0.014	<100	0.096	0.20	0.29	0.37	17	<5.0 [9]	3.4	800	11.3 [8]	210	<1.0	2.0	370	6.02	2.11	0.812	0.564	10.50	10.7
	12/05/18	46000	5200	83000	310	110	71	87	19	0.014	<100	0.064	0.19	0.25	0.36	17	3.8	3.3	770	11.0 [8]	210	4.7	48	380	6.10	1.77	2.19	1.94	8.85	9.09
CODT-105-MW (2.94 m)	01/15/13	26000	13000	96000	13000	150	140	39	12	<0.01	<100	0.58	0.093	0.67	0.066	<5	2.3	1.5	640	8	290	150	1.4	433	7.12	1.73	0.714	0.466	7.29	7.53
	03/13/13	250000	17000	99000	400	78	110	460	11	<0.01	<100	0.094	0.46	0.55	0.27	8	2.3	8.2	1900	10.7	250	43	9.2	995	16.8	1.69	2.11	1.86	8.59	8.84
	07/16/13	56000	11500	74200	4980	42	140	91	10	<0.01	<100	0.22	0.065	0.29	0.39	9	3.1	1.6	660	8.89	210	39	2.8	413	6.3	4.33	0.902	0.654	7.99	8.24
	10/23/13	41000	14000	77000	4700	81	140	62	10	0.017	<100	0.5	0.31	0.8	0.32	11	3.5	1.8	640	9.10	210	72	8.5	410	6.42	0.39	1.40	1.15	7.70	7.95
	12/16/14	14000	7200	130000	18000	180	110	230	17	0.018	<100	0.53	0.037	1.1	<50	11	3.3	0.56	780	7.79	390	300	1.7	500	8.84	1.14	0.902	0.654	6.89	7.13
	12/10/15	36000	9300	69000	6200	62	140	32	13	0.013	<100	0.55	0.18	0.74	0.17	<5.0	NM	0.65	510	8.64	200	60	2.5	350	5.09	6.43	0.825	0.577	7.82	8.07
	11/23/16[FD]	41000	21000	110000	17000	230	140	36	15	0.025	<100	0.74	0.23	0.97	0.095	<5.0	2.9	1.4	760	7.87	330	230	1.6	520	8.59	2.22	0.781	0.533	7.09	7.34
	11/23/16	42000	21000	110000	17000	220	140	36	14	0.026	<100	0.76	0.22	0.98	0.08	<5.0	2.9	1.3	750	7.91	340	220	1.7	520	8.51	3.13	0.811	0.563	7.1	7.35
	12/07/17	64000	9900	56000	2600	61	130	81	16	0.010	<100	1.4	0.45	1.9	0.092	6.6	4.3	0.38	650	8.28	150	59	1.1	400	6.24	1.22	0.358	0.109	7.92	8.17
	12/05/18	15000	5400	160000	24000	370	160	13	18	0.029	<100	2.1	<0.010	2.1	<0.050	<5.0	3.1	0.39	940	7.87	510	370	2.6	630	11.2	1.45	1.16	0.914	6.71	6.96
CODT-201-MWA (3.61 m)	03/13/13[L]	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	1.9	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
	03/13/13	16000	2300	87000	8200	200	53	22	13	<0.01	<100	1.1	<0.01	1.1	<0.05	5.8	1.8	15	530	7.5	250	200	<1	327	5.83	0.43	0.316	0.067	7.18	7.43
	07/16/13	15700	2690	89300	9070	220	51	20	14	0.015	<100	1	<0.01	1	<0.05	<5	<5	140	560	7.44	260	220	<1	339	6.11	1.33	0.302	0.053	7.14	7.39
	10/23/13	14000	2100	75000	7300	190	42	9	11	0.012	<100	3.3	<0.01	3.3	<0.05	13	5.9	110	460	7.71	220	180	<1	290	5.08	0.990	0.434	0.185	7.28	7.53
	12/15/14	9900	2800	100000	11000	220	67	12	14	0.019	<100	3.2	<0.01	3.2	<50	6.5	3.8	240	570	7.57	290	220	<1	360	6.3	0.47	0.472	0.223	7.1	7.35
	12/9/15	9800	2900	120000	12000	280	79	11	15	0.022	<100	7.0	<0.010	7	0.11	<5.0	NM	160	680	7.54	350	280	<1.0	450	7.96	3.11	0.601	0.353	6.94	7.18
	11/28/16	8200	3200	100000	11000	250	58	11	15	0.027	<100	3.7	<0.010	3.7	<0.050	6.3	3.8	75	560	7.61	310	250	<1.0	380	6.8	1.64	0.588	0.339	7.02	7.27
	12/05/17	9400	3100	94000	10000	230	53	9.4	15	0.021	<100	4.2	<0.010	4.2	<0.050	<5.0	<5.0	160	580	7.68	280	230	1.1	350	6.36	2.66	0.591	0.343	7.09	7.34
	12/05/18	7400	2900	100000	9900	210	79	16	15	0.020	<100	1.3	<0.010	1.3	<0.050	<5.0	3.4	7.7	580	7.86	300	200	1.4	360	6.32	0.240	0.748	0.499	7.12	7.37

TABLE A-3 LTMM GROUNDWATER MONITORING EVENT NOVEMBER AND DECEMBER 2018
OHP AND HE GROUNDWATER ANALYTICAL RESULTS - INORGANIC CHEMISTRY

Sample Location (Monitor Well Depth)	Sample Date	Al	Sb	As	Ba	Be	Bi	B	Cd	Cr	Co	Cu	Fe	Pb	Mn	Hg	Mo	Ni	Se	Ag	Sr	Tl	Sn	Ti	U	V	Zn
Units		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
MOE Table 3[2]		-	20000	1900	29000	67	-	45000	2.7	810	66	87	-	25	-	0.29	9200	490	63	1.5	-	510	-	-	420	250	1100
COBT-003-MWB (3.86 m)	03/13/12[L]	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
	03/13/12[FD]	<5	0.51	3.4	42	<0.5	<2	<100	<0.017	<1	<1	<2	210	<1	2600	<0.013	<4	<3	<1	<0.1	1300	<0.8	<20	<3	0.45	<2	6.7
	03/13/12	23	<0.4	3.5	43	<0.5	<2	<100	<0.017	<1	<1	<2	220	<1	2700	<0.013	<4	<3	<1	<0.1	1300	<0.8	<20	<3	0.45	<2	7.3
	06/07/12	<5	<1	4.2	70	<0.5	<2	<100	<0.017	<1	<1	<2	170	<1	2000	<0.013	<4	<3	1.2	<0.1	1500	<0.8	<20	<3	0.22	<2	29
	09/12/12[L]	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
	09/12/12	<5	<1	3.7	67	<0.5	<2	<100	0.055	<1	<1	<2	170	<1	2000	<0.013	<4	<3	<1	<0.1	1500	<0.8	<20	<3	0.24	<2	16
	12/12/12[L]	13	<1	3.5	42	<0.5	<2	<100	0.034	<1	<1	<2	110	<1	2300	NM	<4	<3	<1	<0.1	1400	<0.8	<20	<3	0.28	<2	7.9
	12/12/12	14	<1	3.5	42	<0.5	<2	<100	0.034	<1	<1	<2	110	<1	2300	<0.013	<4	<3	<1	<0.1	1500	<0.8	<20	<3	0.29	<2	8.1
	03/19/13	<5	<1	3	57	<0.5	<2	<100	0.02	<1	<1	<2	140	<1	2100	<0.013	<4	<3	<1	<0.1	1700	<0.8	<20	<3	0.3	<2	20
	07/18/13	5.4	<1	3.7	42.4	<1	<2	62	0.018	<1	0.44	<2	159	<0.5	2170	NM	<2	<2	<1	<0.1	1500	<0.1	<2	<2	0.22	<2	21.4
	11/07/13	20	<1	3.8	43	<1	<2	61	0.02	<1	0.53	<2	190	<0.5	2200	NM	<2	<2	<1	<0.1	1400	<0.1	<2	<2	0.27	<2	22
	12/12/14	20	<1	3.4	56	<1	<2	64	1.7	<1	0.42	<2	240	<0.5	2300	<0.013	<2	<2	<1	<0.1	1500	<0.1	<2	<2	0.26	<2	20
	12/9/15	<5.0	<1.0	3	43	<1.0	<2.0	64	0.039	<1.0	0.41	<2.0	200	<0.50	2400	<0.013	<2.0	<2.0	<1.0	<0.10	1400	<0.10	<2.0	<2.0	0.28	<2.0	15
	11/28/16	5.9	<1.0	2.5	46	<1.0	<2.0	65	<0.010	<1.0	<0.40	<2.0	220	<0.50	2200	<0.013	<2.0	<2.0	<1.0	<0.10	1400	<0.10	<2.0	<2.0	0.25	<2.0	21
	12/07/17	<5.0	<1.0	2.8	44	<1.0	<2.0	63	0.010	<1.0	0.48	<2.0	220	<0.50	2300	<0.013	<2.0	<2.0	<1.0	<0.10	1300	<0.10	<2.0	<2.0	0.44	<2.0	21
	12/03/18	<5.0	<1.0	2.4	48	<1.0	<2.0	57	0.016	<1.0	0.44	<2.0	220	<0.50	2200	<0.013	<2.0	<2.0	<1.0	<0.10	1300	<0.10	<2.0	<2.0	0.49	<2.0	41
COCP-110-MW (2.31 m)	03/27/13[L]	<25	<5	14	60	<2.5	<10	<500	0.1	<5	<5	<10	4200	<5	320	NM	<20	<15	<5	<0.5	410	<4	<100	<15	0.92	<10	28
	03/27/13	<25	<5	14	61	<2.5	<10	<500	0.11	<5	<5	<10	4300	<5	330	<0.013	<20	<15	<5	<0.5	420	<4	<100	<15	0.92	<10	29
	07/18/13	7.8	<1	18.5	60.3	<1	<2	64	<0.017	<1	<0.4	<2	3880	<0.5	493	NM	4.1	<2	<1	<0.1	464	<0.1	<2	<2	0.54	<2	7.4
	11/06/13[L]	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
	11/06/13	14	1.8	19	81	<1	<2	82	0.011	<1	<0.4	<2	3300	<0.5	380	NM	5.7	<2	1.9	<0.1	660	<0.1	<2	<2	2.6	4.9	12
	12/15/14	13	2.5	13	77	<1	<2	76	0.18	<1	<0.4	<2	4400	<0.5	390	0.017	6.6	<2	1.3	<0.1	610	<0.1	<2	<2	3	5.1	9.8
	12/9/15	15	1.6	17	56	<1.0	<2.0	70	0.067	<1.0	<0.40	<2.0	6600	<0.50	550	<0.013	6.9	<2.0	<1.0	<0.10	490	<0.10	<2.0	<2.0	1	<2.0	55
	11/28/16	10	2.1	13	96	<1.0	<2.0	68	0.05	<1.0	<0.40	<2.0	800	<0.50	110	<0.013	4	<2.0	1.7	<0.10	500	<0.10	<2.0	<2.0	3	4.7	<5.0
	12-8-17 FD	<5.0	1.4	28	85	<1.0	<2.0	77	0.021	<1.0	<0.40	<2.0	4600	<0.50	390	0.015	7.9	<2.0	<1.0	<0.10	580	<0.10	<2.0	<2.0	2.5	3.4	<5.0
	12/8/17	<5.0	1.6	27	86	<1.0	<2.0	75	0.018	<1.0	<0.40	<2.0	4000	<0.50	370	<0.013	8.0	<2.0	1.1	<0.10	580	<0.10	<2.0	<2.0	2.4	3.6	<5.0
	12/3/18	6.3	2.6	18	75	<1.0	<2.0	72	0.13	<1.0	<0.40	<2.0	2200	<0.50	260	0.017	7.2	<2.0	1.0	<0.10	580	<0.10	<2.0	<2.0	2.6	7.0	5.5
CODT-008-MWB (1.63 m)	03/29/13	34	<1	9.7	27	<0.5	<2	<100	<0.017	<1	<1	4.7	<100	<1	6.9	0.12	<4	<3	2.8	<0.1	250	<0.8	<20	<3	1.2	9.7	<5
	07/16/13	41.3	<1	41.7	52.7	<1	<2	<50	0.028	2.2	<0.4	<2	134	<0.5	143	NM	5.9	<2	1.3	<0.1	509	<0.1	<2	<2	1.45	2.9	8
	10/23/13	45	<1	11	58	<1	<2	<50	<0.01	<1	<0.40	3.2	110	<0.50	220	NM	3.8	<2	1.6	<0.1	480	<0.1	<2	4.3	1.9	4.9	9.9
	12/15/14	510	<1	7.2	25	<1	<2	<50	0.085	1.3	<0.4	5.6	<50	<0.5	<2	<0.013	5.1	<2	1.8	<0.1	840	<0.1	<2	<2	0.19	11	<5
	12/10/15	250	<1.0	21	18	<1.0	<2.0	<50	0.13	<1.0	<0.40	8.2	<50	<0.50	<2.0	0.13	4.4	<2.0	2.1	<0.10	850	<0.10	<2.0	<2.0	0.18	16	<5.0
	11/30/16	41	<1.0	1.4	190	<1.0	<2.0	<50	0.15	<1.0	<0.40	<2.0	69	<0.50	430	<0.013	<2.0	<2.0	<1.0	<0.10	280	<0.10	<2.0	<2.0	0.31	<2.0	<5.0
	12/07/17	160	<1.0	7.1	41	<1.0	<2.0	<50	0.046	<1.0	<0.40	6.1	<50	<0.50	<2.0	<0.013	2.8	<2.0	<2.0	<0.10	790	<2.0	<2.0	1.2	10	<2.0	5.0
	12/05/18[FD]	520	<1.0	3.3	40	<1.0	<2.0	<50	0.026	1.6	<0.40	3.7	<50	<0.50	<2.0	<0.013	6.8	<2.0	1.4	<0.10	880	<0.10	<2.0	<2.0	0.30	8.8	<5.0
	12/05/18	530	<1.0	3.3	41	<1.0	<2.0	<50	0.025	1.7	<0.40	3.6	<50	<0.50	<2.0	<0.013	7.0	<2.0	1.4	<0.10	890	<0.10	<2.0	<2.0	0.30	8.5	<5.0
CODT-105-MW (2.94 m)	01/15/13	18	2.3	1.7	22	<0.5	<2	<100	0.058	<1	<1	8.5	<100	<1	17	<0.013	9.5	<3	26	<0.1	480	<0.8	<20	<3	2.1	4.9	46
	03/13/13	1100	1.8	17	5.7	<0.5	<2	<100	<0.017	<1	<1	11	<100	<1	<4	0.013	14	<3	37	<0.1	1700	<0.8	<20	<3	<0.15	30	<5
	07/16/13	798	1.5	3.3	8.6	<1	<2	<50	0.027	1.1	<0.4	8.7	<50	<0.5	10.6	NM	14.9	3.1	19.1	<0.1	729	<0.1	<2	<2	0.74	7.4	12.3
	10/23/13	670	1.6	6.2	13	<1	<2	<50	0.053	1.8	<0.4	9.5	<50	<0.5	8.0	NM	9.9	<2.0	29	<0.1	1000	<0.1	<2.0	<2.0	0.97	9.7	<5.0
	12/16/14	20	2.2	2.1	25	<1	<2	62	0.13	<1	<0.4	4.3	<50	<0.5	2.9	<0.013	5.4	<2	15	<0.1	380	<0.1	<2	<2	2.3	2.5	18
	12/10/15	430	1.7	3.1	11	<1.0	<2.0	<50	0.034	1.1	<0.40	6	<50	6.6	2.6	<0.013	5.8	<2.0	21	<0.10	880	<0.10	<2.0	<2.0	0.82	6.6	11
	11/23/16[FD]	19	2.6	2.1	28	<1.0	<2.0	70	0.044	<1.0	<0.40	10	<50	0.52	7.5	<0.013	7.5	<2.0	11	<0.10	480	<0.10	<2.0	<2.0	2.5	3.4	69
	11/23/16	20	2.5	2.2	28	<1.0	<2.0	70	0.047	<1.0	<0.40	10	<50	0.52	7.6	<0.013	7.5	<2.0	12	<0.10	480	<0.10	<2.0	<2.0	2.5	3.3	68
	12/07/17	170	<1.0	2.9	13	<1.0	<2.0	<50	0.041	2.7	0.41	10	<50	<0.50	<2.0	<0.013	7.9	<2.0	11	<0.10	840	<0.10	<2.0	<2.0	0.43	10	16
	12/05/18	15	2.2	2.4	34	<1.0	<2.0	75	0.074	<1.0	<0.40	6.6	<50	<0.50	<2.0	<0.013	5.6	<2.0	18	<0.10	400	<0.10	<2.0	<2.0	3.2	4.0	30
CODT-201-MWA (3.61 m)	03/13/13[L]	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
	03/13/13	11	<1	0.73	17	<0.5	<2	<100	0.078	<1	<1	8	<100	<1	14	0.017	<4	<3	1.5	<0.1	310	<0.8	<20	<3	0.43	<2	48
	07/16/13	268	<1	<1	23.5	<1	<2	52	0.052	<1	<0.4	13	<50	<0.5	11.5	NM	<2	<2	2	<0.1	276	<0.1	<2	<2	0.67	<2	55.8
	10/23/13	20	<1	<1	25	<1	<2	<50	0.083	<1	<0.4	20	<50	<0.5	4.0	NM	<2	<2	2.3	<0.1	210	<0.1	<2	<2	0.49	<2	58
	12/15/14	17	<1	<1	27	<1	<2	<50	0.27	<1	<0.4	2.6	<50	<0.5	2.6	0.032	2.2	<2	4.3	<0.1	260	<0.1	<2	<2	0.71	<2	11
	12/9/15	14	<1.0	<1.0	23	<1.0	<2.0	<50	0.053	<1.0	<0.40	4	<50	<0.50	12	<0.013	<2.0	<2.0	5.2	<0.10	350	<0.10	<2.0	<2.0	0.72	<2.0	26
	11/28/16	8.2	<1.0	<1.0	24	<1.0	<2.0	<50	0.026	<1.0	<0.40	9.6	<50	<0.50	<2.0	<0.013	2.1	<2.0	4	<0.10	280	<0.10	<2.0	<2.0	0.6	<2.0	50
	12/05/17	15	<1.0	<1.0	20	<1.0	<2.0	56	0.036	<1.0	<0.40	16	<50	<0.50	<2.0	0.047	<2.0	<2.0	3.9	<0.10	290	<0.10	<2.0	0.68	<2.0	<2.0	48
	12/05/18	8.8	<1.0	<1.0	19	<1.0	<2.0	<50	0.052	<1.0	<0.40	3.1	<50	<0.50	<2.0	<0.013	2.3	<2.0	4.2	<0.10	250	<0.10	<2.0	<2.0	0.67	<2.0	34

TABLE A-3 LTMM GROUNDWATER MONITORING EVENT NOVEMBER AND DECEMBER 2018
OHP AND HE GROUNDWATER ANALYTICAL RESULTS - INORGANIC CHEMISTRY

Sample Location (Monitor Well Depth)	Sample Date	Na	K	Ca	Mg	ALK	SO4	Cl	SiO2	OPO4	P	NO3	NO2	NO2-NO3	NH3	Colour	TOC	TURBIDITY	CONDUCTIVITY	pH	HARDNESS	BICARB ALK	CARB ALK	TDS	Anion Sum	Ion Bal_	Langelier Ind_ (@20C)	Langelier Ind_ (@4C)	Sat_ pH (@20C)	Sat_ pH (@4C)
Units		µg/L	µg/L	µg/L	µg/L	mg/L	mg/L	mg/L	mg/L	mg/L	µg/L	mg/L	mg/L	mg/L	mg/L	TCU	mg/L	NTU	µS/cm	pH	mg/L	mg/L	mg/L	mg/L	me/L	%	unitless	unitless	unitless	unitless
MOE Table 3[2]		2300000	-	-	-	-	-	2300000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CODT-201-MWC (3.75 m)	03/13/13	59000	2400	43000	4700	210	4.7	42	11	<0.01	<100	<0.05	<0.01	<0.05	0.64	7.3	6.3	14	500	8	130	200	1.9	292	5.4	1.69	0.527	0.278	7.47	7.72
	07/16/13	64900	2360	40800	4730	210	6	40	11	0.15	<100	<0.05	<0.01	<0.05	0.58	<5	<5	25	500	7.91	120	210	1.6	298	5.48	1.2	0.422	0.173	7.49	7.74
	10/23/13[FD]	67000	2300	41000	4500	200	13	44	11	<0.01	<100	<0.05	<0.01	<0.05	0.43	6	4.3	2.3	510	7.97	120	200	1.7	300	5.5	1.1	0.456	0.207	7.51	7.76
	10/23/13	67000	2400	40000	4600	200	13	45	12	<0.01	<100	0.058	<0.01	0.058	0.42	5.5	4.5	2.2	510	7.92	120	200	1.6	300	5.53	1.47	0.401	0.152	7.52	7.77
	12/15/14	66000	2300	38000	4300	200	5.3	43	11	0.01	<100	<0.05	<0.01	<0.05	0.52	5.5	5.2	9.3	500	7.87	110	200	1.4	290	5.32	1.04	0.327	0.077	7.54	7.79
	12/9/15	60000	2300	45000	5100	220	11	45	11	0.019	<100	<0.050	<0.010	<0.050	0.91	<5.0	NM	1.2	530	7.99	130	220	2	310	5.87	4.08	0.556	0.307	7.43	7.68
	11/28/16	70000	2500	38000	4200	200	6.7	64	11	0.019	<100	0.054	<0.010	0.054	0.45	<5.0	<5.0	4	510	8.05	110	200	2.1	320	5.89	4.53	0.497	0.248	7.56	7.81
	12/05/17	69000	2500	40000	4900	210	4.0	59	12	<0.010	<100	<0.050	<0.010	<0.050	0.59	5.2	5.7	0.84	560	7.81	120	200	1.2	320	5.85	3.08	0.299	0.050	7.51	7.76
	12/05/18	64000	2400	42000	4600	210	<2.0	50	12	0.013	<100	<0.050	<0.010	<0.050	0.54	5.3	14	7.7	530	7.97	120	210	1.8	300	5.57	1.92	0.488	0.239	7.48	7.73
CODT-203-MW (2.76 m)	3/13/2013[L]	NM	NM	NM	NM	NM	200	210	NM	<0.01	NM	NM	<0.01	<0.05	NM	21	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
	03/13/13	120000	6800	130000	13000	180	200	220	14	<0.01	<100	<0.05	<0.01	<0.05	0.66	14	2.3	56	1300	7.2	390	180	<1	824	13.9	2.51	0.065	-0.182	7.14	7.38
	07/16/13[FD]	130000	6430	143000	13000	220	180	220	15	<0.01	<100	<0.05	<0.01	<0.05	0.69	19	2.7	62	1500	7.33	410	220	<1	848	14.2	0.11	0.294	0.048	7.04	7.28
	07/16/13	132000	6560	143000	13000	220	170	210	15	<0.01	<100	<0.05	<0.01	<0.05	0.68	15	2.6	70	1500	7.35	410	220	<1	832	13.8	2.14	0.318	0.071	7.03	7.28
	10/23/13	47000	5100	140000	15000	220	240	58	19	<0.01	<100	<0.05	<0.01	<0.05	0.47	21	4.1	98	980	7.22	420	220	<1	670	10.9	0.87	0.217	-0.0300	7.00	7.25
	12/12/14	24000	2500	110000	6000	120	190	27	23	<10	<100	0.42	<0.01	0.42	0.1	6.5	4.4	14	660	7.19	290	120	<1	450	7.05	0.57	-0.166	-0.414	7.35	7.6
	12/8/15[FD]	36000	4100	130000	8600	180	210	34	18	0.016	<100	<0.050	0.041	0.083	0.29	6.7	3.6	26	820	7.51	350	180	<1.0	550	8.87	0.8	0.388	0.14	7.13	7.37
	12/8/15	36000	4100	130000	8600	180	210	35	18	0.014	<100	<0.050	0.038	0.084	0.28	5.9	3.6	23	830	7.56	350	180	<1.0	550	8.94	1.42	0.434	0.186	7.12	7.37
	11/23/16	59000	3800	110000	6000	160	170	74	22	0.024	<100	0.29	0.02	0.31	0.057	7.5	3.6	65	800	7.18	300	160	<1.0	540	8.82	1.26	-0.059	-0.306	7.24	7.49
	12/07/17	160000	5500	93000	5200	150	160	200	14	<0.01	<100	<0.050	<0.010	<0.050	0.32	<5.0	3.6	3.6	1300	7.53	250	150	<1.0	730	11.9	1.70	0.150	-0.096	7.38	7.62
	12/10/18	89000	3600	59000	2700	110	110	120	14	<0.010	<100	<0.050	<0.010	<0.050	0.17	<5.0	2.9	0.87	810	7.52	160	110	<1.0	460	7.72	3.76	-0.138	-0.387	7.66	7.91
CODT-205-MWA (1.73 m)	03/13/13[FD]	41000	5800	82000	11000	280	13	23	15	<0.01	<100	<0.05	<0.01	<0.05	0.26	9.1	7.2	130	600	7.6	250	280	1.1	363	6.59	2.66	0.527	0.278	7.07	7.32
	03/13/13	42000	5800	83000	11000	290	13	23	16	<0.01	<100	<0.05	<0.01	<0.05	0.25	9.7	6.7	130	610	7.5	250	290	<1	367	6.69	2.26	0.438	0.189	7.06	7.31
	07/16/13[L]	NM	NM	NM	NM	300	10	23	16	<0.01	NM	NM	<0.01	<0.05	0.16	6.8	5.2	33	610	7.64	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
	07/16/13	40800	5720	72400	10700	300	11	22	16	<0.01	<100	<0.05	<0.01	<0.05	0.16	8.3	5.6	33	610	7.64	220	300	1.2	366	6.94	3.04	0.543	0.294	7.1	7.35
	10/23/13[L]	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	600	7.64	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
	10/23/13	38000	5900	80000	11000	310	9.6	22	18	<0.01	<100	<0.05	<0.01	<0.05	0.17	12	5.5	31	610	7.64	250	310	1.3	370	6.98	1.01	0.592	0.343	7.05	7.30
	12/15/14	35000	5400	84000	12000	310	24	18	17	<10	<100	<0.05	<0.01	<0.05	0.24	7.7	7	66	620	7.52	260	300	<1	380	7.12	1.5	0.482	0.234	7.03	7.28
	12/8/15	27000	4800	77000	11000	270	18	15	16	0.013	<100	0.052	<0.010	0.052	0.28	12	9.2	35	530	7.84	240	270	1.7	330	6.14	0.08	0.721	0.472	7.12	7.37
	11/23/16	33000	4800	68000	9500	270	18	14	16	0.016	<100	0.05	0.015	0.065	0.19	9	6.8	24	510	7.7	210	270	1.3	330	6.13	2.77	0.528	0.279	7.17	7.42
	12/05/17	30000	4800	70000	9600	260	24	13	16	<0.010	<100	<0.050	<0.010	<0.050	0.2	11	8	24	530	7.95	210	260	2.1	330	6.01	1.43	0.775	0.526	7.17	7.42
	11/28/18	15000	4200	78000	7400	220	33	14	15	<0.010	<100	<0.050	<0.010	<0.050	0.74	13	9.7	140	510	7.47	220	220	<1.0	310	5.47	2.76	0.284	0.0350	7.19	7.44
CODT-206-MW (2.14 m)	03/13/13[L]	NM	NM	NM	NM	NM	NM	NM	23	NM	<100	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
	03/13/13	5800	2700	82000	5300	140	57	19	23	<0.01	<100	0.19	<0.01	0.19	0.24	19	6.1	7.8	440	7.5	230	140	<1	285	4.52	4.54	0.14	-0.11	7.36	7.61
	07/16/13	7200	4090	97300	8620	200	83	19	14	0.035	<100	<0.05	<0.01	<0.05	1.2	74	11	24	590	7.1	280	200	<1	371	6.34	0.56	-0.042	-0.29	7.14	7.39
	10/23/13	6800	2800	56000	3900	130	36	4.6	17	0.014	<100	0.47	<0.01	0.47	0.16	72	14	9.1	320	7.25	160	130	<1	210	3.46	0.86	-0.285	-0.535	7.54	7.79
	12/15/14	4400	2300	47000	1800	96	27	5.7	37	0.035	<100	0.37	<0.01	0.37	<50	18	5.3	32	260	7.83	130	96	<1	190	2.68	1.47	0.106	-0.144	7.72	7.97
	12/8/15	4400	3000	73000	2400	98	86	10	41	0.048	<100	0.48	<0.010	0.48	0.085	14	5	8	400	8.18	190	96	1.4	280	4.06	0.37	0.608	0.358	7.57	7.82
	11/28/16[FD]	5400	1700	41000	2000	91	17	7.4	13	0.038	<100	0.59	<0.010	0.59	0.094	32	7.5	71	210	7.35	110	91	<1.0	140	2.42	1.22	-0.45	-0.7	7.8	8.05
	11/28/16	5300	1700	40000	2000	93	17	7.2	13	0.037	<100	0.24	<0.010	0.24	0.093	32	7.2	76	210	7.39	110	92	<1.0	140	2.43	0.82	-0.398	-0.648	7.79	8.04
	12/05/17 FD	6700	4100	110000	7600	240	84	10	19	<0.010	<100	0.12	<0.010	0.12	1.1	22	19	95	650	7.33	300	240	<1.0	400	6.92	2.98	0.300	0.052	7.03	7.28
	12/05/17	6600	4100	110000	7600	230	91	9.8	21	<0.010	<100	0.16	<0.010	0.160	1	21.0	13	78	630	7.39	300	230	<1.0	400	6.84	2.7	0.33	0.084	7.05	7.3
	12/05/18	6100	1800	51000	1800	69	59	20	19	0.021	<100	0.15	<0.010	0.15	<0.050	9.3	3.4	3.2	310	7.94	130	68	<1.0	200	3.19	3.07	0.0930	-0.157	7.85	8.10
CONCW-101-MWB (3.63 m)	03/15/13	86000	5700	90000	2000	24	130	150	14	<0.01	<100	0.25	0.024	0.27	0.24	5.9	2.1	0.38	770	9.1	230	21	2.5	489	7.31	7.93	0.918	0.67	8.18	8.43
	07/17/13[L]	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	0.25	NM	NM	0.36	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
	07/17/13	66100	5650	50700	4220	42	120	110	18	0.013	<100	0.24	0.078	0.32	0.26	8.6	2.4	0.36	670	9.18	140	36	5.1	398	6.37	3.66	0.993	0.745	8.19	8.44
	10/24/13	63000	6300	70000	2200	52	170	80	20	0.012	<100	0.095	0.035	0.13	0.43	9.1	3.1	1.4	700	9.65	180	35	15	440	6.78	1.42	1.59	1.34	8.06	8.31
	12/12/14	59000	5500	85000	1800	28	120	85	21	<10	<100	0.31	0.026	0.33	0.35	5.2	2.7	1.8	580	9.55	220	20	6.6	400	5.52	12.9	1.33	1.08	8.22	8.47
	12/8/15	56000	6500	96000	5900	39	130	82	17	0.015	<100	0.21	0.017	0.22	0.41	5.1	3.4	11	620	8.02	260	39	<1.0	420	5.93	14.2	0.139	-0.109	7.88	8.13
	11/23/16	51000	5900	95000	<100	39	130	88	22	0.022	<100	<0.050	0.015	<0.050	1	6.3	3.1	18	790	11.1	240	<1.0	<1.0	420	5.96	9.35	NC	NC	NC	NC
	12/11/17	49000	5200	76000	5700	100	120	56	25	0.036	<100	0.35	0.015	0.37	0.28	9.1	3.5	0.81	610	8.88	210	97	6.8	400	6.23	2.12	1.29	1.05	7.58	7.83
	11/28/18[FD]	52000	5800	67000	2900	60	110	91	21	0.012	<100	0.11	0.052	0.16	0.41	7.5	3.4	0.29	640	8.62	180	57	2.3	390	6.17	1.31	0.762	0.514	7.86	8.11
	11/28/18	54000	5900	68000	3000	54	110	94	21	<0.010	<100	0.12	0.055	0.17	0.44	6.7	3.4	0.25	630	8.6	180	51	1.9	390	6.08	0.57	0.698	0.45	7.90	8.15

TABLE A-3 LTMM GROUNDWATER MONITORING EVENT NOVEMBER AND DECEMBER 2018
OHP AND HE GROUNDWATER ANALYTICAL RESULTS - INORGANIC CHEMISTRY

Sample Location (Monitor Well Depth)	Sample Date	Al	Sb	As	Ba	Be	Bi	B	Cd	Cr	Co	Cu	Fe	Pb	Mn	Hg	Mo	Ni	Se	Ag	Sr	Tl	Sn	Ti	U	V	Zn
Units		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
MOE Table 3[2]		-	20000	1900	29000	67	-	45000	2.7	810	66	87	-	25	-	0.29	9200	490	63	1.5	-	510	-	-	420	250	1100
CODT-201-MWC (3.75 m)	03/13/13	20	<1	4.1	340	<0.5	<2	<100	0.2	<1	<1	<2	<100	<1	780	<0.013	<4	<3	<1	<0.1	530	<0.8	<20	<3	<0.15	<2	7.5
	07/16/13	16.9	<1	4	331	<1	<2	73	<0.017	2.5	<0.4	<2	<50	<0.5	766	NM	<2	<2	<1	<0.1	504	<0.1	<2	<2	<0.1	<2	8.8
	10/23/13[FD]	9.7	<1	3.7	340	<1	<2	77	<0.01	<1	<0.4	<2	<50	<0.5	760	NM	<2	<2	1.6	<0.1	500	<0.1	<2	<2	<0.1	<2	<5
	10/23/13	10	<1	3.3	330	<1	<2	77	<0.01	<1	<0.4	<2	<50	<0.5	760	NM	<2	<2	2.7	<0.1	500	<0.1	<2	<2	<0.1	<2	6.1
	12/15/14	13	<1	4.1	340	<1	<2	77	0.28	<1	<0.4	<2	<50	<0.5	690	<0.013	<2	<2	3.2	<0.1	520	<0.1	<2	<2	<0.1	<2	6
	12/9/15	6.3	<1.0	4.2	420	<1.0	<2.0	73	<0.010	<1.0	<0.40	<2.0	<50	<0.50	930	<0.013	<2.0	<2.0	<1.0	<0.10	540	<0.10	<2.0	<2.0	<0.10	<2.0	<5.0
	11/28/16	7.6	<1.0	3.7	380	<1.0	<2.0	77	<0.010	<1.0	<0.40	<2.0	<50	<0.50	670	<0.013	<2.0	<2.0	<1.0	<0.10	520	<0.10	<2.0	<2.0	<0.10	<2.0	<5.0
	12/05/17	<5.0	<1.0	3.5	420	<1.0	<2.0	80	<0.010	<1.0	<0.40	<2.0	<50	<0.50	810	<0.013	<2.0	<2.0	8.5	<0.10	560	<0.10	<2.0	<2.0	<0.10	<2.0	<5.0
	12/05/18	7.0	<1.0	3.6	460	<1.0	<2.0	85	0.045	<1.0	<0.40	<2.0	<50	<0.50	760	<0.013	<2.0	<2.0	<1.0	<0.10	560	<0.10	<2.0	<2.0	<0.10	<2.0	<5.0
CODT-203-MW (2.76 m)	3/13/2013[L]	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
	03/13/13	13	<1	20	250	<0.5	<2	<100	0.028	<1	1.7	<2	5200	<1	7000	<0.013	<4	<3	<1	<0.1	850	<0.8	<20	<3	0.3	<2	41
	07/16/13[FD]	12.4	<1	16.9	230	<1	<2	<50	<0.017	<1	1.44	2.3	5000	<0.5	7650	NM	3.2	2.3	<1	<0.1	811	<0.1	<2	<2	0.91	<2	**5360**
	07/16/13	31.6	<1	17	229	<1	<2	<50	0.026	<1	1.54	2.3	5010	<0.5	7700	NM	3.5	<2	<1	<0.1	809	<0.1	<2	<2	0.93	<2	**5210**
	10/23/13	8.6	<1	30	150	<1	<2	52	0.013	<1	1.4	<2	10000	<0.50	5700	NM	3.2	<2	<1	<0.1	580	<0.1	<2	<2	0.76	<2	75
	12/12/14	15	<1	<1	58	<1	<2	57	0.34	<1	<0.4	3.3	90	<0.5	130	<0.013	<2	<2	1	<0.1	260	0.19	<2	<2	0.72	<2	25
	12/8/15[FD]	7.3	<1.0	2.1	85	<1.0	<2.0	59	0.088	<1.0	0.48	4	720	<0.50	1900	0.057	2.6	<2.0	<1.0	<0.10	390	0.17	<2.0	<2.0	1.5	<2.0	46
	12/8/15	6.2	<1.0	2.1	85	<1.0	<2.0	59	0.08	<1.0	0.47	4.1	720	<0.50	1800	<0.013	2.7	<2.0	<1.0	<0.10	390	0.17	<2.0	<2.0	1.5	<2.0	46
	11/23/16	18	<1.0	1.1	67	<1.0	<2.0	56	0.1	<1.0	<0.40	<2.0	54	<0.50	390	<0.013	<2.0	<2.0	<1.0	<0.10	340	0.15	<2.0	<2.0	1.1	<2.0	60
	12/07/17	<5.0	<1.0	1.7	130	<1.0	<2.0	<50	0.10	<1.0	0.58	<2.0	270	<0.50	3300	<0.013	4.2	<2.0	<1.0	<0.10	510	0.12	<2.0	<2.0	0.94	<2.0	58
	12/10/18	11	<1.0	1.7	61	<1.0	<2.0	<50	0.094	<1.0	<0.40	<2.0	77	<0.50	1600	<0.013	5.5	<2.0	<1.0	<0.10	300	0.16	<2.0	<2.0	0.39	<2.0	21
CODT-205-MWA (1.73 m)	03/13/13[FD]	5.6	<1	1.3	92	<0.5	<2	<100	0.044	<1	<1	<2	490	<1	1100	<0.013	5.4	<3	<1	<0.1	3700	<0.8	<20	<3	1.1	<2	31
	03/13/13	5.9	<1	1.3	93	<0.5	<2	<100	0.062	<1	<1	<2	460	<1	1200	<0.013	5.3	<3	<1	<0.1	3700	<0.8	<20	<3	1.1	<2	32
	07/16/13[L]	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
	07/16/13	10.6	<1	5	85.8	<1	<2	<50	0.025	<1	<0.4	5.3	2820	<0.5	1120	NM	2.2	<2	<1	<0.1	3380	<0.1	<2	<2	0.95	<2	24.5
	10/23/13[L]	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
	10/23/13	13	<1	6.8	120	<1	<2	58	0.012	<1	<0.40	<2	3200	<0.50	1200	NM	3.3	<2	<1	<0.1	3600	<0.1	<2	<2	1.10	<2	23
	12/15/14	29	<1	4.1	140	<1	<2	55	0.25	<1	<0.4	<2	2100	<0.5	1300	<0.013	5.7	<2	<1	<0.1	3900	<0.1	<2	<2	1.2	<2	16
	12/8/15	10	<1.0	4.6	320	<1.0	<2.0	<50	0.019	<1.0	<0.40	<2.0	2200	<0.50	860	<0.013	6.9	<2.0	<1.0	<0.10	3100	<0.10	<2.0	<2.0	0.79	<2.0	19
	11/23/16	14	<1.0	8	280	<1.0	<2.0	54	0.011	<1.0	<0.40	<2.0	2000	<0.50	920	<0.013	3.1	<2.0	<1.0	<0.10	3300	<0.10	<2.0	<2.0	0.79	<2.0	35
	12/05/17	46	<1.0	8.1	250	<1.0	<2.0	56	0.027	<1.0	<0.40	<2.0	3000	<0.50	980	<0.013	3.5	<2.0	<1.0	<0.10	3400	<0.10	<2.0	<2.0	0.73	<2.0	21
	11/28/18	7.6	<1.0	11	260	<1.0	<2.0	<50	0.028	<1.0	<0.40	<2.0	14000	<0.50	1400	<0.013	2.6	<2.0	<1.0	<0.10	1800	<0.10	<2.0	<2.0	0.35	<2.0	36
CODT-206-MW (2.14 m)	03/13/13[L]	17	<1	2.4	41	<0.5	<2	<100	0.041	<1	<1	2.2	1600	<1	2900	NM	<4	<3	1.1	<0.1	250	<0.8	<20	<3	1.4	<2	36
	03/13/13	17	<1	2.4	42	<0.5	<2	<100	0.041	<1	<1	2.3	1600	<1	3000	0.015	<4	<3	1.4	<0.1	260	<0.8	<20	<3	1.4	<2	36
	07/16/13	29.8	<1	7.3	56.4	<1	<2	58	0.017	<1	0.61	8.5	5670	0.7	7880	NM	<2	2.1	<1	<0.1	250	<0.1	<2	<2	0.3	<2	137
	10/23/13	71	<1.0	2.1	36	<1.0	<2.0	<50	0.17	<1.0	<0.4	19	580	0.61	860	NM	<2	<2	<1	<0.1	150	<0.1	<2	2.6	1.4	2.1	71
	12/15/14	38	<1	4	33	<1	<2	<50	1.3	<1	<0.4	5.9	<50	<0.5	5.0	<0.013	<2	<2	1.4	<0.1	180	<0.1	<2	<2	2.2	4.9	14
	12/8/15	12	<1.0	4	46	<1.0	<2.0	<50	1.3	<1.0	<0.40	5.3	<50	<0.50	<2.0	<0.013	<2.0	<2.0	1.9	<0.10	340	<0.10	<2.0	<2.0	2.6	7.5	6.3
	11/28/16[FD]	30	<1.0	1.1	39	<1.0	<2.0	<50	0.068	<1.0	<0.40	11	57	<0.50	250	<0.013	<2.0	<2.0	<1.0	<0.10	170	<0.10	<2.0	<2.0	0.72	<2.0	87
	11/28/16	31	<1.0	1.1	39	<1.0	<2.0	<50	0.092	<1.0	<0.40	11	51	<0.50	250	<0.013	<2.0	<2.0	<1.0	<0.10	170	<0.10	<2.0	<2.0	0.71	<2.0	87
	12/05/17 FD	20	<1.0	4.7	100	<1.0	<2.0	60	0.090	<1.0	0.87	2.6	2400	<0.50	6100	<0.013	<2.0	<2.0	<1.0	<0.10	400	<0.10	<2.0	<2.0	2.8	<2.0	44
	12/05/17	19	<1.0	4.8	100	<1.0	<2.0	62	0.22	<1.0	0.87	2.3	2300	<0.50	6100	<0.013	<2.0	<2.0	<1.0	<0.10	400	<0.10	<2.0	<2.0	2.8	<2.0	45
	12/05/18	23	<1.0	1.3	33	<1.0	<2.0	<50	0.014	<1.0	<0.40	<2.0	<50	<0.50	<2.0	<0.013	<2.0	<2.0	1.0	<0.10	240	<0.10	<2.0	<2.0	1.2	2.8	<5.0
CONCW-101-MWB (3.63 m)	03/15/13	43	<1	5.1	56	<0.5	<2	<100	0.041	1.1	<1	<2	<100	<1	19	<0.013	6.4	<3	2.3	<0.1	700	<0.8	<20	<3	0.79	3.1	6.6
	07/17/13[L]	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
	07/17/13	23.6	<1	8	38.4	<1	<2	<50	<0.017	<1	<0.4	3.2	<50	<0.5	9.8	NM	9.3	<2	<1	<0.1	438	<0.1	<2	<2	0.91	4.2	7.1
	10/24/13	38	<1.0	7.8	45	<1.0	<2.0	<50	<0.01	<1.0	<0.4	<2.0	<50	<0.5	6.6	NM	9.5	<2	1.1	<0.1	520	<0.1	<2.0	<2.0	0.40	4.2	<5.0
	12/12/14	82	<1	8.2	46	<1	<2	<50	0.27	<1	<0.4	<2	<50	<0.5	7.7	<0.013	7.2	<2	3.1	<0.1	540	<0.1	<2	<2	0.68	2.7	<5
	12/8/15	63	<1.0	6.6	66	<1.0	<2.0	53	0.066	<1.0	<0.40	<2.0	<50	<0.50	250	<0.013	6.2	<2.0	2.8	<0.10	600	<0.10	<2.0	<2.0	1.2	<2.0	<5.0
	11/23/16	170	<1.0	8.9	45	<1.0	<2.0	<50	<0.010	<1.0	<0.40	<2.0	<50	<0.50	<2.0	0.013	5	<2.0	3.9	<0.10	560	<0.10	<2.0	<2.0	<0.10	<2.0	<5.0
	12/11/17	39	<1.0	8.5	43	<1.0	<2.0	54	0.087	<1.0	<0.40	<2.0	<50	<0.50	310	<0.013	7.5	<2.0	1.7	<0.10	420	<0.10	<2.0	<2.0	1.6	5.7	<5.0
	11/28/18[FD]	48	<1.0	10	35	<1.0	<2.0	51	0.054	<1.0	<0.40	<2.0	<50	<0.50	30	<0.013	10	<2.0	<1.0	<0.10	460	<0.10	<2.0	<2.0	1.4	4.3	<5.0
	11/28/18	45	<1.0	11	36	<1.0	<2.0	55	0.028	<1.0	<0.40	<2.0	<50	<0.50	31	<0.013	11	<2.0	<1.0	<0.10	460	<0.10	<2.0	<2.0	1.5	4.7	<5.0

TABLE A-3 LTMM GROUNDWATER MONITORING EVENT NOVEMBER AND DECEMBER 2018
OHP AND HE GROUNDWATER ANALYTICAL RESULTS - INORGANIC CHEMISTRY

Sample Location (Monitor Well Depth)	Sample Date	Na	K	Ca	Mg	ALK	SO4	Cl	SiO2	OPO4	P	NO3	NO2	NO2-NO3	NH3	Colour	TOC	TURBIDITY	CONDUCTIVITY	pH	HARDNESS	BICARB ALK	CARB ALK	TDS	Anion Sum	Ion Bal_	Langelier Ind_ (@20C)	Langelier Ind_ (@4C)	Sat_ pH (@20C)	Sat_ pH (@4C)
Units		**µg/L**	**µg/L**	**µg/L**	**µg/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**µg/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**TCU**	**mg/L**	**NTU**	**µS/cm**	**pH**	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**me/L**	**%**	**unitless**	**unitless**	**unitless**	**unitless**
MOE Table 3[2]		2300000	-	-	-	-	-	2300000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CONPL-202-MWA (5.21 m)	12/15/14	22000	1900	170000	28000	410	170	22	12	<10	<100	<0.05	<0.01	<0.05	0.081	<5	1.7	14	1000	7.34	550	410	<1	680	12.4	1.27	0.693	0.446	6.65	6.9
	12/9/15	17000	1600	160000	25000	390	170	17	11	0.013	<100	<0.050	<0.010	<0.050	<0.050	<5.0	NM	2.2	950	7.7	510	390	1.9	650	11.9	3.92	1.01	0.766	6.69	6.93
	11/23/16	16000	1600	150000	23000	350	150	14	11	0.017	<100	<0.050	0.014	0.053	0.074	<5.0	2.8	3.3	800	7.41	460	350	<1.0	570	10.5	2.8	0.634	0.386	6.77	7.02
	12/21/17	13000	1500	140000	20000	320	130	13	11	0.011	<100	<0.050	<0.010	<0.050	<0.050	<5.0	<5.0	18	810	7.55	420	320	1.1	520	9.53	2.58	0.715	0.468	6.84	7.09
	11/28/18	12000	1400	120000	19000	300	110	12	11	<0.010	<100	<0.050	<0.010	<0.050	<0.050	<5.0	2.5	18	770	7.66	390	300	1.3	480	8.79	2.99	0.775	0.527	6.89	7.14
COSB-002-MWA (1.57 m)	03/18/13	17000	3300	140000	16000	210	200	32	21	<0.01	<100	0.25	<0.01	0.25	<0.05	<5	1.9	160	800	7.1	400	210	<1	550	9.23	1.88	0.075	-0.173	7.03	7.27
	07/26/13	19500	4200	178000	29200	170	410	39	26	<0.01	<100	<0.05	<0.01	<0.05	0.15	16	11	830	1100	6.97	560	170	<1	822	13.1	2.9	-0.075	-0.321	7.05	7.29
	11/6/13[FDL]	20000	5600	230000	36000	NM	NM	NM	NM	NM	<100	NM	NM	NM	NM	NM	2.1	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
	11/6/13[FD]	20000	5700	230000	36000	130	620	49	30	<0.01	<100	<0.05	0.021	<0.05	0.32	130	2.2	160	1400	6.61	720	130	<1	1100	17	2.69	-0.473	-0.718	7.08	7.33
	11/06/13	20000	5500	230000	36000	130	610	49	29	<0.01	<100	<0.05	0.017	<0.05	0.33	120	1.9	77	1400	6.64	730	130	<1	1100	16.6	1.07	-0.451	-0.696	7.09	7.34
	12/15/14	14000	3200	150000	17000	200	210	26	20	<10	<100	1.6	<0.01	1.6	0.098	<5	1.9	17	860	6.72	450	200	<1	580	9.29	2.57	-0.276	-0.524	7	7.25
	12/9/15	11000	7100	340000	53000	<5.0	1500	12	150	0.066	240	0.18	<0.010	0.18	1.6	28	NM	250	2600	3.66	1100	<1.0	<1.0	2100	31.3	14.3	NC	NC	NC	NC
	11/28/16	11000	3600	170000	25000	190	300	16	20	0.018	<100	0.36	<0.010	0.36	0.13	84	2.9	43	910	6.97	530	190	<1.0	670	10.6	3.24	-0.003	-0.25	6.98	7.22
	12/08/17	18000	9700	470000	120000	10	1600	9.2	51	0.01	<100	0.76	<0.010	0.76	2.4	26	4.7	49	2700	4.43	1700	10	<1.0	2300	33.6	2.27	-3.55	-3.79	7.98	8.22
	11/28/18	10000	7300	280000	65000	130	900	9.9	26	<0.010	<100	0.13	<0.010	0.13	0.58	52	1.4	19	1700	6.54	970	130	<1.0	1400	21.5	2.73	-0.499	-0.744	7.04	7.28
COSCW-001-MWA (3.47 m)	03/19/13	11000	1400	64000	6900	160	49	14	8.6	<0.01	<100	<0.05	<0.01	<0.05	<0.05	<5	<0.5	23	430	7.9	190	160	1.2	253	4.66	4.25	0.506	0.257	7.39	7.64
	07/17/13	12500	1660	66100	8100	170	50	13	11	0.013	<100	0.057	<0.01	0.057	<0.05	<5	1.1	24	440	7.71	200	170	<1	267	4.82	2.88	0.348	0.099	7.36	7.61
	10/24/13	14000	1800	72000	8700	170	52	14	12	<0.01	<100	<0.05	<0.01	<0.05	<0.05	<5	0.62	43	460	7.57	220	170	<1	280	4.93	0.100	0.251	0.002	7.32	7.57
	12/16/14	13,000	1900	74,000	8,800	180	49	14	12	<10	<100	0.052	<0.01	0.052	0.093	<5	0.93	46	480	7.61	220	180	<1	290	5.11	0.29	0.334	0.085	7.28	7.53
	12/8/15	13,000	1600	74,000	8,400	180	51	14	11	0.011	<100	0.058	<0.010	0.058	<0.050	<5.0	0.78	43	460	7.8	220	180	1.1	280	5.04	0.3	0.51	0.261	7.29	7.54
	11/22/16	14000	1700	72000	8500	180	47	0.014	13	12	<100	<0.050	<0.010	<0.050	<0.050	<5.0	<5.0	95	450	7.68	220	180	<1.0	280	4.96	0	0.381	0.132	7.3	7.55
	12/8/17	13000	1800	74000	8200	190	41	14	12	0.011	<100	0.071	<0.01	0.071	0.13	<5.0	1.5	15	490	7.93	220	190	1.5	290	5.12	1.29	0.665	0.416	7.26	7.51
	12/3/18	14000	1500	77000	8400	210	46	13	12	<0.010	<100	<0.050	<0.010	<0.050	0.058	<5.0	<5.0 [9]	110	480	7.60	230	210	<1.0	300	5.43	2.45	0.383	0.134	7.22	7.47
COSCW-001-MWB (1.75 m)	03/19/13	18000	3200	56000	9600	190	29	14	8.6	<0.01	<100	<0.05	<0.01	<0.05	<0.05	<5	0.55	1	440	8	180	190	1.8	254	4.8	3.56	0.616	0.367	7.38	7.63
	07/17/13[L]	NM	NM	NM	NM	200	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	1	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
	07/17/13	18200	3620	55800	10100	200	22	14	11	<0.01	<100	<0.05	<0.01	<0.05	0.057	<5	1.1	0.48	430	7.85	180	200	1.3	253	4.79	3.12	0.484	0.234	7.37	7.62
	10/24/13[L]	NM	NM	NM	NM	NM	23	14	12	<0.01	NM	NM	0.011	0.25	0.063	<5	1.5	2.5	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
	10/24/13	20000	4000	61000	11000	200	22	14	12	<0.01	<100	0.25	<0.01	0.25	0.065	<5	1.4	2.4	450	7.91	200	200	1.5	260	4.83	1.02	0.581	0.332	7.33	7.58
	12/12/14	19000	3700	65000	11000	210	38	13	11	<10	<100	0.091	<0.01	0.091	0.11	<5	1.2	0.32	460	7.88	210	200	1.5	290	5.28	1.64	0.587	0.338	7.29	7.54
	12/8/15	16000	3200	80000	15000	270	30	12	12	0.011	<100	<0.050	<0.010	<0.050	<0.050	<5.0	2.8	2.1	540	7.84	260	270	1.8	330	6.39	3.48	0.746	0.497	7.1	7.35
	11/22/16	14000	1700	72000	8500	180	47	13	12	0.014	<100	<0.050	<0.010	<0.050	<0.050	<5.0	<5.0	95	450	7.68	220	180	<1.0	280	4.96	0	0.381	0.132	7.3	7.55
	12/8/17	17000	3400	73000	13000	240	28	16	13	<0.01	<100	0.076	<0.010	0.076	<0.050	<5.0	2.7	1.0	530	7.96	230	230	2.0	310	5.74	1.86	0.773	0.524	7.19	7.44
	12/3/18	18000	3300	68000	12000	210	31	14	12	<0.010	<100	<0.050	<0.010	<0.050	0.055	<5.0	1.7	0.39	480	7.96	220	210	1.8	290	5.32	0.660	0.707	0.458	7.26	7.51
COSCW-002-MWA (4.32 m)	03/26/13	7400	1400	160000	17000	320	150	7.9	12	<0.01	<100	<0.05	<0.01	<0.05	<0.05	<5	<0.5	5.5	820	7.5	470	320	<1	545	9.63	0.93	0.73	0.482	6.77	7.02
	07/17/13	7810	1650	154000	16700	340	150	8	13	<0.01	<100	<0.05	<0.01	<0.05	<0.05	<5	1.1	20	830	7.48	450	330	<1	548	9.96	2.57	0.715	0.468	6.77	7.01
	10/24/13	8200	1800	160000	18000	300	160	8.2	13	<0.01	<100	0.073	<0.01	0.073	<0.05	<5	0.87	25	840	7.45	470	300	<1	540	9.49	1.15	0.641	0.393	6.81	7.06
	12/12/14	7400	1600	160000	17000	340	160	8.2	12	<10	<100	0.1	<0.01	0.1	0.066	<5	<0.5	8.1	840	7.49	480	330	<1	570	10.2	1.64	0.744	0.205	6.75	7
	12/8/15	8700	1500	160000	18000	350	150	8.2	13	0.012	<100	0.077	<0.010	0.077	<0.050	<5.0	1.1	4.2	830	7.88	470	340	2.4	560	10.2	2.3	1.13	0.883	6.75	6.99
	11/22/16	20000	3700	65000	12000	220	29	14	13	0.014	<100	<0.050	<0.010	<0.050	<0.050	<5.0	1.5	0.42	470	7.87	210	210	1.5	290	5.31	1.14	0.601	0.352	7.27	7.52
	12/8/17	7300	1500	160000	17000	330	130	7.7	14	<0.01	<100	0.083	<0.010	0.083	<0.050	<5.0	0.99	13	850	7.58	470	330	1.2	530	9.53	0.68	0.831	0.583	6.75	7.00
	12/3/18	7300	1400	150000	16000	330	130	6.9	13	<0.010	<100	<0.050	<0.010	<0.050	<0.050	<5.0	0.82	7.4	800	7.70	450	330	1.5	530	9.47	1.12	0.918	0.671	6.78	7.03
COSCW-002-MWB (3.29 m)	03/19/13[L]	22000	1900	91000	9600	NM	NM	NM	7	NM	<100	NM	NM	NM	<0.05	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
	03/19/13	22000	1900	89000	9700	150	180	8.6	7	<0.01	<100	0.081	<0.01	0.081	<0.05	<5	<0.5	10	610	7.9	260	150	1.1	411	7.06	6.25	0.583	0.335	7.32	7.57
	07/17/13	24400	2380	92700	10900	170	150	8.2	9.5	<0.01	<100	0.056	<0.01	0.056	0.12	<5	0.52	1.6	620	7.74	280	170	<1	399	6.73	0.52	0.495	0.246	7.25	7.49
	10/24/13[L]	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	640	7.81	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
	10/24/13	26000	2700	98000	11000	180	150	7.9	10	<0.01	<100	0.16	<0.01	0.16	<0.05	<5	0.89	34	640	7.75	290	180	<1	420	6.98	0.36	0.543	0.295	7.21	7.46
	12/12/14	25,000	2100	100,000	11,000	180	160	9	9.1	<10	<100	0.11	<0.01	0.11	0.11	<5	0.5	3.9	640	7.64	300	180	<1	430	7.21	0.84	0.453	0.497	7.19	7.43
	12/8/15	24,000	1700	88,000	11,000	180	130	10	8.4	<0.010	<100	0.15	<0.010	0.15	<0.050	<5.0	0.63	1.5	600	7.85	270	180	1.2	380	6.59	1.23	0.609	0.36	7.24	7.49
	11/22/16	25000	1700	86000	11000	180	120	10	9.4	0.014	<100	0.087	<0.010	0.087	<0.050	<5.0	0.66	5	580	7.75	260	180	<1.0	370	6.4	0.39	0.507	0.259	7.25	7.49
	12/8/17	24000	1600	87000	10000	200	110	11	10	<0.010	<100	0.085	<0.010	0.085	<0.050	<5.0	1.2	2.0	610	7.88	260	200	1.4	370	6.51	1.56	0.680	0.431	7.20	7.45
	12/3/18	24000	1400	87000	11000	190	100	9.7	9.1	<0.010	<100	0.081	<0.010	0.081	<0.050	<5.0	0.72	3.5	570	7.89	260	190	1.4	360	6.23	0.480	0.668	0.419	7.22	7.47
COTS-001-MWA[3] (3.77 m)	11/15/13[L]	8000	3100	96000	7400	NM	NM	NM	NM	NM	<100	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
	11/15/13	8000	3100	96000	7400	33	74	11	17	<0.01	<100	50	0.05	50	5.3	23	6.2	73	710	6.04	270	33	<1	470	6.08	0.98	-1.92	-2.17	7.96	8.21
	12/15/14	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
	12/08/14	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM

TABLE A-3 LTMM GROUNDWATER MONITORING EVENT NOVEMBER AND DECEMBER 2018
OHP AND HE GROUNDWATER ANALYTICAL RESULTS - INORGANIC CHEMISTRY

Sample Location (Monitor Well Depth)	Sample Date	Al	Sb	As	Ba	Be	Bi	B	Cd	Cr	Co	Cu	Fe	Pb	Mn	Hg	Mo	Ni	Se	Ag	Sr	Tl	Sn	Ti	U	V	Zn
Units		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
MOE Table 3[2]		-	20000	1900	29000	67	-	45000	2.7	810	66	87	-	25	-	0.29	9200	490	63	1.5	-	510	-	-	420	250	1100
CONPL-202-MWA (5.21 m)	12/15/14	17	<1	2.2	43	<1	<2	<50	0.27	<1	0.84	<2	280	<0.5	1100	<0.013	<2	<2	<1	<0.1	720	<0.1	<2	<2	2.7	<2	14
	12/9/15	12	<1.0	2.2	36	<1.0	<2.0	<50	0.012	<1.0	0.46	<2.0	270	<0.50	830	<0.013	<2.0	<2.0	<1.0	<0.10	540	<0.10	<2.0	<2.0	2.1	<2.0	<5.0
	11/23/16	6	<1.0	<1.0	33	<1.0	<2.0	<50	0.025	<1.0	<0.40	<2.0	<50	<0.50	430	<0.013	<2.0	<2.0	<1.0	<0.10	470	<0.10	<2.0	<2.0	2	<2.0	<5.0
	12/21/17	5.3	<1.0	<1.0	31	<1.0	<2.0	<50	0.078	<1.0	<0.40	<2.0	<50	<0.50	470	<0.013	<2.0	<2.0	<1.0	<0.10	460	<0.10	<2.0	<2.0	1.7	<2.0	<5.0
	11/28/18	9.6	<1.0	<1.0	29	<1.0	<2.0	<50	0.051	<1.0	<0.40	<2.0	<50	<0.50	390	<0.013	<2.0	<2.0	<1.0	<0.10	400	<0.10	<2.0	<2.0	1.5	<2.0	<5.0
COSB-002-MWA (1.57 m)	03/18/13	10	2.3	<0.6	20	<0.5	<2	<100	0.098	<1	<1	3.3	220	<1	42	<0.013	<4	3.6	<1	<0.1	370	<0.8	<20	<3	0.54	<2	110
	07/26/13	59	<1	<1	40	<1	<2	55	0.273	<1	3.51	<2	3660	<0.5	5980	NM	<2	30.7	<1	<0.1	533	<0.1	<2	<2	0.69	<2	466
	11/6/13[FDL]	1000	<1	2.2	67	<1	<2	63	0.8	<1	9.2	3.1	17000	<0.5	14000	NM	<2	91	<1	<0.1	690	<0.1	<2	<2	0.4	<2	**1200**
	11/6/13[FD]	1000	<1	2.3	68	<1	<2	63	0.81	<1	9.6	3.3	18000	<0.5	14000	NM	<2	92	<1	<0.1	690	<0.1	<2	<2	0.42	<2	**1300**
	11/06/13	1100	<1	2.3	68	<1	<2	61	0.80	<1	9.2	4.0	18000	<0.5	14000	NM	<2	91	<1	<0.1	700	<0.1	<2	<2	0.40	<2	**1300**
	12/15/14	73	<1	<1	19	<1	<2	<50	0.66	<1	0.43	5.1	1700	0.52	480	<0.013	<2	7.3	<1	<0.1	390	<0.1	<2	<2	0.22	<2	92
	12/9/15	180000	<1.0	6.2	76	25	<2.0	120	**8.5**	91	**80**	**650**	32000	7.8	23000	<0.013	<2.0	270	<1.0	<0.10	1200	0.39	<2.0	<2.0	11	<2.0	**3800**
	11/28/16	16	<1.0	<1.0	21	<1.0	<2.0	54	0.097	<1.0	<0.40	3.3	2800	<0.50	580	<0.013	<2.0	4.5	<1.0	<0.10	420	<0.10	<2.0	<2.0	0.14	<2.0	97
	12/08/17	34000	<1.0	<1.0	70	3.7	<2.0	110	**3.9**	3.8	29	**100**	7500	1.8	16000	<0.013	<2.0	300	<1.0	<0.1	1700	0.33	<2.0	<2.0	1.6	<2.0	**2400**
	11/28/18	63	<1.0	<1.0	29	<1.0	<2.0	110	0.43	<1.0	2.2	<2.0	7600	<0.50	17000	<0.013	<2.0	140	<1.0	<0.10	870	<0.10	<2.0	<2.0	0.25	<2.0	190
COSCW-001-MWA (3.47 m)	03/19/13	7.3	<1	<0.6	41	<0.5	<2	<100	<0.017	<1	<1	5.3	280	<1	16	<0.013	<4	<3	<1	<0.1	560	<0.8	<20	<3	0.55	<2	38
	07/17/13	7.8	<1	<1	47.1	<1	<2	<50	0.104	<1	<0.4	11.2	<50	<0.5	1470	NM	<2	<2	<1	<0.1	672	<0.1	<2	<2	0.55	<2	52.5
	10/24/13	16	<1	<1	53	<1	<2	<50	0.032	<1	<0.4	2.2	<50	<0.5	620	NM	<2	<2	<1	<0.1	680	<0.1	<2	<2	0.59	<2	21
	12/16/14	13	<1	<1	48	<1	<2	<50	0.13	<1	<0.4	7.5	<50	<0.5	10	<0.013	<2	<2	<1	<0.1	650	<0.1	<2	<2	0.82	<2	45
	12/8/15	7.6	<1.0	<1.0	45	<1.0	<2.0	<50	0.061	<1.0	<0.40	12	<50	<0.50	87	0.11	<2.0	<2.0	<1.0	<0.10	600	<0.10	<2.0	<2.0	0.75	<2.0	44
	11/22/16	9.9	<1.0	<1.0	48	<1.0	<2.0	<50	0.13	<1.0	<0.40	15	<50	<0.50	66	<0.013	<2.0	<2.0	<1.0	<0.10	660	<0.10	<2.0	<2.0	0.63	<2.0	81
	12/8/17	7.6	<1.0	1.6	82	<1.0	<2.0	<50	0.10	<1.0	0.65	3.0	<50	<0.50	3900	<0.013	<2.0	<2.0	<1.0	<0.10	250	<0.10	<2.0	<2.0	0.70	<2.0	29
	12/3/18	<5.0	<1.0	<1.0	55	<1.0	<2.0	<50	0.10	<1.0	<0.40	5.0	<50	<0.50	340	<0.013	<2.0	<2.0	<1.0	<0.10	620	<0.10	<2.0	<2.0	0.68	<2.0	62
COSCW-001-MWB (1.75 m)	03/19/13	6.7	<1	1.8	120	<0.5	<2	<100	0.19	<1	<1	<2	640	<1	1000	<0.013	4.7	<3	<1	<0.1	1300	<0.8	<20	<3	0.87	<2	12
	07/17/13[L]	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
	07/17/13	16.2	<1	2.6	107	<1	<2	52	<0.017	<1	<0.4	4.9	181	<0.5	348	NM	2.2	<2	<1	<0.1	1260	<0.1	<2	<2	0.68	<2	19.1
	10/24/13[L]	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
	10/24/13	18	<1	1.1	120	<1	<2	62	<0.01	<1	<0.4	<2	200	<0.5	350	NM	2.7	<2	<1	<0.1	1300	<0.1	<2	<2	0.76	<2	14
	12/12/14	22	<1	<1	130	<1	<2	62	0.22	<1	<0.4	<2	57	1.1	66	<0.013	5.7	<2	<1	<0.1	1400	<0.1	<2	<2	1.2	<2	20
	12/8/15	5.2	<1.0	<1.0	150	<1.0	<2.0	62	0.051	<1.0	<0.40	<2.0	110	<0.50	160	0.19	3.4	<2.0	<1.0	<0.10	1400	<0.10	<2.0	<2.0	2.6	<2.0	<5.0
	11/22/16	9.9	<1.0	<1.0	48	<1.0	<2.0	<50	0.13	<1.0	<0.40	15	<50	<0.50	66	<0.013	<2.0	<2.0	<1.0	<0.10	660	<0.10	<2.0	<2.0	0.63	<2.0	81
	12/8/17	<5.0	<1.0	<1.0	130	<1.0	<2.0	56	0.012	<1.0	<0.40	<2.0	59	<0.50	120	<0.013	3.4	<2.0	<1.0	<0.10	1300	<0.10	<2.0	<2.0	1.8	<2.0	<5.0
	12/3/18	6.6	<1.0	<1.0	130	<1.0	<2.0	57	0.073	<1.0	<0.40	<2.0	82	<0.50	98	<0.013	4.3	<2.0	<1.0	<0.10	1300	<0.10	<2.0	<2.0	1.3	<2.0	<5.0
COSCW-002-MWA (4.32 m)	03/26/13	9.5	<1	<0.6	21	<0.5	<2	<100	0.066	<1	<1	5	<100	<1	<4	<0.013	<4	<3	<1	<0.1	240	<0.8	<20	<3	3.9	<2	37
	07/17/13	7.1	<1	<1	21.7	<1	<2	<50	0.298	<1	<0.4	48.1	<50	0.68	<2	NM	<2	3.2	<1	<0.1	255	<0.1	<2	<2	3.87	<2	216
	10/24/13	16	<1	<1	24	<1	<2	51	0.36	<1	<0.4	37	<50	0.55	5.5	NM	<2	2.8	<1	<0.1	240	<0.1	<2	<2	4.6	<2	260
	12/12/14	17	<1	<1	22	<1	<2	<50	0.26	<1	<0.4	12	<50	<0.5	5.2	<0.013	<2	<2	<1	<0.1	250	<0.1	<2	<2	4.9	<2	59
	12/8/15	7.8	<1.0	<1.0	22	<1.0	<2.0	<50	0.14	<1.0	<0.40	65	<50	1	<2.0	<0.013	<2.0	2.9	<1.0	<0.10	240	<0.10	<2.0	<2.0	4.1	<2.0	210
	11/22/16	5.6	<1.0	<1.0	130	<1.0	<2.0	66	0.014	<1.0	<0.40	<2.0	<50	<0.50	18	<0.013	5.6	<2.0	<1.0	<0.10	1300	<0.10	<2.0	<2.0	1.1	<2.0	<5.0
	12/8/17	7.0	<1.0	<1.0	23	<1.0	<2.0	<50	0.10	<1.0	<0.40	23	<50	<0.50	2.3	<0.013	<2.0	<2.0	<1.0	<0.10	250	<0.10	<2.0	<2.0	4.4	<2.0	110
	12/3/18	<5.0	<1.0	<1.0	22	<1.0	<2.0	<50	0.12	<1.0	<0.40	15	<50	<0.50	<2.0	<0.013	<2.0	<2.0	<1.0	<0.10	240	<0.10	<2.0	<2.0	3.8	<2.0	100
COSCW-002-MWB (3.29 m)	03/19/13[L]	6.1	<1	<0.6	26	<0.5	<2	<100	0.045	<1	<1	<2	<100	<1	130	NM	<4	<3	<1	<0.1	170	<0.8	<20	<3	2.7	<2	33
	03/19/13	6.3	<1	<0.6	26	<0.5	<2	<100	0.043	<1	<1	<2	<100	<1	130	<0.013	<4	<3	<1	<0.1	170	<0.8	<20	<3	2.6	<2	33
	07/17/13	10.2	<1	2.7	24.1	<1	<2	<50	<0.017	<1	0.44	<2	273	<0.5	470	NM	4.2	<2	<1	<0.1	173	<0.1	<2	<2	2.4	<2	13.9
	10/24/13[L]	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
	10/24/13	26	<1	2.3	30	<1	<2	<50	0.15	<1	<0.4	<2	320	<0.5	460	NM	5.4	<2	<1	<0.1	180	<0.1	<2	<2	2.3	<2	20
	12/12/14	11	<1	<1	34	<1	<2	<50	0.63	<1	<0.4	4.5	80	<0.5	130	<0.013	7.2	<2	<1	<0.1	190	<0.1	<2	<2	3.2	<2	47
	12/8/15	7.5	<1.0	<1.0	31	<1.0	<2.0	<50	0.038	<1.0	<0.40	6.3	61	0.65	110	<0.013	5.3	<2.0	<1.0	<0.10	150	<0.10	<2.0	<2.0	1.9	<2.0	38
	11/22/16	7.7	<1.0	<1.0	30	<1.0	<2.0	<50	0.23	<1.0	<0.40	2.3	130	<0.50	200	<0.013	7.1	<2.0	<1.0	<0.10	150	<0.10	<2.0	<2.0	1.7	<2.0	80
	12/8/17	<5.0	<1.0	<1.0	32	<1.0	<2.0	<50	0.031	<1.0	<0.40	3.9	130	<0.50	340	<0.013	5.3	<2.0	<1.0	<0.10	160	<0.10	<2.0	<2.0	1.7	<2.0	25
	12/3/18	15	<1.0	<1.0	34	<1.0	<2.0	<50	0.11	<1.0	<0.40	5.4	<50	<0.50	33	<0.013	3.7	<2.0	<1.0	<0.10	140	<0.10	<2.0	<2.0	1.6	<2.0	38
COTS-001-MWA[3] (3.77 m)	11/15/13[L]	230	<1	<1	64	<1	<2	<50	0.59	<1	2.4	47	59	2.8	3200	NM	<2	7.2	<1	<0.1	300	<0.1	<2	<2	0.24	<2	160
	11/15/13	230	<1	<1	63	<1	<2	<50	0.57	<1	2.5	47	60	2.8	3100	NM	<2	7.2	<1	<0.1	300	<0.1	<2	<2	0.24	<2	160
	12/15/14	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
	12/08/14	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM

TABLE A-3 LTMM GROUNDWATER MONITORING EVENT NOVEMBER AND DECEMBER 2018
OHP AND HE GROUNDWATER ANALYTICAL RESULTS - INORGANIC CHEMISTRY

Sample Location (Monitor Well Depth)	Sample Date	Na	K	Ca	Mg	ALK	SO4	Cl	SiO2	OPO4	P	NO3	NO2	NO2-NO3	NH3	Colour	TOC	TURBIDITY	CONDUCTIVITY	pH	HARDNESS	BICARB ALK	CARB ALK	TDS	Anion Sum	Ion Bal_	Langelier Ind_ (@20C)	Langelier Ind_ (@4C)	Sat_ pH (@20C)	Sat_ pH (@4C)
Units		**µg/L**	**µg/L**	**µg/L**	**µg/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**µg/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**TCU**	**mg/L**	**NTU**	**µS/cm**	**pH**	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**me/L**	**%**	**unitless**	**unitless**	**unitless**	**unitless**
MOE Table 3[2]		2300000	-	-	-	-	-	2300000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
COTS-001-MWB[3] (4.17 m)	12/08/15	37,000	2,800	120,000	14,000	260	120	48	13	0	<100	2	<0.010	2	0	<5.0	2	4	810	8	360	260	2	520	9	3	1	1	7	7
	11/28/16	35000	2700	110000	13000	260	110	53	13	0.018	<100	1.2	<0.010	1.2	0.31	<5.0	1	1.6	740	7.6	340	260	<1.0	500	9.1	4.12	0.603	0.355	6.99	7.24
	12/21/17	33000	2800	120000	13000	280	98	51	14	<0.010	<100	<0.050	<0.010	<0.050	1.1	<5.0	1.2	0.86	810	7.75	340	280	1.5	500	9.04	3.20	0.791	0.543	6.96	7.21
	11/28/18	36000	2900	110000	13000	280	96	46	15	0.014	<100	0.14	<0.010	0.14	0.57	<5.0	<5.0 [9]	2.3	800	7.88	330	280	2.0	500	9.00	3.69	0.911	0.663	6.96	7.21
MCES-001-MWA (5.19 m)	03/28/13[FD]	31000	17000	220000	<60	430	83	38	2.8	<0.01	<100	<0.05	0.39	0.28	1	<5	2.2	21	2100	12	550	<1	<1	656	11.5	5.81	NC	NC	NC	NC
	03/28/13	30000	17000	200000	<60	430	85	36	3	<0.01	<100	<0.05	0.41	0.27	1	<5	2	18	2100	11.8	500	1.8	110	631	11.3	2.5	2.87	2.63	8.93	9.17
	07/24/13	36400	17800	230000	<100	87	160	43	2.9	<0.01	<100	<0.05	0.17	0.13	1.3	6.2	2.2	15	2300	11.8	570	<1	<1	542	6.24	37.2	NC	NC	NC	NC
	12/10/14	34000	18,000	240000	<100	420	120	50	3.5	<10	<100	0.096	0.28	0.38	1.5	<5	3.4	37	1900	11.9	610	<1	17	730	12.4	6.93	2.12	1.88	9.78	10
	12/2/15	39000	17,000	240000	<100	66	160	44	2.7	<0.010	<100	<0.050	0.29	0.31	1.3	<5.0	2.2	3.5	2100	11.8	590	<1.0	<1.0	540	5.89	40.9	NC	NC	NC	NC
	11/25/16	36000	19000	250000	<100	280	190	60	2.8	<0.010	<100	<0.050	0.47	0.39	1.1	<5.0	<5.0	10	1900	11.9	610	<1.0	<1.0	730	11.4	11.8	NC	NC	NC	NC
	12/12/17 [FD]	42000	17000	240000	<0.10	70	150	55	2.4	<0.010	<100	<0.050	0.13	0.16	1.4	<5.0	3.1	0.27	2400	12	600	<1.0	<1.0	560	6.16	39.9	NC	NC	NC	NC
	12/12/17	42000	17000	240000	<0.10	76	160	52	2.3	<0.010	<100	<0.050	0.13	0.16	1.4	5.5	3.1	0.25	2500	12	600	<1.0	<1.0	560	6.26	39.5	NC	NC	NC	NC
	11/28/18	26000	13000	240000	<100	240	110	36	2.0	<0.010	<100	<0.050	0.26	0.29	0.47	<5.0	2.5	0.75	2300	12.0 [8]	600	<1.0	<1.0	580	8.28	23.8	NC	NC	NC	NC
MCES-001-MWB[8] (6.07 m)	03/28/13	**7200000**	160000	630000	910000	1400	29	15000	19	<0.01	<1000	<0.05	<0.01	<0.05	26	19	7.4	230	35000	7.1	5300	1400	1.7	24700	447	2.38	1.19	0.948	5.91	6.15
	07/25/13	**6500000**	148000	449000	868000	1400	25	12000	23	<0.01	<1000	<0.05	<0.01	<0.05	31	42	12	160	36000	7.42	4700	1400	3.4	21000	370	1.71	1.32	1.09	6.1	6.34
	11/14/13	**6500000**	160000	410000	830000	1300	10	13000	23	0.013	<1000	0.09	0.019	0.11	35	43	17	150	35000	7.32	4500	1300	2.5	22000	392	1.8	1.16	0.926	6.16	6.39
	12/10/14	**6800000**	160000	500000	900000	1500	6.7	11000	25	0.013	<1000	<0.05	<0.01	<0.05	33	39	17	130	34000	7.4	5000	1400	3.5	21000	346	7.51	1.38	1.14	6.03	6.27
	12/2/15	**6300000**	150000	480000	820000	1200	<2.0	13000	28	0.054	<1000	<0.050	0.013	<0.050	41	41	17	150	34000	7.49	4600	1200	3.4	22000	399	3.35	1.36	1.12	6.13	6.37
	11/25/16	**6200000**	150000	480000	790000	1200	<2.0	11000	28	0.04	<1000	<0.050	<0.010	<0.050	36	39	20	140	32000	7.42	4400	1200	3.1	19000	328	5.07	1.3	1.07	6.11	6.35
	12/15/17	**6300000**	150000	520000	820000	1500	<2.0	12000	28	0.013	<1000	<0.050	<0.010	<0.050	29	42	16	120	35,000	7.47	4700	1400	4.0	21000	379	0.52	1.46	1.22	6.01	6.25
	11/28/2018 [10]	29000	13000	210000	<100	180	94	55	2.5	<0.010	<100	0.34	0.25	0.59	0.37	<5.0	3.2	0.25	1900	11.9 [8]	530	<1.0	<1.0	520	7.20	25.7	NC	NC	NC	NC
MCES-006-MW (2.80 m)	03/28/13	14000	1300	100000	12000	280	34	17	13	0.062	<100	<0.05	<0.01	<0.05	0.17	14	11	310	610	7.50	310	280	<1.0	374	6.87	0.79	0.533	0.285	6.97	7.22
	07/26/13	13300	1030	103000	12100	300	28	20	13	<0.01	<100	<0.05	<0.01	<0.05	0.18	12	10	250	630	7.57	310	300	1	376	7.1	1.87	0.617	0.368	6.95	7.2
	11/05/13[L]	13000	1200	110000	12000	NM	NM	NM	NM	NM	<100	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
	11/05/13	13000	1200	110000	12000	290	34	22	13	<0.01	<100	0.15	<0.01	0.15	0.29	17	10	100	640	7.61	320	290	1.1	390	7.21	1.34	0.664	0.415	6.95	7.2
	12/10/14	9600	5800	77000	3200	77	70	23	14	0.014	<100	1.4	0.11	1.5	0.18	10	3.6	10	360	8.91	200	71	5.4	260	3.77	10.7	1.24	0.99	7.67	7.92
	12/3/15	7800	5500	65000	1700	84	88	21	11	0.045	110	1.3	0.12	1.4	0.14	12	3.8	3.2	370	9.44	170	66	17	260	4.2	4.22	1.66	1.41	7.78	8.03
	12/02/16	7900	1800	59000	4700	100	48	17	14	0.015	<100	0.52	0.062	0.58	0.14	13	5.4	7.9	320	7.95	170	100	<1.0	220	3.58	2.19	0.334	0.084	7.62	7.87
	12/13/17	7600	3100	51000	2900	120	35	14	9.5	<0.010	<100	0.59	0.016	0.60	0.19	15	5.5	1.0	360	7.86	140	120	<1.0	200	3.57	5.15	0.262	0.012	7.60	7.85
	11/28/18	6800	3900	56000	1700	59	64	11	14	<0.010	<100	1.6	0.028	1.7	0.087	13	4.6	1.9	280	9.15	150	51	6.9	200	2.93	6.54	1.22	0.973	7.93	8.18
MCES-204-MW[8] (4.17 m) (Destroyed 2017)	03/28/13[L]	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	2.4	NM	NM	NM	24000	9.2	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
	03/28/13	**4700000**	200000	630000	260000	53	1100	8600	<1.0	<0.01	<1000	<0.05	<0.01	<0.05	2.4	<5.0	<5.0	4.4	24000	9.1	2600	47	5.5	15600	267	0.91	1.67	1.43	7.43	7.67
	07/24/13	**4290000**	184000	618000	234000	25	1200	8100	<0.5	<0.01	<1000	<0.05	<0.01	<0.05	2.4	<5.0	0.75	3.6	24000	8.82	2500	23	1.4	14700	256	2.86	1.08	0.838	7.75	7.98
	11/07/13[L]	NM	NM	NM	NM	NM	1100	8100	0.83	<0.01	NM	NM	<0.01	<0.05	NM	7.2	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
	11/07/13	**4500000**	190000	660000	230000	28	1100	8200	0.81	<0.01	<1000	<0.05	<0.01	<0.05	4.7	7.2	2.8	22	24000	8.93	2600	25	2.0	15000	256	0.29	1.26	1.02	7.67	7.91
	12/18/14[FD]	**4400000**	190000	610,000	260000	21	740	7500	<5	<10	<1000	<0.05	<0.01	<0.05	2.5	<5	<5	<0.1	22000	7.28	2600	21	<1	14000	228	3.91	-0.505	-0.742	7.78	8.02
	12/18/14	**4300000**	190000	610000	260000	22	730	7400	<5	<10	<100	<0.05	<0.01	<0.05	2.3	<5	<5	<0.1	23000	8	2600	22	<1	14000	224	4.44	0.228	-0.01	7.77	8.01
	12/10/15	**3900000**	180000	530000	250000	29	800	7700	<0.50	<0.010	<1000	<0.050	<0.010	<0.050	2.8	<5.0	NM	0.1	22000	8.51	2300	28	<1.0	13000	235	3.17	0.785	0.548	7.73	7.97
	11/25/16[FD]	**3700000**	180000	560000	200000	29	1100	6200	<0.50	0.012	<1000	<0.050	<0.010	<0.050	3.4	<5.0	53	0.15	20000	8.89	2200	27	2	12000	199	3.34	1.18	0.94	7.71	7.95
	11/25/16	**3700000**	180000	560000	200000	30	1100	5800	<0.50	0.013	<1000	<0.050	<0.010	<0.050	3.4	<5.0	1.3	0.22	20000	8.71	2200	28	1.4	12000	187	6.16	1.02	0.784	7.69	7.93
MCWS-009-MW (6.63 m) *Decommissioned 2015*	12/9/14[FD]	55000	1800	110000	9100	300	36	77	12	<10	<100	0.071	<0.01	0.071	<50	<5	1	0.8	810	7.29	320	300	<1	490	8.93	0.39	0.36	0.112	6.93	7.18
	12/9/14	55000	1700	110000	8900	300	37	76	12	<10	<100	0.079	<0.01	0.079	0.069	<5	1.1	1.1	810	7.3	320	300	<1.0	480	8.93	1.02	0.361	0.113	6.94	7.19
MCWS-113-MWB (1.49 m)	12/18/12	84000	7000	71000	11000	300	<2	92	9.9	<0.01	240	<0.05	<0.01	<0.05	2	5.5	<5	1.3	820	7.7	220	300	1.4	463	8.59	0.64	0.565	0.317	7.14	7.38
	03/27/13	91000	7200	83000	13000	300	<2	98	7.1	<0.01	<500	<0.05	<0.01	<0.05	1.6	9.8	4.6	13	820	7.4	260	300	<1	486	8.68	4.72	0.324	0.076	7.08	7.32
	07/24/13	72600	6710	73300	10800	310	<2	92	9.4	<0.01	315	<0.05	<0.01	<0.05	1.8	7.7	4.6	8.8	820	7.48	230	310	<1	458	8.72	3.69	0.371	0.123	7.11	7.36
	11/15/13	78000	7300	74000	11000	310	<2	93	10	<0.01	310	<0.05	<0.01	<0.05	1.8	8.1	<5	13	850	7.52	230	310	<1	470	8.87	2.78	0.42	0.172	7.1	7.35
	12/9/14	74000	6800	72000	12000	310	<2	100	10	<10	290	<0.05	<0.01	<0.05	1.9	11	<5	15	790	7.47	230	300	<1	470	9.03	5.18	0.354	0.106	7.12	7.37
	12/2/15	71000	6800	73000	12000	310	<2.0	91	10	0.017	310	<0.050	0.012	0.052	1.7	7.8	<5.0	20	760	7.65	230	300	1.3	460	8.69	3.51	0.542	0.294	7.11	7.36
	11/30/16	72000	7200	74000	13000	300	<2.0	91	9.9	0.012	160	<0.050	0.01	<0.050	1.7	12	5.2	16	780	7.78	240	300	1.7	460	8.66	2.61	0.677	0.429	7.11	7.35
	12/12/17	67000	6800	77000	13000	300	<2.0	98	10	<0.010	260	<0.050	<0.010	<0.050	1.7	7.0	0.97	7.9	810	7.85	250	300	2.0	460	8.86	4.05	0.760	0.512	7.09	7.34
	12/7/18	58000	6700	76000	12000	330	<2.0	60	10	<0.010	310	<0.050	<0.010	<0.050	1.4	8.8	7.5	5.6	740	7.60	240	330	1.2	430	8.30	3.75	0.544	0.295	7.05	7.30

TABLE A-3 LTMM GROUNDWATER MONITORING EVENT NOVEMBER AND DECEMBER 2018
OHP AND HE GROUNDWATER ANALYTICAL RESULTS - INORGANIC CHEMISTRY

Sample Location (Monitor Well Depth)	Sample Date	Al	Sb	As	Ba	Be	Bi	B	Cd	Cr	Co	Cu	Fe	Pb	Mn	Hg	Mo	Ni	Se	Ag	Sr	Tl	Sn	Ti	U	V	Zn
Units		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
MOE Table 3[2]		-	20000	1900	29000	67	-	45000	2.7	810	66	87	-	25	-	0.29	9200	490	63	1.5	-	510	-	-	420	250	1100
COTS-001-MWB[3] (4.17 m)	12/08/15	6	<1.0	<1.0	43	<1.0	<2.0	<50	0.029	<1.0	<0.40	<2.0	<50	<0.50	22	<0.013	<2.0	<2.0	<1.0	<0.10	1600	<0.10	<2.0	<2.0	1	<2.0	<5.0
	11/28/16	11	<1.0	<1.0	38	<1.0	<2.0	<50	0.20	<1.0	<0.40	<2.0	<50	<0.50	1400	<0.013	<2.0	<2.0	<1.0	<0.10	1500	<0.10	<2.0	<2.0	0.62	<2.0	<5.0
	12/21/17	6.0	<1.0	2.8	44	<1.0	<2.0	<50	<0.010	<1.0	0.45	<2.0	530	<0.50	2100	<0.013	<2.0	<2.0	<1.0	<0.10	1600	<0.10	2.2	<2.0	0.52	<2.0	<5.0
	11/28/18	6.9	<1.0	<1.0	33	<1.0	<2.0	<50	0.031	<1.0	<0.40	<2.0	<50	<0.50	700	<0.013	<2.0	<2.0	<1.0	<0.10	1500	<0.10	3.2	<2.0	1.1	<2.0	<5.0
MCES-001-MWA (5.19 m)	03/28/13[FD]	18	<1	0.9	150	<0.5	<2	<100	<0.017	<1	<1	4.7	100	3.9	<4	0.015	8.1	<3	4	<0.1	1100	<0.8	<20	<3	<0.15	26	12
	03/28/13	20	<1	<0.6	150	<0.5	<2	<100	<0.017	<1	<1	4.8	110	3.9	<4	0.015	8.3	<3	1.8	<0.1	1100	<0.8	<20	<3	<0.15	21	14
	07/24/13	30.8	<1	<1	159	<1	<2	<50	<0.017	<1	<0.4	13.3	<50	1.87	3.2	NM	9.4	<2	1.6	<0.1	1180	<0.1	<2	<2	<0.1	23.3	8.7
	12/10/14	310	<1	<1	160	<1	<2	<50	0.085	2.6	<0.4	10	<50	0.83	2.9	<0.013	9.5	<2	1.8	<0.1	1200	<0.1	<2	<2	<0.1	16	7.7
	12/2/15	53	<1.0	<1.0	150	<1.0	<2.0	<50	<0.010	<1.0	<0.40	2.7	<50	2.9	<2.0	<0.013	8.9	<2.0	1.5	<0.10	1300	<0.10	<2.0	<2.0	<0.10	20	<5.0
	11/25/16	79	<1.0	<1.0	160	<1.0	<2.0	<50	<0.010	2.6	<0.40	4.3	<50	5.1	<2.0	<0.013	9.3	<2.0	1.9	<0.10	1300	<0.10	<2.0	<2.0	<0.10	18	<5.0
	12/12/17 FD	54	<1.0	<1.0	140	<1.0	<2.0	<50	0.017	2.1	<0.40	4.3	<50	4.2	<2.0	<0.013	9.0	<2.0	1.8	<0.10	1300	<0.10	<2.0	<2.0	<0.10	18	<5.0
	12/12/17	52	<1.0	<1.0	140	<1.0	<2.0	<50	<0.010	2.0	<0.40	11	<50	4.0	<2.0	<0.013	8.5	<2.0	1.8	<0.10	1300	<0.10	<2.0	<2.0	<0.10	18	<5.0
	11/28/18	43	<1.0	<1.0	150	<1.0	<2.0	<50	0.018	7.9	<0.40	2.8	<50	4.9	<2.0	<0.013	9.0	<2.0	1.5	<0.10	1000	<0.10	<2.0	<2.0	<0.10	16	<5.0
MCES-001-MWB[8] (6.07 m)	03/28/13	<50	<10	<6	3500	<5	<20	2200	0.19	<10	<10	<20	18000	<10	2200	<0.013	<40	<30	32	<1	68000	<8	<200	<30	6.6	49	110
	07/25/13	<50	<10	<10	5210	<10	<20	3260	<0.17	11	<4	<20	14700	<5	1220	NM	<20	<20	<10	<1	51000	<1	<20	<20	5	<20	<50
	11/14/13	110	<10	<10	7000	<10	<20	3600	<0.1	<10	<4	<20	15000	<5	1000	NM	<20	<20	<10	<1	41000	<1	<20	<20	3.7	<20	120
	12/10/14	86	<1	8.7	7200	<1	<2	3600	0.16	1.5	0.88	<2	14000	<0.5	1400	0.017	<2	<2	<1	<0.1	52000	<0.1	<2	3.3	2.5	2.3	10
	12/2/15	<50	<10	<10	7000	<10	<20	3500	<0.10	<10	<4.0	<20	11000	<5.0	1300	<0.013	<20	<20	<10	<1.0	54000	<1.0	<20	<20	1.9	<20	<50
	11/25/16	<50	<10	<10	7200	<10	<20	3700	<0.10	<10	<4.0	<20	10000	<5.0	1300	<0.013	<20	<20	<10	<1.0	54000	<1.0	<20	<20	1.3	<20	<50
	12/15/17	<50	<10	<10	7700	<10	<20	3300	<0.10	<10	<4.0	<2.0	11000	<5.0	1300	0.015	<20	<20	<10	<1.0	58000	<1.0	<20	<20	<1.0	<20	<50
	11/28/2018 [10]	650	2.2	<1.0	260	<1.0	<2.0	<50	<0.010	5.8	<0.40	2.4	<50	<0.50	<2.0	<0.013	11	<2.0	1.8	<0.10	1100	<0.10	<2.0	<2.0	<0.10	2.7	<5.0
MCES-006-MW (2.80 m)	03/28/13	7.7	<1.0	13	490	<0.5	<2.0	<100	<0.017	<1.0	<1.0	<2.0	2000	<1.0	4500	<0.013	<4	<3.0	6.3	<0.1	860	<0.8	<20	<3.0	0.84	18	<5
	07/26/13	16.6	<1.0	12.1	588	<1.0	<2.0	<50	<0.017	<1.0	<0.4	<2.0	2200	<0.5	4520	NM	<2.0	<2.0	<1.0	<0.1	883	<0.1	<2.0	<2.0	0.89	7.6	<5
	11/05/13[L]	25	<1.0	12	520	<1.0	<2.0	<50	0.037	<1.0	<0.4	<2.0	2500	<0.5	4800	NM	<2.0	<2.0	<1.0	<0.1	830	<0.1	<2.0	<2.0	0.79	9.0	15
	11/05/13	27	<1.0	12	520	<1.0	<2.0	<50	0.038	<1.0	<0.4	<2.0	2500	<0.5	4800	NM	<2.0	<2.0	<1.0	<0.1	840	<0.1	<2.0	<2.0	0.79	9.1	16
	12/10/14	210	1.5	10	130	<1	<2	<50	0.041	<1	<0.4	9.3	110	<0.5	550	<0.013	4.5	<2	2.9	<0.1	730	<0.1	<2	<2	0.21	120	<5
	12/3/15	300	1.3	11	65	<1.0	<2.0	<50	<0.010	<1.0	0.47	13	<50	<0.50	160	<0.013	4.8	<2.0	3.3	<0.10	580	<0.10	<2.0	<2.0	0.37	140	<5.0
	12/02/16	23	<1.0	11	240	<1.0	<2.0	<50	0.049	<1.0	<0.40	2.5	650	<0.50	2700	<0.013	<2.0	<2.0	<1.0	<0.10	510	<0.10	<2.0	<2.0	0.6	16	<5.0
	12/13/17	20	<1.0	4.3	120	<1.0	<2.0	<50	0.018	<1.0	<0.40	5.2	130	<0.50	1100	<0.013	3.7	<2.0	1.7	<0.10	360	<0.10	<2.0	<2.0	0.91	23	<5.0
	11/28/18	200	<1.0	7.2	110	<1.0	<2.0	<50	0.048	<1.0	<0.40	5.1	220	<0.50	740	<0.013	2.7	<2.0	1.5	<0.10	440	<0.10	<2.0	<2.0	0.13	110	<5.0
MCES-204-MW[8] (4.17 m) (Destroyed 2017)	03/28/13[L]	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
	03/28/13	62	<10	<6	75	<5.0	<20	1300	<0.17	<10	<10	<20	1600	<10	<40	0.028	<40	<30	**210**	<1.0	5400	<8	<200	<30	<1.5	52	<50
	07/24/13	<50	<10	<10	70	<10	<20	1240	<0.17	<10	<4.0	<20	<500	<5.0	31	NM	<20	<20	**120**	<1.0	4880	<1.0	<20	<20	<1.0	<20	<50
	11/07/13[L]	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
	11/07/13	59	<10	<10	71	<10	<20	1200	<0.10	<10	<4.0	<20	<500	<5.0	<20	NM	<20	<20	36	<1.0	5100	<1.0	<20	<20	<1.0	<20	<50
	12/18/14[FD]	27	<1	1.5	74	<1	<2	1100	0.43	<1	<0.4	<2	97	<0.5	18	<0.013	<2	<2	39	<0.1	5000	<0.1	<2	<2	<0.1	<2	<5
	12/18/14	20	<1	1.9	74	<1	<2	1100	0.21	<1	<0.4	<2	65	<0.5	19	<0.013	<2	<2	**67**	<0.1	5000	<0.1	<2	<2	<0.1	<2	<5
	12/10/15	<50	<10	<10	60	<10	<20	1200	0.43	<10	<4.0	<20	<500	<5.0	<20	<0.013	<20	<20	<10	<1.0	4700	<1.0	<20	<20	<1.0	<20	<50
	11/25/16[FD]	<50	<10	<10	64	<10	<20	1100	<0.10	<10	<4.0	<20	<500	<5.0	<20	<0.13	<20	<20	48	<1.0	4700	<1.0	<20	<20	<1.0	<20	<50
	11/25/16	<50	<10	<10	61	<10	<20	1200	<0.10	<10	<4.0	<20	<500	<5.0	<20	<0.13	<20	<20	**86**	<1.0	4800	<1.0	<20	<20	<1.0	<20	<50
MCWS-009-MW (6.63 m) *Decommissioned 2015*	12/9/14[FD]	8.3	<1	<1	74	<1	<2	<50	0.042	<1	<0.4	<2	<50	<0.5	130	<0.013	<2	<2	<1	<0.1	320	<0.1	<2	<2	0.69	<2	<5
	12/9/14	7.8	<1.0	<1	73	<1	<2	<50	0.033	<1	<0.4	<2	<50	<0.5	130	<0.013	<2	<2	<1	<0.1	310	<0.1	<2	<2	0.7	<2	<5
MCWS-113-MWB (1.49 m)	12/18/12	12	<1	<0.6	200	<0.5	<2	300	<0.017	<1	<1	<2	2000	<1	4600	<0.013	<4	<3	<1	<0.1	340	<0.8	<20	<3	<0.15	<2	17
	03/27/13	<25	<5	<3	210	<2.5	<10	<500	<0.085	<5	<5	<10	2300	<5	4900	0.014	<20	<15	<5	<0.5	340	<4	<100	<15	<0.75	<10	32
	07/24/13	13.2	<1	<1	218	<1	<2	253	<0.017	<1	<0.4	<2	2570	<0.5	4580	NM	<2	<2	<1	<0.1	357	<0.1	<2	<2	<0.1	<2	21.3
	11/15/13	16	<1	<1	210	<1	<2	330	0.041	<1	<0.4	<2	2200	<0.5	4600	NM	<2	<2	<1	<0.1	370	<0.1	<2	<2	<0.1	<2	41
	12/9/14	13	<1	<1	190	<1	<2	320	1.0	<1	<0.4	4.1	1800	<0.5	4300	<0.013	<2	<2	<1	<0.1	340	<0.1	<2	<2	<0.1	<2	45
	12/2/15	44	<1.0	<1.0	210	<1.0	<2.0	310	<0.010	<1.0	0.61	<2.0	2200	26	4300	<0.013	<2.0	<2.0	<1.0	<0.10	350	<0.10	<2.0	<2.0	<0.10	<2.0	13
	11/30/16	7.7	<1.0	<1.0	150	<1.0	<2.0	330	0.046	<1.0	<0.40	<2.0	1300	<0.50	3500	<0.013	<2.0	<2.0	<1.0	<0.10	350	<0.10	<2.0	<2.0	<0.10	<2.0	97
	12/12/17	5.1	<1.0	<1.0	210	<1.0	<2.0	300	<0.010	<1.0	<0.40	<2.0	2100	<0.50	3500	<0.013	<2.0	<2.0	<1.0	<0.10	360	<0.10	<2.0	<2.0	<0.10	<2.0	<5.0
	12/7/18	6.6	<1.0	<1.0	210	<1.0	<2.0	290	0.043	<1.0	<0.40	<2.0	2100	<0.50	3600	<0.013	<2.0	<2.0	<1.0	<0.10	350	<0.10	<2.0	<2.0	<0.10	<2.0	<5.0

TABLE A-3 LTMM GROUNDWATER MONITORING EVENT NOVEMBER AND DECEMBER 2018
OHP AND HE GROUNDWATER ANALYTICAL RESULTS - INORGANIC CHEMISTRY

Sample Location (Monitor Well Depth)	Sample Date	Na	K	Ca	Mg	ALK	SO4	Cl	SiO2	OPO4	P	NO3	NO2	NO2-NO3	NH3	Colour	TOC	TURBIDITY	CONDUCTIVITY	pH	HARDNESS	BICARB ALK	CARB ALK	TDS	Anion Sum	Ion Bal_	Langelier Ind_ (@20C)	Langelier Ind_ (@4C)	Sat_ pH (@20C)	Sat_ pH (@4C)
Units		µg/L	µg/L	µg/L	µg/L	mg/L	mg/L	mg/L	mg/L	mg/L	µg/L	mg/L	mg/L	mg/L	mg/L	TCU	mg/L	NTU	µS/cm	pH	mg/L	mg/L	mg/L	mg/L	me/L	%	unitless	unitless	unitless	unitless
MOE Table 3[2]		2300000	-	-	-	-	-	2300000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MCWS-306-MWB (0.62 m)	03/27/13	43000	5400	110000	34000	210	280	51	11	0.011	<100	0.052	<0.01	0.052	<0.05	<5	1.2	94	990	7.6	420	210	<1	664	11.4	4.72	0.463	0.216	7.14	7.38
	07/24/13	31700	3990	109000	27700	230	230	21	11	<0.01	<100	<0.05	<0.01	<0.05	<0.05	<5	1	46	870	7.61	390	230	<1	573	9.92	3.66	0.529	0.281	7.08	7.33
	11/15/13	23000	3900	110000	26000	250	170	14	12	0.012	<100	0.057	<0.01	0.057	<0.05	<5	2.7	>1000	810	7.71	370	250	1.2	510	8.95	2.29	0.672	0.424	7.04	7.29
	12/9/14	16000	2900	110000	20000	250	130	17	12	0.015	<100	<0.05	<0.01	<0.05	0.065	<5	1.2	83	700	7.46	350	250	<1	460	8.2	2.5	0.432	0.184	7.03	7.28
	12/2/15	16000	3000	110000	21000	290	140	16	13	0.018	<100	<0.050	0.01	<0.050	<0.050	<5.0	1.2	2.6	720	7.66	360	280	1.2	490	9.03	6.49	0.686	0.438	6.97	7.22
	11/30/16	23000	3900	130000	24000	270	190	16	13	0.015	<100	<0.050	<0.010	<0.050	0.12	<5.0	1.5	22	850	7.61	430	270	1	560	9.72	0.36	0.678	0.431	6.93	7.18
	12/12/17	13000	2600	110000	20000	280	95	16	13	<0.010	<100	<0.050	<0.010	<0.050	0.066	<5.0	1.5	1.5	710	7.61	350	280	1.1	440	8.02	2.30	0.627	0.378	6.98	7.23
	12/7/18	12000	2500	89000	18000	240	87	14	13	<0.010	<100	<0.050	<0.010	<0.050	0.063	<5.0	1.9	1.3	610	7.57	290	240	<1.0	380	6.93	3.43	0.444	0.196	7.12	7.37
MCWS-307-MWB (0.59 m)	03/27/13	180000	2200	70000	10000	330	110	160	11	<0.01	<100	0.064	<0.01	0.064	<0.05	<5	0.88	1.2	1200	7.8	220	330	2	738	13.4	5.02	0.65	0.404	7.15	7.4
	07/24/13	193000	2130	64300	10000	340	100	160	10	<0.01	<100	<0.05	<0.01	<0.05	0.063	<5	0.92	1.6	1300	7.77	200	340	1.9	744	13.4	3.52	0.592	0.346	7.18	7.42
	11/14/13	190000	2100	65000	9800	340	97	150	10	<0.01	<100	<0.05	<0.01	<0.05	0.11	<5	1.4	5.0	1300	7.72	200	340	1.7	730	13.1	3.14	0.556	0.309	7.16	7.41
	12/9/14	190000	2200	70000	11000	330	96	170	10	0.012	<100	0.088	0.011	0.099	0.12	<5	1	50	1200	7.73	220	330	1.7	750	13.3	2.46	0.432	0.336	7.15	7.39
	12/2/15	190000	2000	68000	10000	350	96	180	10	0.017	<100	<0.050	0.011	0.052	0.11	<5.0	0.93	3	1300	7.87	210	340	2.4	770	14	5.23	0.725	0.478	7.15	7.4
	12/02/16	200000	2100	71000	11000	360	90	200	11	0.016	<100	<0.050	<0.010	<0.050	0.1	<5.0	0.94	0.4	1200	7.7	220	350	1.7	790	14.5	5.1	0.582	0.335	7.12	7.37
	12/12/17	200000	2000	69000	11000	340	90	200	11	<0.010	<100	<0.050	<0.010	<0.050	0.087	<5.0	1.0	0.85	1400	7.91	220	340	2.6	790	14.2	3.51	0.752	0.506	7.16	7.40
	12/7/18	190000	2000	73000	11000	330	82	210	10	<0.010	<100	0.058	<0.010	0.058	0.083	<5.0	1.1	0.67	1400	7.85	230	330	2.2	770	14.1	4.07	0.709	0.462	7.14	7.39
MCWS-309-MW (0.85 m)	03/29/13	170000	7300	5400	2900	280	84	37	14	0.093	180	<0.05	<0.01	<0.05	0.14	33	18	>1000	700	7.7	25	280	1.3	490	8.46	2.61	-0.583	-0.831	8.28	8.53
	07/26/13	177000	7870	4010	2230	250	84	39	8.1	0.11	179	<0.05	<0.01	<0.05	<0.05	19	12	170	760	7.68	19	250	1.1	475	7.92	2.22	-0.778	-1.03	8.46	8.71
	11/14/13	170000	8000	4000	2000	260	89	39	8.3	0.10	250	<0.05	<0.01	<0.05	<0.05	18	13	110	800	7.52	18	260	<1.0	480	8.26	2.93	-0.92	-1.17	8.44	8.69
	12/9/14	88000	4700	3900	1100	110	35	18	4.7	0.091	180	0.15	<0.01	0.15	0.13	21	<5	510	340	7.31	14	110	<1	220	3.4	11.5	0.432	-1.72	8.78	9.02
	12/3/15	160000	7700	5000	1800	250	95	48	7	0.095	180	<0.050	0.011	<0.050	0.13	18	9.4	910	750	7.62	20	250	<1.0	480	8.41	4.15	-0.742	-0.99	8.36	8.61
	12/02/16	170000	8400	8200	2200	310	88	49	10	0.067	150	<0.050	<0.010	<0.050	0.14	18	9.8	130	800	7.62	30	310	1.2	530	9.42	6.44	-0.453	-0.701	8.07	8.32
	12/12/17	180000	8800	6700	2200	310	90	51	7.9	0.14	190	<0.050	<0.010	<0.050	0.31	17	14	470	880	7.52	26	300	<1.0	540	9.42	3.80	-0.649	-0.896	8.17	8.42
	12/7/18	94000	6300	6100	1800	160	51	40	5.2	0.14	230	0.24	0.060	0.30	0.43	12	8.7	240	540	7.29	23	160	<1.0	310	5.45	6.97	-1.13	-1.38	8.42	8.67
MCWS-310-MW (0.77 m)	03/29/13[L]	49000	3400	75000	10000	NM	NM	NM	9.5	NM	<100	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
	03/29/13	51000	3600	79000	11000	240	49	51	9.5	<0.01	<100	2.7	<0.01	2.7	<0.05	<5	<0.5	0.24	650	7.6	240	240	<1	410	7.46	2.26	0.431	0.183	7.17	7.42
	07/26/13	76100	3430	97100	14200	210	120	120	10	<0.01	<100	1.7	0.016	1.7	<0.05	<5	0.77	0.4	980	7.68	300	210	<1	574	10.2	4.03	0.506	0.258	7.17	7.42
	11/14/13	43000	3700	75000	9600	220	46	46	9.5	<0.01	<100	2.3	0.023	2.4	<0.05	<5	1.3	0.37	640	7.89	230	210	1.6	370	6.72	1.9	0.653	0.405	7.24	7.49
	12/9/14	17000	1500	21000	2400	130	29	30	6.6	<10	<100	0.81	<0.01	0.81	0.097	11	1.3	31	400	7.42	61	130	<1	190	4.02	33.3	0.432	-0.796	7.97	8.22
	12/10/15[FD]	8200	3200	10000	1400	50	7.5	6.4	3.6	<0.010	<100	<0.050	<0.010	<0.050	0.15	25	NM	8.3	120	7.19	32	50	<1.0	72	1.33	8.13	-1.42	-1.67	8.61	8.86
	12/10/15	8000	3200	10000	1400	49	6.7	6.5	3.7	<0.010	<100	<0.050	<0.010	<0.050	0.16	27	NM	8.0	110	7.23	32	49	<1.0	71	1.31	8.26	-1.38	-1.63	8.62	8.87
	12/02/16	7600	3200	14000	1500	49	6.4	11	3.4	0.011	<100	<0.050	0.013	<0.050	0.053	14	1.7	3.2	120	7.15	42	49	<1.0	76	1.41	6.02	-1.33	-1.58	8.48	8.73
	12/12/17	16000	1600	29000	3800	52	10	12	2.6	<0.010	<100	0.22	<0.010	0.22	<0.25	26	6.9	12	150	7.43	89	52	<1.0	110	1.59	22.4	-0.737	-0.988	8.17	8.42
	12/7/18	8800	940	4900	860	16	5.9	15	1.6	0.011	<100	0.17	<0.010	0.17	<0.050	22	5.6	24	93	6.70	16	16	<1.0	48	0.880	10.0	-2.70	-2.95	9.40	9.65
MSES-003-MW (9.10 m) *Destroyed 2016*	03/26/13	89000	<6000	250000	27000	170	630	120	18	<0.01	<1000	<0.05	<0.01	<0.05	0.11	49	6.7	160	1600	7.3	730	170	<1	1260	19.9	2.57	0.355	0.11	6.95	7.19
	07/24/13[FD]	88300	1660	232000	27500	170	600	110	14	<0.01	<100	<0.05	<0.01	<0.05	0.13	130	5.8	130	1600	7.15	690	170	<1	1200	19	2.13	0.178	-0.067	6.97	7.22
	07/24/13[L]	89300	1690	234000	27600	NM	NM	NM	NM	NM	<100	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
	07/24/13	88600	1650	237000	27600	170	600	110	14	<0.01	<100	<0.05	<0.01	<0.05	0.14	110	5.7	140	1600	7.14	710	170	<1	1200	19	1.36	0.181	-0.064	6.96	7.2
	11/05/13[L]	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	1700	6.88	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
	11/05/13	92000	1700	240000	30000	160	630	110	14	<0.01	<100	0.057	<0.01	0.057	0.17	62	8.1	200	1700	6.9	730	160	<1	1300	19.6	0.750	-0.089	-0.334	6.99	7.23
	12/10/14[FD]	82000	1700	240000	27000	180	550	93	14	<10	<100	0.21	<0.01	0.21	0.19	96	6.3	130	1500	7.05	710	180	<1	1100	17.7	1.69	0.111	-0.135	6.94	7.18
	12/10/14	84000	1700	240000	28000	180	550	94	14	<10	<100	0.063	<0.01	0.063	0.19	91	6	110	1500	7.02	710	180	<1	1100	17.7	2.19	0.432	-0.157	6.93	7.18
	12/03/15	78000	1700	220000	27000	150	480	92	14	0.015	<100	<0.050	0.012	<0.050	0.23	15	6.5	200	1500	7.2	670	150	<1.0	1000	15.5	5.87	0.177	-0.069	7.03	7.27
MSES-004-MW (7.36 m)	03/26/13	12000	2300	320000	58000	61	1100	24	9.1	<0.01	<1000	<0.05	<0.01	<0.05	0.19	76	1.1	4.9	1800	6.3	1000	61	<1	1560	24.5	6.54	-1.02	-1.26	7.32	7.56
	07/26/13	14100	2400	345000	61400	70	1000	25	6.9	<0.01	<100	<0.05	<0.01	<0.05	0.18	68	1.3	2	1800	6.25	1100	70	<1	1550	23.8	1.64	-0.978	-1.22	7.23	7.47
	11/15/13	13000	2600	360000	60000	67	980	25	6.7	0.031	<100	<0.05	<0.01	<0.05	0.18	72	2.1	48	1900	6.15	1200	67	<1	1500	22.5	2.68	-1.07	-1.31	7.22	7.46
	12/10/14	11000	2100	300000	49000	92	690	21	5.4	<10	<100	<0.05	0.011	<0.05	0.19	30	1.5	12	1500	6.37	940	92	<1	1100	16.7	7.67	0.432	-1.01	7.13	7.38
	12/3/15	13000	2300	320000	55000	98	740	26	5.7	0.01	<100	<0.050	0.013	<0.050	0.28	25	1.9	7.5	1700	6.49	1000	98	<1.0	1200	18.1	8.41	-0.581	-0.826	7.07	7.32
	11/25/16	12000	2200	260000	44000	140	650	17	4.9	<0.010	<100	<0.050	<0.010	<0.050	0.21	13	2.3	15	1300	6.57	830	140	<1.0	1100	16.8	1	-0.444	-0.69	7.01	7.26
	12/13/17[FD]	12000	2000	260000	39000	130	630	17	4.6	<0.010	<100	<0.050	<0.010	<0.050	0.19	23	2.5	6.6	1300	6.61	810	130	<1.0	1000	16.1	2.04	-0.429	-0.674	7.04	7.28
	12/13/17	12000	2000	240000	39000	130	630	17	4.6	<0.010	<100	<0.050	<0.010	<0.050	0.18	21	2.4	4.6	1400	6.54	750	130	<1.0	1000	16.1	1.29	-0.536	-0.782	7.08	7.32
	12/10/18	12000	2100	240000	41000	130	680	17	5.0	<0.010	<100	<0.050	<0.010	<0.050	0.18	39	2.2	4.7	1400	6.51	770	130	<1.0	1100	17.4	4.07	-0.547	-0.793	7.05	7.30

TABLE A-3 LTMM GROUNDWATER MONITORING EVENT NOVEMBER AND DECEMBER 2018
OHP AND HE GROUNDWATER ANALYTICAL RESULTS - INORGANIC CHEMISTRY

Sample Location (Monitor Well Depth)	Sample Date	Al	Sb	As	Ba	Be	Bi	B	Cd	Cr	Co	Cu	Fe	Pb	Mn	Hg	Mo	Ni	Se	Ag	Sr	Tl	Sn	Ti	U	V	Zn
Units		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
MOE Table 3[2]		-	20000	1900	29000	67	-	45000	2.7	810	66	87	-	25	-	0.29	9200	490	63	1.5	-	510	-	-	420	250	1100
MCWS-306-MWB (0.62 m)	03/27/13	12	<1	<0.6	17	<0.5	<2	110	0.38	<1	<1	<2	<100	<1	2600	0.018	5.7	<3	<1	<0.1	290	<0.8	<20	<3	1.7	<2	48
	07/24/13	8.1	<1	<1	20.2	<1	<2	97	0.108	<1	0.72	<2	<50	<0.5	2870	NM	3.5	2.2	<1	<0.1	250	<0.1	<2	<2	1.33	<2	33.9
	11/15/13	24	<1	<1	21	<1	<2	96	0.22	<1	0.95	<2	<50	<0.5	2800	NM	2.3	<2	<1	<0.1	250	<0.1	<2	<2	1.2	<2	5.3
	12/9/14	9.4	<1	<1	31	<1	<2	78	0.28	<1	0.85	<2	<50	<0.5	2200	<0.013	<2	<2	<1	<0.1	260	<0.1	<2	<2	0.89	<2	5.6
	12/2/15	9.7	<1.0	<1.0	46	<1.0	<2.0	73	0.12	<1.0	1.1	<2.0	150	<0.50	2900	<0.013	<2.0	2.2	<1.0	<0.10	280	<0.10	<2.0	<2.0	1.1	<2.0	<5.0
	11/30/16	16	<1.0	<1.0	58	<1.0	<2.0	84	0.038	<1.0	0.98	<2.0	320	<0.50	2900	<0.013	2.3	2	<1.0	<0.10	340	<0.10	<2.0	<2.0	1.9	<2.0	5.3
	12/12/17	<5.0	<1.0	<1.0	69	<1.0	<2.0	69	0.10	<1.0	1.2	<2.0	100	<0.50	3000	<0.013	<2.0	2.4	<1.0	<0.10	270	<0.10	<2.0	<2.0	0.78	<2.0	<5.0
	12/7/18	7.7	<1.0	<1.0	88	<1.0	<2.0	60	0.27	<1.0	0.90	<2.0	<50	<0.50	1700	<0.013	<2.0	2.3	<1.0	<0.10	220	<0.10	<2.0	<2.0	1.0	<2.0	76
MCWS-307-MWB (0.59 m)	03/27/13	7.7	<1.0	3.7	25	<0.5	<2.0	120	0.051	<1.0	<1.0	2.9	<100	<1.0	110	<0.013	<4.0	<3.0	<1.0	<0.1	290	<0.8	<20	<3.0	1.3	<2.0	31
	07/24/13	9.5	<1.0	4.2	24.9	<1.0	<2.0	116	<0.017	<1.0	<0.4	2.2	<50	<0.5	162	NM	<2.0	<2.0	<1.0	<0.1	281	<0.1	<2.0	<2.0	1.25	<2.0	11.3
	11/14/13	21	<1.0	5.7	24	<1.0	<2.0	120	<0.01	<1.0	<0.4	<2.0	100	<0.5	140	NM	<2.0	<2.0	<1.0	<0.1	280	<0.1	<2.0	<2.0	1.2	<2.0	53
	12/9/14	20	<1	1.8	37	<1	<2	130	<0.01	<1	<0.4	<2	83	<0.5	120	<0.013	<2	<2	<1	<0.1	290	<0.1	<2	<2	1.3	<2	5.2
	12/2/15	7.1	<1.0	1.4	33	<1.0	<2.0	140	<0.010	<1.0	<0.40	<2.0	95	<0.50	130	<0.013	<2.0	<2.0	<1.0	<0.10	300	<0.10	<2.0	<2.0	1.3	<2.0	<5.0
	12/02/16	13	<1.0	<1.0	33	<1.0	<2.0	120	0.14	<1.0	<0.40	<2.0	61	<0.50	130	<0.013	<2.0	<2.0	<1.0	<0.10	310	<0.10	<2.0	<2.0	1.3	<2.0	<5.0
	12/12/17	5.4	<1.0	<1.0	31	<1.0	<2.0	120	0.020	<1.0	<0.40	<2.0	<50	<0.50	130	<0.013	<2.0	<2.0	<1.0	<0.10	320	<0.10	<2.0	<2.0	1.2	<2.0	<5.0
	12/7/18	<5.0	<1.0	<1.0	32	<1.0	<2.0	120	0.039	<1.0	<0.40	<2.0	<50	<0.50	130	<0.013	<2.0	<2.0	<1.0	<0.10	310	<0.10	<2.0	<2.0	1.1	<2.0	8.7
MCWS-309-MW (0.85 m)	03/29/13	1800	<1.0	5.1	21	<0.5	<2.0	640	0.17	2.2	<1.0	11	2500	3	99	NM	5.4	<3.0	<1.0	<0.1	45	<0.8	<20	58	0.33	3.5	11
	07/26/13	145	<1.0	4.8	10.1	<1.0	<2.0	386	<0.017	<1.0	0.49	<2.0	352	<0.5	1030	NM	2.4	<2.0	<1.0	<0.1	20.9	<0.1	<2.0	<2.0	0.17	<2.0	5.7
	11/14/13	380	<1.0	4.7	13	<1.0	<2.0	390	0.013	<1.0	0.43	<2.0	690	0.61	880	NM	<2.0	<2.0	<1.0	<0.1	22	<0.1	<2.0	7.8	0.12	<2.0	14
	12/9/14	160	<1	2.7	6.3	<1	<2	210	0.023	<1	<0.4	<2	770	0.75	520	0.013	<2	<2	<1	<0.1	14	<0.1	<2	3.3	0.13	<2	10
	12/3/15	120	<1.0	2.3	9.3	<1.0	<2.0	370	0.072	<1.0	0.43	<2.0	190	<0.50	890	<0.013	2.0	<2.0	<1.0	<0.10	22	<0.10	<2.0	5.3	0.45	<2.0	<5.0
	12/02/16	60	<1.0	4.4	17	<1.0	<2.0	400	0.076	<1.0	<0.40	<2.0	590	<0.50	2000	0.013	2.3	<2.0	<1.0	<0.10	29	<0.10	<2.0	<2.0	0.19	<2.0	<5.0
	12/12/17	62	<1.0	3.6	12	<1.0	<2.0	410	0.019	<1.0	<0.40	<2.0	190	<0.50	1200	0.018	<2.0	<2.0	<1.0	<0.10	28	<0.10	<2.0	3.1	0.20	<2.0	<5.0
	12/7/18	72	<1.0	3.1	11	<1.0	<2.0	220	0.011	<1.0	0.74	<2.0	320	<0.50	1400	<0.013	3.2	<2.0	<1.0	<0.10	21	<0.10	<2.0	3.3	<0.10	<2.0	13
MCWS-310-MW (0.77 m)	03/29/13[L]	<5	<1.0	<0.6	60	<0.5	<2.0	100	<0.017	<1.0	<1.0	3.3	<100	<1.0	<4.0	NM	<4.0	<3.0	1.2	<0.1	2300	<0.8	<20	<3.0	0.89	<2.0	22
	03/29/13	<5	<1.0	<0.6	63	<0.5	<2.0	110	<0.017	<1.0	<1.0	3.6	<100	<1.0	<4.0	<0.013	<4.0	<3.0	<1.0	<0.1	2400	<0.8	<20	<3.0	0.93	<2.0	24
	07/26/13	12	<1.0	<1.0	76	<1.0	<2.0	122	0.035	<1.0	<0.4	2.8	<50	<0.5	90.1	NM	<2.0	<2.0	<1.0	<0.1	3210	<0.1	<2.0	<2.0	0.85	<2.0	13.7
	11/14/13	8.1	<1.0	<1.0	63	<1.0	<2.0	100	0.061	<1.0	<0.4	14	<50	<0.5	7.2	NM	<2.0	<2.0	<1.0	<0.1	2100	<0.1	<2.0	<2.0	0.9	<2.0	60
	12/9/14	84	<1	<1	23	<1	<2	<50	0.038	<1	<0.4	3.0	50	<0.5	4.1	<0.013	<2	<2	<1	<0.1	360	<0.1	<2	2.5	0.37	<2	410
	12/10/15[FD]	81	<1.0	<1.0	15	<1.0	<2.0	<50	<0.010	<1.0	<0.40	<2.0	1100	<0.50	39	<0.013	<2.0	<2.0	<1.0	<0.10	110	<0.10	<2.0	<2.0	<0.10	<2.0	79
	12/10/15	78	<1.0	<1.0	15	<1.0	<2.0	<50	<0.010	<1.0	<0.40	<2.0	990	<0.50	36	<0.013	<2.0	<2.0	<1.0	<0.10	100	<0.10	<2.0	2.2	<0.10	<2.0	82
	12/02/16	18	<1.0	<1.0	17	<1.0	<2.0	<50	0.048	<1.0	<0.40	<2.0	<50	<0.50	2.3	<0.013	<2.0	6	<1.0	<0.10	130	<0.10	<2.0	<2.0	<0.10	<2.0	440
	12/12/17	100	<1.0	<1.0	29	<1.0	<2.0	<50	0.023	<1.0	<0.40	<2.0	<50	<0.50	3.6	0.013	<2.0	<2.0	<1.0	<0.10	830	<0.10	<2.0	<2.0	0.40	<2.0	190
	12/7/18	85	<1.0	<1.0	11	<1.0	<2.0	<50	0.037	<1.0	<0.40	<2.0	<50	<0.50	2.9	<0.013	<2.0	<2.0	<1.0	<0.10	65	<0.10	<2.0	<2.0	<0.10	<2.0	130
MSES-003-MW (9.10 m) *Destroyed 2016*	03/26/13	<50	<10	49	14	<5	<20	<1000	0.65	14	<10	<20	12000	<10	7900	0.015	<40	<30	<10	<1.0	1300	<8	<200	<30	<1.5	<20	78
	07/24/13[FD]	11	<1.0	54.3	14.6	<1.0	<2.0	<50	0.237	<1.0	1.57	<2.0	12900	<0.5	8210	NM	<2.0	<2.0	<1.0	<0.1	1220	<0.1	<2.0	<2.0	0.22	<2.0	16
	07/24/13[L]	7.3	<1.0	57	14.7	<1.0	<2.0	<50	0.194	<1.0	1.7	<2.0	13700	<0.5	8590	NM	<2.0	<2.0	<1.0	<0.1	1230	<0.1	<2.0	<2.0	0.26	<2.0	14.5
	07/24/13	11.2	<1.0	57.3	14.9	<1.0	<2.0	<50	0.225	<1.0	1.65	<2.0	13700	<0.5	8580	NM	<2.0	<2.0	<1.0	<0.1	1230	<0.1	<2.0	<2.0	0.23	<2.0	15.9
	11/05/13[L]	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
	11/05/13	13	<1.0	64	18	<1.0	<2.0	53	0.036	<1.0	1.9	12	19000	<0.5	11000	NM	<2.0	2.7	<1.0	<0.1	1300	<0.1	<2.0	<2.0	0.19	<2.0	87
	12/10/14[FD]	13	<1	67	14	<1	<2	64	0.08	<1	1.8	<2	14000	<0.5	8900	<0.013	<2	<2	<1	<0.1	1300	<0.1	<2	<2	0.23	<2	5.7
	12/10/14	11	<1	69	15	<1	<2	58	0.38	<1	1.7	<2	15000	<0.5	9100	<0.013	<2	<2	<1	<0.1	1300	<0.1	<2	<2	0.21	<2	7.5
	12/03/15	17	<1.0	65	15	<1.0	<2.0	58	0.013	<1.0	1.8	<2.0	16000	0.76	9700	<0.013	<2.0	<2.0	<1.0	<0.10	1200	<0.10	<2.0	<2.0	0.23	<2.0	<5.0
MSES-004-MW (7.36 m)	03/26/13	240	<10	<6	7.4	<5	<20	<1000	<0.17	<10	<10	<20	2500	<10	1300	<0.013	<40	<30	<10	<1	320	<8	<200	<30	<1.5	<20	210
	07/26/13	517	<1.0	1.7	8.8	<1.0	<2.0	91	0.179	<1.0	1.22	<2.0	2510	<0.5	1630	NM	<2.0	3.2	<1.0	<0.1	314	<0.1	<2.0	<2.0	0.18	3.3	69.9
	11/15/13	290	<1.0	1.8	7.3	<1.0	<2.0	82	0.14	<1.0	1.6	<2.0	2700	<0.5	1700	NM	<2.0	2.4	<1.0	<0.1	370	<0.1	<2.0	<2.0	0.12	<2.0	7.5
	12/10/14	170	<1	1.9	7.5	<1	<2	85	0.073	<1	0.91	<2	1900	<0.5	1200	<0.013	<2	2.0	<1	<0.1	290	<0.1	<2	<2	<0.1	<2	63
	12/3/15	130	<1.0	1.9	7.5	<1.0	<2.0	83	0.051	<1.0	1.1	<2.0	2000	<0.50	1500	<0.013	<2.0	3.0	<1.0	<0.10	340	<0.10	<2.0	<2.0	0.15	<2.0	97
	11/25/16	61	<1.0	2.5	8.6	<1.0	<2.0	81	0.14	<1.0	0.5	<2.0	1700	<0.50	1100	<0.013	<2.0	<2.0	<1.0	<0.10	280	<0.10	<2.0	<2.0	0.16	<2.0	140
	12/13/17[FD]	63	<1.0	2.1	9.3	<1.0	<2.0	82	0.016	<1.0	0.48	<2.0	1100	<0.50	860	<0.013	<2.0	<2.0	<1.0	<0.10	270	<0.10	<2.0	<2.0	0.15	<2.0	100
	12/13/17	61	<1.0	1.9	9.4	<1.0	<2.0	80	0.027	<1.0	0.52	<2.0	1100	<0.50	860	<0.013	<2.0	<2.0	<1.0	<0.10	270	<0.10	<2.0	<2.0	0.17	<2.0	99
	12/10/18	56	<1.0	2.2	8.9	<1.0	<2.0	82	0.032	<1.0	0.60	<2.0	1500	<0.50	1200	<0.013	<2.0	<2.0	<1.0	<0.10	280	<0.10	<2.0	<2.0	0.20	<2.0	130

TABLE A-3 LTMM GROUNDWATER MONITORING EVENT NOVEMBER AND DECEMBER 2018
OHP AND HE GROUNDWATER ANALYTICAL RESULTS - INORGANIC CHEMISTRY

Sample Location (Monitor Well Depth)	Sample Date	Na	K	Ca	Mg	ALK	SO4	Cl	SiO2	OPO4	P	NO3	NO2	NO2-NO3	NH3	Colour	TOC	TURBIDITY	CONDUCTIVITY	pH	HARDNESS	BICARB ALK	CARB ALK	TDS	Anion Sum	Ion Bal_	Langelier Ind_ (@20C)	Langelier Ind_ (@4C)	Sat_ pH (@20C)	Sat_ pH (@4C)
Units		µg/L	µg/L	µg/L	µg/L	mg/L	mg/L	mg/L	mg/L	mg/L	µg/L	mg/L	mg/L	mg/L	mg/L	TCU	mg/L	NTU	µS/cm	pH	mg/L	mg/L	mg/L	mg/L	me/L	%	unitless	unitless	unitless	unitless
MOE Table 3[2]		2300000	-	-	-	-	-	2300000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MSES-006-MW (3.51 m)	03/26/13	130000	13000	450000	210000	330	2100	100	15	<0.01	<1000	<0.05	<0.01	<0.05	0.18	41	0.75	9.8	3500	6.9	2000	330	<1	3290	53.5	7.78	0.348	0.107	6.55	6.79
	07/24/13[L]	NM	NM	NM	NM	340	2100	110	12	<0.01	NM	NM	<0.01	<0.05	NM	68	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
	07/24/13	142000	12900	483000	216000	340	2000	100	12	<0.01	<100	<0.05	<0.01	<0.05	0.17	81	0.51	8.4	3600	6.79	2100	340	<1	3230	51.3	2.9	0.278	0.037	6.51	6.75
	11/05/13[L]	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	<0.5	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
	11/05/13	140000	14000	470000	230000	330	2200	100	12	<0.01	<100	<0.05	<0.01	<0.05	0.16	31	<0.5	11	3500	6.74	2100	330	<1	3400	54.2	5.25	0.2	-0.041	6.54	6.78
	12/10/14	25000	6900	430000	62000	250	790	52	23	<10	<100	<0.05	0.015	<0.05	0.22	5	1.7	4.6	2000	7.49	1300	250	<1	1500	22.9	9.74	0.432	0.667	6.58	6.83
	12/3/15	26000	7100	410000	64000	310	820	62	23	0.049	<100	<0.050	0.015	<0.050	0.45	<5.0	2.4	1.3	2100	7.42	1300	310	<1.0	1600	25.1	3.4	0.906	0.662	6.51	6.76
	11/25/16	130000	13000	470000	210000	350	1700	99	13	0.013	<100	<0.050	<0.010	<0.050	0.22	<5.0	2.6	9.1	3200	6.81	2000	350	<1.0	2900	44.5	1.92	0.327	0.085	6.48	6.73
	12/13/17	7000	2300	130000	18000	100	270	14	27	0.022	<100	<0.050	<0.010	<0.050	0.056	6.8	8.1	2.8	780	7.41	400	100	<1.0	540	8.16	1.27	0.067	-0.181	7.34	7.59
	12/10/18	120000	12000	450000	190000	360	1700	93	13	<0.010	<100	<0.050	<0.010	<0.050	0.18	35	0.84	7.2	3400	7.02	1900	360	<1.0	2800	44.3	0.290	0.527	0.285	6.49	6.73
MSES-008-MW (3.95 m)	03/26/13[L]	NM	NM	NM	NM	190	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	2400	7.3	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
	03/26/13	130000	6600	420000	28000	190	1000	190	32	<0.01	<1000	<0.05	<0.01	<0.05	0.1	37	1.2	130	2400	7.3	1200	180	<1	1950	30.2	0.38	0.55	0.307	6.75	6.99
	07/26/13	115000	5770	458000	28700	160	1100	200	24	<0.01	<100	<0.05	<0.01	<0.05	0.1	46	1.3	120	2500	7.25	1300	160	<1	2080	32.6	2.78	0.472	0.228	6.78	7.02
	11/15/13[L]	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	2500	7.12	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
	11/15/13	120000	6100	430000	27000	200	930	200	27	<0.01	<100	<0.05	<0.01	<0.050	0.076	270	1.1	83	2500	7.11	1200	200	<1	1900	29	0.8	0.408	0.164	6.7	6.95
	12/10/14	120000	5400	420000	27000	180	760	150	27	<10	<100	<0.05	<0.01	<0.05	0.11	160	2.7	140	2300	6.96	1200	180	<1	1600	23.7	9.68	0.432	-0.024	6.74	6.98
	12/3/15[FD]	90000	4500	390000	24000	200	740	150	27	0.026	<100	<0.050	0.011	<0.050	0.092	24	1.4	120	2200	7.4	1100	200	<1.0	1600	23.6	4.69	0.676	0.432	6.72	6.96
	12/3/15	89000	4500	400000	24000	200	620	150	28	0.025	<100	<0.050	<0.010	<0.050	0.096	<5.0	1.5	110	2100	7.32	1100	200	<1.0	1400	21.2	10.3	0.614	0.369	6.71	6.96
	11/25/16[FD]	110000	5400	460000	31000	200	1000	200	28	0.02	<100	0.074	<0.010	0.074	0.088	<5.0	1.6	180	2400	7.11	1300	200	<1.0	2000	31	0.78	0.424	0.181	6.68	6.93
	11/25/16	110000	5400	450000	32000	210	990	210	29	0.02	<100	<0.050	<0.010	<0.050	0.099	<5.0	1.5	150	2400	7.09	1300	210	<1.0	2000	30.6	0.15	0.417	0.174	6.67	6.92
	12/13/17	100000	4900	410000	25000	180	840	190	27	<0.010	<100	<0.050	<0.010	<0.050	0.071	17	2.4	170	2300	7.34	1100	170	<1.0	1700	26.3	2.14	0.567	0.323	6.77	7.01
	12/10/18	110000	5000	360000	25000	200	870	190	28	<0.010	<100	<0.050	<0.010	<0.050	0.075	170	0.94	150	2200	7.14	1000	200	<1.0	1700	27.5	4.01	0.378	0.135	6.77	7.01
MSES-012-MWA (3.38 m)	03/15/13	290000	4900	240000	19000	180	510	360	35	<0.01	<100	0.43	<0.01	0.43	<0.05	17	0.85	5.5	2600	7.1	680	180	<1.0	1570	24.3	4.6	0.116	-0.129	6.98	7.23
	07/25/13[FDL]	NM	NM	NM	NM	200	480	330	37	<0.01	NM	NM	<0.01	0.23	NM	19	NM	10	2200	7.08	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
	07/25/13[FD]	198000	4230	242000	24300	200	440	330	37	<0.01	<100	0.23	<0.01	0.23	<0.05	15	0.85	11	2200	7.07	700	200	<1.0	1410	22.7	0.37	0.168	-0.077	6.9	7.15
	07/25/13	197000	4170	244000	24500	190	`	330	37	<0.01	<100	0.22	<0.01	0.22	0.052	25	0.91	15	2200	7.19	710	190	<1.0	1470	23.9	1.9	0.259	0.015	6.93	7.18
	11/05/13	200000	4600	240000	25000	200	570	280	37	<0.01	<100	0.19	<0.01	0.19	0.33	70	1.5	49	2200	6.91	720	200	<1.0	1500	23.9	0.97	0.005	-0.240	6.91	7.15
	12/16/14	150000	3500	290000	26000	180	49	230	43	18	<100	0.052	<0.01	<0.01	0.088	46	1.3	18	2100	6.9	220	180	<1	290	21.5	0.29	0.022	-0.222	6.88	7.13
	12/3/15	180000	3700	350000	29000	180	600	320	47	0.035	<100	0.14	0.014	0.16	0.12	<5.0	0.88	3.5	2500	7.26	980	180	<1.0	1600	25.2	4.65	0.438	0.194	6.82	7.06
	11/22/16	140000	3300	330000	33000	200	740	170	45	0.031	<100	0.5	<0.010	0.5	<0.050	<5.0	1.3	20	2200	7.02	970	200	<1.0	1600	24.2	2.81	0.232	-0.013	6.79	7.03
	12/13/17	190000	3700	290000	23000	190	600	300	44	<0.010	<100	0.091	<0.010	0.091	<0.050	<5.0	1.5	8.7	2200	7.17	810	190	<1.0	1600	24.6	0.220	0.287	0.042	6.88	7.12
	12/10/18	110000	2400	230000	22000	200	540	140	42	<0.010	<100	0.78	<0.010	0.78	<0.050	<5.0	1.3	5.2	1700	7.56	660	200	<1.0	1200	19.4	3.69	0.635	0.390	6.92	7.17
MSES-104-MWA (1.73 m)	03/28/13	17000	5600	410000	38000	67	1100	53	4.8	<0.01	<100	<0.05	<0.01	<0.05	0.25	15	16	960	2000	7.60	1200	67	<1	1700	26.4	3.94	0.409	0.165	7.19	7.44
	12/10/14	29000	7700	530000	44000	59	1400	56	5.4	<10	<100	<0.05	0.011	<0.05	0.44	<5	1	12	2300	7.61	1500	59	<1	2100	30.9	1.42	0.432	0.217	7.15	7.4
	12/3/15	30000	8500	510000	42000	48	1200	62	4.6	0.012	110	<0.050	0.01	<0.050	0.62	<5.0	1.3	1.9	2300	8.07	1500	47	<1.0	1900	27.7	5.16	0.818	0.574	7.26	7.5
	11/25/16	28000	9300	470000	31000	35	1100	55	3.4	0.013	<100	<0.050	<0.010	<0.050	0.55	<5.0	1.7	13	2000	7.5	1300	35	<1.0	1700	25.2	4.18	0.087	-0.157	7.42	7.66
	12/13/17	32000	9200	560000	37000	35	1400	55	3.1	0.012	<100	<0.050	<0.010	<0.05	0.61	<5.0	1.6	0.6	2400	7.6	1500	35	<1.0	2100	30.4	3.30	0.244	0.000	7.36	7.60
	12/10/18	29000	8900	440000	28000	29	1200	47	2.5	0.012	<100	<0.050	<0.010	<0.050	0.64	<5.0	1.7	1.4	2100	7.45	1200	29	<1.0	1800	26.6	1.41	-0.0730	-0.317	7.52	7.77
MSES-104-MWB (2.28 m)	03/26/13	170000	12000	420000	200000	320	2200	70	18	<0.01	<1000	<0.05	<0.01	<0.05	0.55	54	3.5	92	3500	6.9	1900	320	<1	3370	53.9	8.24	0.299	0.058	6.6	6.84
	07/24/13[L]	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	78	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
	07/24/13	189000	11900	426000	208000	350	2100	73	12	<0.01	<100	<0.05	<0.01	<0.05	0.45	190	3.7	77	3500	6.86	1900	350	<1	3340	53.1	5.81	0.302	0.061	6.56	6.8
	11/05/13[FD]	190000	12000	400000	200000	370	2000	71	13	<0.01	<100	<0.05	<0.01	<0.05	0.42	30	3.8	100	3500	6.88	1800	370	<1	3200	50.6	5.3	0.33	0.088	6.55	6.79
	11/05/13	190000	12000	390000	200000	370	2000	73	13	<0.01	<100	<0.05	<0.01	<0.05	0.42	40	4.1	99	3400	6.80	1800	370	<1	3200	51.8	6.56	0.242	0.000	6.56	6.8
	12/10/14	170000	13000	440000	210000	330	1800	70	14	<10	<100	<0.05	<0.01	<0.05	0.57	190	3.5	55	3400	6.67	2000	330	<1	3000	46.3	1.16	0.432	-0.13	6.56	6.8
	12/3/15	180000	13000	390000	190000	430	1000	77	13	0.016	<100	<0.050	0.014	<0.050	0.59	18	4.0	58	3400	7.00	1800	430	<1.0	2200	31.5	16.2	0.562	0.319	6.44	6.68
	11/25/16	160000	14000	380000	140000	570	1100	75	11	0.013	<100	<0.050	<0.010	<0.050	0.54	9.1	5.3	33	2700	6.96	1500	570	<1.0	2300	37.2	0.93	0.622	0.379	6.34	6.59
	12/13/17	150000	12000	370000	170000	410	1700	78	12	<0.010	<1000	<0.050	<0.010	<0.050	0.49	13	4.0	50	3400	7.07	1600	410	<1.0	2800	45.4	7.09	0.556	0.313	6.52	6.76
	12/10/18[FD]	140000	12000	400000	180000	340	1700	68	13	<0.010	<100	<0.050	<0.010	<0.050	0.60	110	3.5	68	3500	7.02	1800	340	<1.0	2800	43.6	1.99	0.463	0.221	6.56	6.80
	12/10/18	140000	12000	400000	180000	340	1700	70	13	<0.010	<100	<0.050	<0.010	<0.050	0.62	130	3.5	72	3400	6.91	1800	340	<1.0	2800	44.7	3.08	0.342	0.100	6.57	6.81

TABLE A-3 LTMM GROUNDWATER MONITORING EVENT NOVEMBER AND DECEMBER 2018
OHP AND HE GROUNDWATER ANALYTICAL RESULTS - INORGANIC CHEMISTRY

Sample Location (Monitor Well Depth)	Sample Date	Al	Sb	As	Ba	Be	Bi	B	Cd	Cr	Co	Cu	Fe	Pb	Mn	Hg	Mo	Ni	Se	Ag	Sr	Tl	Sn	Ti	U	V	Zn
Units		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
MOE Table 3[2]		-	20000	1900	29000	67	-	45000	2.7	810	66	87	-	25	-	0.29	9200	490	63	1.5	-	510	-	-	420	250	1100
MSES-006-MW (3.51 m)	03/26/13	<50	<10	<6	13	<5	<20	<1000	0.24	<10	<10	<20	3000	<10	49000	0.017	<40	<30	<10	<1	3500	<8	<200	<30	4.3	<20	65
	07/24/13[L]	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
	07/24/13	35.9	<1	1.5	13.9	<1	<2	309	0.083	<1	5.29	<2	1940	<0.5	50300	NM	<2	12.6	<1	<0.1	3610	<0.1	<2	<2	4.95	<2	55.9
	11/05/13[L]	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
	11/05/13	11	<1	1.8	13	<1	<2	300	0.027	<1	5.4	<2	2200	<0.5	60000	NM	<2	14	<1	<0.1	3600	<0.1	<2	<2	4.4	<2	89
	12/10/14	34	<1	1.1	23	<1	<2	100	0.11	<1	<0.4	<2	160	<0.5	1900	<0.013	<2	<2	<1	<0.1	770	<0.1	<2	<2	4.3	4.4	6.2
	12/3/15	11	<1.0	<1.0	22	<1.0	<2.0	100	<0.010	<1.0	<0.40	<2.0	<50	<0.50	1800	<0.013	<2.0	<2.0	13	<0.10	810	<0.10	<2.0	<2.0	4.2	4.8	<5.0
	11/25/16	<5.0	<1.0	2.2	13	<1.0	<2.0	330	0.012	<1.0	4.6	<2.0	1900	<0.50	54000	<0.013	<2.0	13	<1.0	<0.10	3600	<0.10	<2.0	<2.0	4.4	<2.0	250
	12/13/17	8.9	<1.0	1.9	23	<1.0	<2.0	<50	0.013	1.1	<0.40	<2.0	<50	<0.50	86	<0.013	<2.0	<2.0	1.2	<0.10	330	<0.10	<2.0	<2.0	3.6	30	<5.0
	12/10/18	<5.0	<1.0	<1.0	11	<1.0	<2.0	320	0.30	<1.0	3.3	<2.0	1100	<0.50	47000	<0.013	<2.0	8.4	<1.0	<0.10	3400	<0.10	<2.0	<2.0	4.4	<2.0	<5.0
MSES-008-MW (3.95 m)	03/26/13[L]	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
	03/26/13	<50	<10	16	8.1	<5	<20	<1000	<0.17	<10	<10	<20	13000	<10	1400	<0.013	<40	<30	<10	<1.0	660	<8	<200	<30	<1.5	<20	69
	07/26/13	10.7	<1.0	11.6	8.3	<1.0	<2.0	68	0.107	<1.0	<0.4	<2.0	12200	<0.50	1190	NM	3.2	<2.0	<1.0	<0.10	707	<0.10	<2.0	<2.0	0.72	<2.0	19
	11/15/13[L]	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
	11/15/13	9.3	<1.0	11	9.9	<1.0	<2.0	66	0.073	<1	<0.40	<2.0	9200	<0.50	820	NM	2.9	<2.0	<1.0	<0.10	660	<0.10	<2.0	<2.0	0.68	<2.0	72
	12/10/14	100	<1	14	7.9	<1	<2	70	0.082	<1	<0.4	<2	15000	<0.5	1200	<0.013	3.1	<2	<1	<0.1	590	<0.1	<2	<2	0.6	<2	41
	12/3/15[FD]	5.2	<1.0	10	7.5	<1.0	<2.0	63	0.01	<1.0	<0.40	<2.0	9200	<0.50	650	<0.013	2.3	<2.0	<1.0	<0.10	490	<0.10	<2.0	<2.0	0.55	<2.0	39
	12/3/15	5.0	<1.0	10	7.7	<1.0	<2.0	67	0.016	<1.0	<0.40	<2.0	9200	<0.50	650	<0.013	2.4	<2.0	<1.0	<0.10	490	<0.10	<2.0	<2.0	0.55	<2.0	38
	11/25/16[FD]	6.8	<1.0	11	8.6	<1.0	<2.0	67	0.027	<1.0	<0.40	<2.0	11000	<0.50	990	<0.013	3	<2.0	<1.0	<0.10	600	<0.10	<2.0	<2.0	0.74	<2.0	100
	11/25/16	6.2	<1.0	12	8.7	<1.0	<2.0	66	0.013	<1.0	<0.40	<2.0	12000	<0.50	1000	<0.013	3	<2.0	<1.0	<0.10	600	<0.10	<2.0	<2.0	0.74	<2.0	110
	12/13/17	<5.0	<1.0	11	7.8	<1.0	<2.0	65	0.025	<1.0	<0.40	<2.0	13000	<0.50	1100	<0.013	2.4	<2.0	<1.0	<0.10	570	<0.10	<2.0	<2.0	0.57	<2.0	38
	12/10/18	<5.0	<1.0	11	7.9	<1.0	<2.0	71	<0.010	<1.0	<0.40	<2.0	10000	<0.50	920	<0.013	2.7	<2.0	<1.0	<0.10	520	<0.10	<2.0	<2.0	0.52	<2.0	40
MSES-012-MWA (3.38 m)	03/15/13	14	<1.0	1.4	4.7	<0.5	<2.0	<100	0.039	<1.0	<1.0	<2.0	750	<1.0	110	<0.013	<4	3.3	9.3	<0.1	300	<0.8	<20	<3.0	0.3	2.5	58
	07/25/13[FDL]	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
	07/25/13[FD]	12.6	<1.0	<1.0	6.7	<1.0	<2.0	<50	0.028	<1.0	<0.40	<2.0	1960	<0.50	230	NM	<2.0	<2.0	6.7	<0.1	315	<0.1	<2.0	<2.0	0.34	<2.0	92
	07/25/13	21.4	<1.0	<1.0	7.1	<1.0	<2.0	<50	0.054	<1.0	<0.40	<2.0	2190	<0.50	253	NM	<2.0	2.1	6.6	<0.1	316	<0.1	<2.0	<2.0	0.31	<2.0	103
	11/05/13	17	<1.0	2.4	4.9	<1.0	<2.0	<50	0.069	<1.0	<0.40	<2.0	4800	<0.50	670	NM	<2.0	2.2	4.3	<0.1	300	<0.1	<2.0	<2.0	0.31	<2.0	190
	12/16/14	26	<1	<1	5.3	<1	<2	<50	0.37	<1	<0.4	3.7	1800	<0.5	230	<0.013	<2	<2	6.2	<0.1	320	<0.1	<2	<2	0.33	<2	52
	12/3/15	5.7	<1.0	<1.0	5.7	<1.0	<2.0	<50	0.042	<1.0	<0.40	<2.0	90	<0.50	20	<0.013	<2.0	<2.0	3.5	<0.10	410	<0.10	<2.0	<2.0	0.43	<2.0	39
	11/22/16	9.7	<1.0	<1.0	6.5	<1.0	<2.0	<50	0.066	<1.0	<0.40	20	180	<0.50	81	<0.013	<2.0	<2.0	13	<0.10	400	<0.10	<2.0	<2.0	0.47	<2.0	82
	12/13/17	7.0	<1.0	<1.0	4.7	<1.0	<2.0	<50	0.025	<1.0	<0.40	<2.0	670	<0.50	95	<0.013	<2.0	<2.0	3.5	<0.10	340	<0.10	<2.0	<2.0	0.38	<2.0	42
	12/10/18	<5.0	<1.0	<1.0	4.7	<1.0	<2.0	<50	0.026	<1.0	<0.40	3.6	480	<0.50	93	<0.013	<2.0	<2.0	15	<0.10	270	<0.10	<2.0	<2.0	0.33	<2.0	47
MSES-104-MWA (1.73 m)	03/28/13	8.9	<1	1.8	12	<0.5	<2	<100	<0.017	<1	<1	<2	1600	<1	400	0.28	<4	<3	3.4	<0.1	420	<0.8	<20	<3	<0.15	6.9	<5
	12/10/14	11	<1	1.8	16	<1	<2	<50	0.065	<1	<0.4	<2	890	<0.5	220	<0.013	5.6	<2	<1	<0.1	540	<0.1	<2	<2	<0.1	<2	<5
	12/3/15	<5.0	<1.0	1.5	20	<1.0	<2.0	<50	<0.010	<1.0	<0.40	<2.0	580	<0.50	190	<0.013	5.7	<2.0	<1.0	<0.10	560	<0.10	<2.0	<2.0	<0.10	<2.0	<5.0
	11/25/16	33	<1.0	1.4	17	<1.0	<2.0	<50	0.64	<1.0	<0.40	<2.0	300	<0.50	100	<0.013	6.3	<2.0	<1.0	<0.10	520	<0.10	<2.0	<2.0	<0.10	<2.0	<5.0
	12/13/17	<5.0	<1.0	1.4	17	<1.0	<2.0	<50	0.054	<1.0	<0.40	<2.0	200	<0.50	91	<0.013	6.8	<2.0	<1.0	<0.10	590	<0.10	<2.0	<2.0	<0.10	<2.0	<5.0
	12/10/18	<5.0	<1.0	1.4	15	<1.0	<2.0	<50	<0.010	<1.0	<0.40	<2.0	120	<0.50	64	<0.013	6.5	<2.0	<1.0	<0.10	510	<0.10	<2.0	<2.0	<0.10	<2.0	<5.0
MSES-104-MWB (2.28 m)	03/26/13	400	<10	<6	19	<5	<20	<1000	<0.17	<10	44	<20	13000	<10	83000	0.014	<40	48	<10	<1	2300	<8	<200	<30	<1.5	<20	110
	07/24/13[L]	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
	07/24/13	239	<1	4.2	17.5	<1	<2	187	0.071	<1	23.8	<2	9590	<0.5	75000	NM	<2	33.9	<1	<0.1	2230	<0.1	<2	<2	1.26	<2	45.2
	11/05/13[FD]	110	<1	4.9	16	<1	<2	200	0.085	<1	7.1	<2	7000	<0.5	73000	NM	<2	25	<1	<0.1	2100	<0.1	<2	<2	1.3	<2	110
	11/05/13	150	<1	5.0	16	<1	<2	200	0.07	<1	7.3	<2	7100	<0.5	74000	NM	<2	30	<1	<0.1	2100	<0.1	<2	<2	1.3	<2	110
	12/10/14	550	<1	4.4	17	1.1	<2	200	0.14	<1	50	<2	11000	<0.5	88000	<0.013	<2	62	<1	<0.1	2400	<0.1	<2	<2	1.2	<2	34
	12/3/15	96	<1.0	4.7	16	<1.0	<2.0	200	0.076	<1.0	8.1	<2.0	5100	<0.50	68000	<0.013	<2.0	25	<1.0	<0.10	2100	<0.10	<2.0	<2.0	1.6	<2.0	<5.0
	11/25/16	42	<1.0	7.2	18	<1.0	<2.0	210	0.046	<1.0	2.4	<2.0	3500	9.6	37000	<0.013	<2.0	12	<1.0	<0.10	1600	<0.10	<2.0	<2.0	2	<2.0	<5.0
	12/13/17	89	<10	<10	15	<10	<20	<500	<0.10	<10	8.7	<20	4300	<5.0	63000	<0.013	<20	31	<10	<1.0	1900	<1.0	<20	<20	1.7	<20	<50
	12/10/18[FD]	750	<1.0	3.6	17	1.3	<2.0	190	0.14	<1.0	59	<2.0	6900	<0.50	84000	<0.013	<2.0	73	<1.0	<0.10	2100	<0.10	<2.0	<2.0	1.4	<2.0	42
	12/10/18	720	<1.0	3.6	18	1.3	<2.0	190	0.13	<1.0	59	<2.0	6800	<0.50	84000	<0.013	<2.0	72	<1.0	<0.10	2100	<0.10	<2.0	<2.0	1.5	<2.0	41

TABLE A-3 LTMM GROUNDWATER MONITORING EVENT NOVEMBER AND DECEMBER 2018
OHP AND HE GROUNDWATER ANALYTICAL RESULTS - INORGANIC CHEMISTRY

Sample Location (Monitor Well Depth)	Sample Date	Na	K	Ca	Mg	ALK	SO4	Cl	SiO2	OPO4	P	NO3	NO2	NO2-NO3	NH3	Colour	TOC	TURBIDITY	CONDUCTIVITY	pH	HARDNESS	BICARB ALK	CARB ALK	TDS	Anion Sum	Ion Bal_	Langelier Ind_ (@20C)	Langelier Ind_ (@4C)	Sat_ pH (@20C)	Sat_ pH (@4C)
Units		µg/L	µg/L	µg/L	µg/L	mg/L	mg/L	mg/L	mg/L	mg/L	µg/L	mg/L	mg/L	mg/L	mg/L	TCU	mg/L	NTU	µS/cm	pH	mg/L	mg/L	mg/L	mg/L	me/L	%	unitless	unitless	unitless	unitless
MOE Table 3[2]		2300000	-	-	-	-	-	2300000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW2 SPAR RD (2.62 m) *Removed from the LTMM program in 2015*	03/19/13[FD]	170000	5600	160000	5200	120	140	380	31	<0.01	<100	0.19	<0.01	0.19	<0.05	<5	0.66	0.49	1700	7.9	430	120	<1	967	16	0.16	0.636	0.39	7.26	7.51
	03/19/13[L]	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
	03/19/13	180000	5800	140000	5000	120	140	380	28	<0.01	<100	0.19	<0.01	0.19	<0.05	<5	0.61	0.51	1700	7.9	370	120	<1	949	16	1.72	0.575	0.329	7.33	7.57
	07/24/13	139000	8430	109000	5430	150	120	240	33	0.01	<100	<0.05	<0.01	<0.05	<0.05	5.8	0.86	3.2	1300	7.72	290	150	<1	743	12.3	0.53	0.417	0.171	7.3	7.55
	11/6/13[L]	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	<0.05	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
	11/06/13	150000	8500	140000	6600	190	180	270	41	0.017	<100	<0.05	<0.01	<0.05	<0.05	5.6	1.3	7.7	1500	7.77	390	190	1.0	920	15.2	1.78	0.659	0.413	7.11	7.36
	12/16/14[FD]	160,000	7700	120,000	5400	180	170	210	39	0.018	<100	0.07	0.01	0.081	<50	6.3	1.7	1.6	1400	7.83	320	180	1.1	820	13	2.12	0.638	0.391	7.19	7.44
	12/16/14	160000	8100	120000	5400	180	170	210	39	<10	<100	0.099	<0.01	<0.01	0.095	7.1	1.8	3.0	1400	7.83	320	180	1.1	820	13.1	1.14	0.631	0.384	7.2	7.44
SCU11-001-MWA (3.61 m)	03/29/13	53000	5400	120000	14000	130	42	220	7.3	<0.01	<100	0.058	<0.01	0.058	<0.05	<5	0.89	>1000	1000	8.1	340	120	1.5	534	9.65	1.74	0.781	0.533	7.32	7.57
	07/17/13	55500	6280	132000	15600	97	39	260	8.4	<0.01	<100	<0.05	<0.01	<0.05	<0.05	<5	<50	>1000	1200	7.66	390	96	<1	570	9.95	2.31	0.28	0.033	7.38	7.63
	10/24/13	250000	5300	66000	9000	170	520	49	8.0	0.20	260	<0.05	0.016	0.066	1.2	<5	<5	85	1500	7.72	200	170	<1	1000	15.6	2.13	0.213	-0.032	7.51	7.75
	12/15/14	64000	6900	170000	19000	110	37	310	9.4	<10	<100	0.17	0.024	0.19	0.12	<5	<0.5	3.3	1400	7.52	490	110	<1	690	11.9	3.68	0.432	0.044	7.23	7.47
	12/11/15	27000	6100	62000	6800	110	6.1	170	6.2	0.15	240	0.11	0.016	0.12	2.7	6.6	NM	3.2	780	7.64	180	110	<1.0	350	7.04	15.4	0.022	-0.227	7.62	7.86
	11/23/16	51000	8000	140000	16000	160	6.8	320	9	0.55	780	<0.050	0.016	<0.050	2.7	8.1	7.1	8.2	1300	7.45	430	160	<1.0	660	12.3	4.98	0.303	0.056	7.14	7.39
	12/13/17	43000	8100	130000	14000	230	11	210	11	0.68	820	0.16	<0.010	0.16	7.1	8.3	3.0	4.5	1100	7.71	380	230	1.1	580	10.8	3.30	0.690	0.443	7.02	7.27
	12/10/18	70000	10000	190000	21000	170	11	410	11	<0.010	380	0.83	0.50	1.3	2.7	<5.0	3.3	8.7	1600	7.57	550	170	<1.0	830	15.3	2.41	0.559	0.313	7.02	7.26
SCU11-001-MWB (2.00 m)	03/29/13[L]	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
	03/29/13	220000	4500	45000	6200	160	440	43	5	<0.01	<100	<0.05	<0.01	<0.05	0.22	<5	1.8	>1000	1200	8.6	140	160	5.8	856	13.5	4.68	0.911	0.665	7.69	7.94
	07/17/13	246000	4620	60300	8370	140	500	51	8	0.026	<100	<0.05	<0.01	<0.05	0.081	<5	<5	240	1400	7.83	190	140	<1	967	14.7	0.79	0.213	-0.033	7.62	7.86
	10/24/13	63000	7300	150000	18000	120	38	310	8.7	<0.010	<100	0.1	0.033	0.13	0.13	<5	1.8	>1000	1300	7.64	440	120	<1	670	12.0	1.06	0.377	0.130	7.26	7.51
	12/15/14[FD]	31000	2800	29000	3300	38	13	82	3.4	0.054	110	0.1	0.029	0.13	0.79	8.2	4.7	13	360	6.9	86	38	<1	190	3.35	2.29	-1.44	-1.69	8.34	8.59
	12/15/14	31000	2900	29000	3400	39	12	83	3.4	0.054	130	0.075	0.028	0.1	0.74	9.1	4.4	5.1	360	7.02	87	39	<1	190	3.38	2.11	0.432	-1.55	8.32	8.57
	12/11/15	22000	4500	17000	2000	40	5.5	48	1.6	0.23	510	<0.050	<0.010	<0.050	1.8	30	NM	3.2	240	7.04	51	40	<1.0	130	2.28	0	-1.48	-1.73	8.52	8.77
	11/23/16	28000	8900	29000	3300	59	17	54	2.8	0.75	960	1.5	0.057	1.5	3.8	62	8.1	3.9	320	7.11	87	59	<1.0	190	3.21	3.75	-1.04	-1.29	8.15	8.4
	12/13/17	72000	10000	64000	7200	93	27	190	5.8	1.8	2000	<0.050	0.011	<0.050	3.3	44	8.4	2.5	860	7.30	190	92	<1.0	440	7.89	3.20	-0.384	-0.633	7.69	7.94
	12/05/18	49000	6000	47000	5200	60	22	150	5.4	0.89	1100	0.13	0.01	0.14	2.5	46	7.1	5.0	630	7.18	140	60	<1.0	330	5.88	5.47	-0.794	-1.04	7.98	8.23
SCU7-001-MW (1.77 m)	12/12/14	27000	2400	390000	15000	220	780	55	19	<10	<100	0.093	<0.01	0.093	0.69	<5	1.3	7.5	1800	7.05	1000	220	<1	1400	22.2	0.77	0.432	0.142	6.66	6.91
	12/10/15	18000	2000	290000	12000	200	550	35	15	0.015	<100	<0.050	<0.010	<0.050	0.099	<5.0	NM	21	1400	7.33	760	200	<1.0	1000	16.4	0.86	0.526	0.28	6.81	7.05
	12/02/16	24000	2500	410000	15000	230	770	92	18	0.02	<100	<0.050	<0.010	<0.050	0.11	<5.0	1.6	5.0	1700	7.21	1100	230	<1.0	1500	23.3	0.63	0.588	0.344	6.62	6.86
	12/15/17	38000	2700	510000	15000	230	1000	140	16	0.01	<1000	<0.050	<0.010	<0.050	0.12	<5.0	1.5	0.5	2300	7.26	1300	230	<1.0	1900	29.8	2.46	0.688	0.445	6.58	6.82
	12/07/18	51000	2300	520000	15000	180	1100	170	15	<0.010	<100	<0.050	<0.010	<0.050	0.12	<5.0	1.3	2.7	2300	7.22	1400	180	<1.0	2000	31.0	2.28	0.554	0.311	6.67	6.91
SCU7-003-MW (1.01 m)	03/29/13[L]	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	1.3	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
	03/29/13	51000	6100	150000	13000	210	210	120	9.5	<0.01	<100	0.19	0.017	0.21	0.76	<5.0	1.1	67	1000	6.7	420	210	<1.0	685	11.9	4.92	-0.316	-0.563	7.02	7.26
	07/17/13[L]	NM	NM	NM	NM	NM	170	120	9	<0.01	NM	NM	<0.01	0.13	NM	<5.0	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
	07/17/13	51000	5890	142000	14100	190	170	120	8.9	<0.01	<100	0.13	<0.01	0.13	1.1	<5.0	1.3	37	1100	7.0	410	190	<1.0	631	10.7	0	-0.073	-0.32	7.07	7.32
	11/07/13	63000	6100	130000	13000	180	180	130	8.7	<0.01	<100	<0.05	0.017	0.067	1.2	<5.0	1.1	41	1100	7.0	380	180	<1.0	640	10.9	1.44	-0.112	-0.359	7.11	7.36
	12/12/14	67000	5600	130000	12000	190	190	110	9.6	0.011	<100	0.97	0.02	0.99	1.0	<5	1.3	500	1000	6.75	360	190	<1	640	10.9	2.31	0.432	-0.622	7.13	7.37
	12/10/15	76000	6500	150000	15000	190	180	180	9.3	<0.010	<100	<0.050	<0.010	<0.050	1.2	11	NM	970	1200	7.01	430	190	<1.0	740	12.7	1.84	-0.057	-0.303	7.07	7.32
	11/30/16	81000	6000	130000	13000	170	190	160	9.6	0.011	<100	0.18	0.021	0.2	0.89	18	1.3	86	1100	6.99	380	170	<1.0	700	11.9	2.06	-0.173	-0.42	7.16	7.41
	12/15/17	87000	5900	130000	12000	170	170	180	9.3	<0.010	<100	0.069	<0.010	0.069	1.2	<5.0	1.6	4.6	1200	6.94	370	160	<1.0	700	12	2.74	-0.242	-0.489	7.19	7.43
	12/11/18	91000	5700	120000	12000	150	120	220	9.8	<0.010	<100	0.33	<0.010	0.33	0.79	<5.0	1.3	0.22	1200	7.02	340	150	<1.0	670	11.7	3.31	-0.228	-0.475	7.25	7.50

TABLE A-3 LTMM GROUNDWATER MONITORING EVENT NOVEMBER AND DECEMBER 2018
OHP AND HE GROUNDWATER ANALYTICAL RESULTS - INORGANIC CHEMISTRY

Sample Location (Monitor Well Depth)	Sample Date	Al	Sb	As	Ba	Be	Bi	B	Cd	Cr	Co	Cu	Fe	Pb	Mn	Hg	Mo	Ni	Se	Ag	Sr	Tl	Sn	Ti	U	V	Zn
Units		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
MOE Table 3[2]		-	20000	1900	29000	67	-	45000	2.7	810	66	87	-	25	-	0.29	9200	490	63	1.5	-	510	-	-	420	250	1100
MW2 SPAR RD (2.62 m) *Removed from the LTMM program in 2015*	03/19/13[FD]	9.7	10	13	78	<0.5	<2	<100	0.03	<1	<1	<2	<100	<1	<4	<0.013	<4	<3	6.5	<0.1	700	<0.8	<20	<3	3.2	4.1	12
	03/19/13[L]	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	<0.013	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
	03/19/13	7.3	9.6	11	72	<0.5	<2	<100	0.037	<1	<1	<2	<100	<1	<4	<0.013	<4	<3	5.8	<0.1	680	<0.8	<20	<3	3.3	3	9.8
	07/24/13	11.9	4.2	12.6	57.1	<1	<2	58	0.026	<1	<0.4	<2	<50	<0.5	7.6	NM	2.2	<2	<1	<0.1	532	<0.1	<2	<2	1.54	<2	15
	11/6/13[L]	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
	11/06/13	13	6.7	14	68	<1.0	<2.0	73	0.024	<1	<0.4	3.0	<50	<0.5	4.0	NM	<2	<2	1.4	<0.1	690	<0.1	<2.0	<2	4.4	<2.0	22
	12/16/14[FD]	14	12	16	57	<1.0	<2.0	65	0.37	<1.0	<0.40	3.7	<50	<0.50	9.5	<0.013	2.1	<2.0	1.9	<0.10	560	<0.1	<2.0	<2.0	3.3	2.0	20
	12/16/14	13	12	16	53	<1.0	<2.0	65	0.38	<1.0	<0.40	<2.0	<50	<0.50	8.3	<0.013	2.1	<2.0	1.8	<0.10	560	<0.10	<2.0	<2.0	3.3	<2.0	18
SCU11-001-MWA (3.61 m)	03/29/13	37	<1	0.73	240	<0.5	<2	<100	0.11	<1	<1	<2	<100	<1	150	0.021	<4	<3	1.6	<0.1	2700	<0.8	<20	<3	3.6	4.5	14
	07/17/13	<5	<1	<1	244	<1	<2	<50	0.019	<1	<0.4	<2	<50	<0.5	292	NM	3.8	<2	<1	<0.1	3250	<0.1	<2	<2	3.47	<2	<5
	10/24/13	120	<1	<1	28	<1	<2	160	0.03	<1	<0.40	<2.0	97	<0.50	170	NM	7.3	<2	4.6	<0.1	2300	<0.1	<2	4.8	0.60	<2	<5
	12/15/14	13	<1	<1	230	<1	<2	56	0.59	<1	<0.4	<2	<50	<0.5	440	<0.013	3.7	<2	<1	<0.1	3700	<0.1	<2	<2	3.9	<2	5.3
	12/11/15	6.6	4	1.3	130	<1.0	<2.0	<50	0.022	<1.0	0.42	<2.0	<50	<0.50	1900	<0.013	<2.0	<2.0	<1.0	<0.10	1000	<0.10	<2.0	<2.0	0.22	<2.0	20
	11/23/16	8.9	<1.0	1.6	280	<1.0	<2.0	<50	0.013	<1.0	<0.40	<2.0	170	0.59	680	<0.013	<2.0	<2.0	<1.0	<0.10	3000	<0.10	<2.0	<2.0	0.22	<2.0	<5.0
	12/13/17	6.3	<1.0	2.0	350	<1.0	<2.0	<50	0.021	<1.0	<0.40	<2.0	200	<0.50	510	<0.013	<2.0	<2.0	<1.0	0.15	2100	<0.10	<2.0	<2.0	0.50	<2.0	<5.0
	12/10/18	<5.0	<1.0	7.1	710	<1.0	<2.0	63	0.029	<1.0	0.42	<2.0	640	<0.50	1200	<0.013	5.4	<2.0	<1.0	<0.10	4200	<0.10	<2.0	<2.0	2.3	<2.0	10
SCU11-001-MWB (2.00 m)	03/29/13[L]	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	<0.013	NM	NM	NM	NM	NM	NM	NM	NM	NM	<2.0	NM
	03/29/13	8.6	<1	<0.6	22	<0.5	<2	140	<0.017	<1	<1	<2	100	<1	60	<0.013	28	<3	<1	<0.1	1700	<0.8	<20	<3	2.2	3.3	<5
	07/17/13	139	<1	<1	27.9	<1	<2	164	<0.017	<1	<0.4	<2	200	<0.5	154	NM	37.3	<2	<1	<0.1	2190	<0.1	<2	2.1	0.57	<2	9
	10/24/13	18	<1	1.6	370	<1	<2	57	<0.01	<1	<0.4	<2	<50	<0.50	1000	NM	4.9	<2	<1	<0.1	3500	<0.1	<2	<2	3.9	<2	<5
	12/15/14[FD]	21	<1	<1	36	<1	<2	<50	0.16	<1	<0.4	<2	130	<0.5	500	<0.013	<2	<2	<1	<0.1	530	<0.1	<2	<2	<0.1	<2	8.2
	12/15/14	18	<1	<1	36	<1	<2	<50	0.12	<1	<0.4	<2	130	<0.5	510	<0.013	<2	<2	<1	<0.1	540	<0.1	<2	<2	<0.1	<2	7.3
	12/11/15	23	<1.0	<1.0	18	<1.0	<2.0	<50	0.011	<1.0	<0.40	<2.0	1900	<0.50	160	<0.013	<2.0	<2.0	<1.0	<0.10	250	<0.10	<2.0	<2.0	<0.10	<2.0	<5.0
	11/23/16	23	<1.0	<1.0	31	<1.0	<2.0	<50	<0.010	<1.0	<0.40	<2.0	330	<0.50	240	<0.013	<2.0	<2.0	<1.0	<0.10	420	<0.10	<2.0	<2.0	<0.10	<2.0	11
	12/13/17	19	<1.0	<1.0	77	<1.0	<2.0	<50	<0.010	<1.0	<0.40	<2.0	380	<0.50	520	<0.013	<2.0	<2.0	<1.0	<0.10	1200	<0.10	<2.0	<2.0	<0.10	<2.0	<5.0
	12/05/18	25	<1.0	<1.0	53	<1.0	<2.0	<50	0.059	<1.0	<0.40	<2.0	610	<0.50	340	<0.013	<2.0	<2.0	<1.0	<0.10	750	<0.10	<2.0	<2.0	<0.10	<2.0	<5.0
SCU7-001-MW (1.77 m)	12/12/14	12	<1	<1	51	<1	<2	<50	0.18	<1	<0.4	<2	<50	<0.5	160	<0.013	<2	<2	<1	<0.1	6100	<0.1	<2	<2	6.6	<2	6.7
	12/10/15	<5.0	<1.0	<1.0	69	<1.0	<2.0	<50	0.078	<1.0	<0.40	<2.0	<50	<0.50	79	<0.013	<2.0	<2.0	<1.0	<0.10	5200	<0.10	<2.0	<2.0	5.2	<2.0	<5.0
	12/02/16	8.1	<1.0	<1.0	62	<1.0	<2.0	<50	1.3	<1.0	<0.40	<2.0	<50	<0.50	69	<0.013	<2.0	<2.0	<1.0	<0.10	6900	<0.10	<2.0	<2.0	5.8	<2.0	<5.0
	12/15/17	<50	<10	<10	33	<10	<20	<500	0.19	<10	<4.0	<20	<500	<5.0	820	<0.013	<20	<20	<10	<1.0	9800	<1.0	<20	<20	5.7	<20	<50
	12/07/18	<5.0	<1.0	<1.0	23	<1.0	<2.0	<50	0.091	<1.0	<0.40	<2.0	65	<0.50	2500	<0.013	<2.0	2.2	<1.0	<0.10	12000	<0.10	<2.0	<2.0	2.9	<2.0	<5.0
SCU7-003-MW (1.01 m)	03/29/13[L]	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
	03/29/13	<5	<1.0	0.72	16	<0.5	<2.0	<100	0.26	<1.0	1.1	<2.0	<100	<1.0	3200	0.013	<4	<3	<1	<0.10	610	<0.8	<20	<3	0.19	<2.0	72
	07/17/13[L]	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
	07/17/13	5.2	<1.0	<1.0	17.5	<1.0	<2.0	99	0.213	<1.0	0.77	12.3	354	<0.5	2820	NM	<2.0	<2.0	<1.0	<0.10	586	<0.10	<2.0	<2.0	0.35	<2.0	93.2
	11/07/13	11	<1.0	<1.0	19	<1.0	<2.0	100	0.22	<1.0	0.80	4.3	360	<0.5	2400	NM	<2.0	<2.0	<1.0	<0.10	550	<0.10	<2.0	<2.0	0.38	<2.0	65
	12/12/14	10	<1	<1	17	<1	<2	100	0.31	<1	0.69	<2	190	<0.5	2400	<0.013	<2	<2	<1	<0.1	530	<0.1	<2	<2	0.28	<2	10
	12/10/15	7.4	<1.0	<1.0	19	<1.0	<2.0	110	0.32	<1.0	0.96	<2.0	380	<0.50	3300	<0.013	<2.0	<2.0	<1.0	<0.10	650	<0.10	<2.0	<2.0	0.27	<2.0	6.6
	11/30/16	6.6	<1.0	1.1	22	<1.0	<2.0	98	0.1	<1.0	1.2	<2.0	1100	<0.50	2900	<0.013	<2.0	<2.0	<1.0	<0.10	560	<0.10	<2.0	<2.0	0.26	<2.0	11
	12/15/17	<5.0	<1.0	<1.0	23	<1.0	<2.0	92	0.25	<1.0	0.88	<2.0	410	<0.50	2600	<0.013	<2.0	<2.0	<1.0	<0.10	560	<0.10	<2.0	<2.0	0.23	<2.0	<5.0
	12/11/18	<5.0	<1.0	<1.0	22	<1.0	<2.0	91	0.39	<1.0	0.80	<2.0	260	<0.50	2300	<0.013	<2.0	<2.0	<1.0	<0.10	520	<0.10	<2.0	<2.0	0.18	<2.0	8.3

NOTES:
FD - Field Duplicate
L - Lab Duplicate
NM - Not measured or not analyzed: lab duplicates do not analyze for all parameters.
mg/L - milligrams per litre
µg/L - micrograms per litre
- No applicable guideline criteria.
1 - There are no Nova Scotia Environment. Environmental Quality Standards for inorganic parameters in groundwater on a site with Coarse-Grained Soil, Non-potable Groundwater Commercial/Industrial land use) 2013.
2 - Ontario Ministry of Environment, Table 3 Full Depth Generic Site Condition Standards in a Non-potable Groundwater (Coarse Grained Soil) 2011
3 - COTS-001-MWA could not be sampled during the December 2014 event due to insufficient water. COTS-001-MWB added to the LTMM program in 2015 in place of COTS-001-MWA.
4 - During the 2015 groundwater monitoring program, MCWS-009-MW was found to be damaged beyond repair and was subsquently decommissioned.
5 - Bold and Shaded Exceeds MOE Table 3 Standards
6 - This summary is to used in conjunction with, not as a replacement of, the Laboratory Certificates of Analysis, which contain QA/QC information.
7 - Although sodium concentrations are above the MOE standard, this standard was not intended for use in a marine (saltwater) environment. The concentration of sodium is natural as marine waters have sodium concentrations of 10,000,000 ug/L or higher. Sodium is not associated with contamination or remediation at the site.
8 - pH: Linear range exceedance. Extended linearity confirmed.
9 - Elevated reporting limit due to turbidity.
10 - A possible seal failure is suspected in MCES-001-MWB. Further investigative work is being implemented and well replacement may be necessary.

Appendix B

QC Tables

TABLE B-1
LTMM GROUNDWATER MONITORING EVENT NOVEMBER/DECEMBER 2018 OHP & HE
SUMMARY OF FIELD DUPLICATES AND TRIP BLANKS

Field Duplicate Sample - Laboratory Number	Date Sampled	Field Blank Sample - Laboratory Certificate Number	Date Sampled	Equipment Blank Sample - Laboratory Certificate Number	Date Sampled
FD11 - B8V8008	11/28/2018	FB-03 - B8W5929	12/5/2018	EB-03 - B8W5929	12/5/2018
FD12 - B8W2373	12/3/2018	FB-04 - B8W9750	12/10/2018	EB-04 - B8W9750	12/10/2018
FD13 - B8W5929	12/5/2018				
FD14 - B8W9750	12/10/2018				

TABLE B-2
LTMM GROUNDWATER MONITORING EVENT NOVEMBER/DECEMBER 2018 OHP AND HE
RPD FOR FIELD DUPLICATES (GROUNDWATER) - PAHs

Sample Location	Sample	Type	Sample Date	Acenaphthene	Acenaphthylene	Anthracene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(j)fluoranthene	Benzo(k)fluoranthene	Chrysene	Dibenzo(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-cd)pyrene	1-Methylnaphthalene	2-Methylnaphthalene	Naphthalene	Perylene	Phenanthrene	Pyrene
				µg/L																			
CONCW-101-MWB	FD-11	Field Duplicate	11/28/2018	0.021	0.022	0.013	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.026	0.026	<0.010	<0.050	<0.050	<0.20	<0.010	0.068	0.019
		Regular		0.024	0.026	0.017	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.033	0.03	<0.010	<0.050	<0.050	<0.20	<0.010	0.078	0.024
		RPD (%)		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	13.70%	NA
COBP-006-MW	FD-12	Field Duplicate	12/3/2018	23	0.29	0.028	0.021	0.019	0.016	0.011	<0.010	<0.010	0.023	<0.010	0.047	1.8	<0.010	14	<0.050	28	<0.010	0.21	0.045
		Regular		22	0.28	0.03	0.035	0.029	0.024	0.016	0.016	0.016	0.036	<0.010	0.071	1.8	0.016	13	<0.050	27	<0.010	0.21	0.068
		RPD (%)		4.44%	3.51%	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00%	NA	7.41%	NA	3.64%	NA	0.00%	NA
CODT-008-MWB	FD-13	Field Duplicate	12/5/2018	0.21	0.039	0.15	0.14	0.11	0.098	0.061	0.059	0.059	0.17	0.017	0.41	0.11	0.056	0.43	0.18	0.69	0.028	0.21	0.47
		Regular		0.21	0.036	0.13	0.14	0.11	0.091	0.059	0.055	0.055	0.15	0.016	0.39	0.1	0.052	0.41	0.17	0.56	0.026	0.21	0.46
		RPD (%)		0.00%	NA	14.29%	0.00%	0.00%	7.41%	3.33%	7.02%	7.02%	12.50%	NA	5.00%	9.52%	7.41%	4.76%	NA	NA	NA	0.00%	2.15%
MSES-104-MWB	FD-14	Field Duplicate	12/10/2018	13	24	0.98	0.028	<0.010	<0.010	<0.010	<0.010	<0.010	0.019	<0.010	0.65	11	<0.010	33	<0.050	4.4	<0.010	7.4	0.36
		Regular		13	24	1	0.029	<0.010	<0.010	<0.010	<0.010	<0.010	0.02	<0.010	0.64	11	<0.010	33	<0.050	4.5	<0.010	7.4	0.38
		RPD (%)		0.00%	0.00%	2.02%	NA	NA	NA	NA	NA	NA	NA	NA	1.55%	0.00%	NA	0.00%	NA	2.25%	NA	0.00%	5.41%

Notes:

NA - Not applicable (Either 1) Parameter not analyzed or 2) One or both sample results exhibit concentrations less than 5 times the RDL)

Bold - Calculation is outside of the acceptable RPD range.

R - Sample analysis repeated due to a laboratory error.

TABLE B-3
LTMM GROUNDW ATER MONITORING EVENT NOVEMBER/DECEMBER 2018 OHP AND HE
RPD FOR FIELD DUPLICATES (GROUNDW ATER) - INORGANIC CHEMISTRY

Sample Location	Sample	Type	Sample Date	Na	K	Ca	Mg	ALK	SO4	Cl	SiO2	OPO4	P	NO3	NO2	NO2-NO3	NH3	Colour	TOC	TURB	COND	pH	HARD	BICARB ALK	CARB ALK	TDS	Al	Sb
				µg/L	µg/L	µg/L	µg/L	mg/L	mg/L	mg/L	mg/L	mg/L	µg/L	mg/L	mg/L	mg/L	mg/L	TCU	mg/L	NTU	µS/cm	pH	mg/L	mg/L	mg/L	mg/L	µg/L	µg/L
CONCW-101-MWB	FD-11	Field Duplicate	11/28/2018	52000	5800	67000	2900	60	110	91	21	0.012	<100	0.11	0.052	0.16	0.41	7.5	3.4	0.29	640	8.62	180	57	2.3	390	48	<1.0
		Regular		54000	5900	68000	3000	54	110	94	21	<0.010	<100	0.12	0.055	0.17	0.44	6.7	3.4	0.25	630	8.6	180	51	1.9	390	45	<1.0
		RPD (%)		3.77%	1.71%	1.48%	3.39%	10.53%	0.00%	3.24%	0.00%	NA	NA	8.70%	5.61%	6.06%	7.06%	11.27%	0.00%	14.81%	1.57%	0.23%	0.00%	11.11%	19.05%	0.00%	6.45%	NA
COBP-006-MW	FD-12	Field Duplicate	12/3/2018	24000	4000	110000	14000	270	77	44	15	<0.010	110	<0.050	<0.010	<0.050	1.2	16	8.5	170	730	7.33	340	270	<1.0	470	10	<1.0
		Regular		24000	4000	110000	14000	270	79	45	15	<0.010	130	<0.050	<0.010	<0.050	1.2	80	8.8	160	760	7.73	330	260	1.3	470	9.8	<1.0
		RPD (%)		0.00%	0.00%	0.00%	0.00%	0.00%	2.56%	2.25%	0.00%	NA	NA	NA	NA	NA	NA	NA	3.47%	6.06%	4.03%	5.31%	2.99%	3.77%	NA	0.00%	2.02%	NA
CODT-008-MWB	FD-13	Field Duplicate	12/5/2018	45000	5200	83000	310	110	73	84	19	0.014	<100	0.096	0.2	0.29	0.37	17	<5.0	3.4	800	11.3	210	<1.0	2	370	520	<1.0
		Regular		46000	5200	83000	310	110	71	87	19	0.014	<100	0.064	0.19	0.25	0.36	17	3.8	3.3	770	11	210	4.7	48	380	530	<1.0
		RPD (%)		2.20%	0.00%	0.00%	0.00%	NA	2.78%	3.51%	0.00%	NA	NA	NA	5.13%	14.81%	2.74%	NA	NA	2.99%	3.82%	NA	0.00%	NA	**184.00%**	2.67%	1.90%	NA
MSES-104-MWB	FD-14	Field Duplicate	12/10/2018	140000	12000	400000	180000	340	1700	68	13	<0.010	<100	<0.050	<0.010	<0.050	0.6	110	3.5	68	3500	7.02	1800	340	<1.0	2800	750	<1.0
		Regular		140000	12000	400000	180000	340	1700	70	13	<0.010	<100	<0.050	<0.010	<0.050	0.62	130	3.5	72	3400	6.91	1800	340	<1.0	2800	720	<1.0
		RPD (%)		0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	2.90%	0.00%	NA	NA	NA	NA	NA	4.72%	NA	0.00%	5.71%	2.90%	1.58%	0.00%	0.00%	NA	0.00%	4.08%	NA

Sample Location	Sample	Type	Sample Date	As	Ba	Be	Bi	B	Cd	Cr	Co	Cu	Fe	Pb	Mn	Hg	Mo	Ni	Se	Ag	Sr	Tl	Sn	Ti	U	V	Zn
				µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
CONCW-101-MWB	FD-11	Field Duplicate	11/28/2018	10	35	<1.0	<2.0	51	0.054	<1.0	<0.40	<2.0	<50	<0.50	30	<0.013	10	<2.0	<1.0	<0.10	460	<0.10	<2.0	<2.0	1.4	4.3	<5.0
		Regular		11	36	<1.0	<2.0	55	0.028	<1.0	<0.40	<2.0	<50	<0.50	31	<0.013	11	<2.0	<1.0	<0.10	460	<0.10	<2.0	<2.0	1.5	4.7	<5.0
		RPD (%)		9.52%	2.82%	NA	NA	NA	NA	NA	NA	NA	NA	NA	3.28%	NA	9.52%	NA	NA	NA	0.00%	NA	NA	NA	6.90%	NA	NA
COBP-006-MW	FD-12	Field Duplicate	12/3/2018	<1.0	110	<1.0	<2.0	60	0.15	<1.0	<0.40	<2.0	13000	<0.50	4900	<0.013	<2.0	<2.0	<1.0	<0.10	470	<0.10	<2.0	<2.0	<0.10	<2.0	52
		Regular		<1.0	110	<1.0	<2.0	59	0.086	<1.0	<0.40	<2.0	13000	<0.50	4800	<0.013	<2.0	<2.0	<1.0	<0.10	460	<0.10	<2.0	<2.0	<0.10	<2.0	52
		RPD (%)		NA	0.00%	NA	NA	NA	**54.24%**	NA	NA	NA	0.00%	NA	2.06%	NA	NA	NA	NA	NA	2.15%	NA	NA	NA	NA	NA	0.00%
CODT-008-MWB	FD-13	Field Duplicate	12/5/2018	3.3	40	<1.0	<2.0	<50	0.026	1.6	<0.40	3.7	<50	<0.50	<2.0	<0.013	6.8	<2.0	1.4	<0.10	880	<0.10	<2.0	<2.0	0.3	8.8	<5.0
		Regular		3.3	41	<1.0	<2.0	<50	0.025	1.7	<0.40	3.6	<50	<0.50	<2.0	<0.013	7	<2.0	1.4	<0.10	890	<0.10	<2.0	<2.0	0.3	8.5	<5.0
		RPD (%)		NA	2.47%	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.13%	NA	NA	NA	NA	NA	NA
MSES-104-MWB	FD-14	Field Duplicate	12/10/2018	3.6	17	1.3	<2.0	190	0.14	<1.0	59	<2.0	6900	<0.50	84000	<0.013	<2.0	73	<1.0	<0.10	2100	<0.10	<2.0	<2.0	1.4	<2.0	42
		Regular		3.6	18	1.3	<2.0	190	0.13	<1.0	59	<2.0	6800	<0.50	84000	<0.013	<2.0	72	<1.0	<0.10	2100	<0.10	<2.0	<2.0	1.5	<2.0	41
		RPD (%)		NA	5.71%	NA	NA	NA	7.50%	NA	0.00%	NA	1.46%	NA	0.00%	NA	NA	1.38%	NA	NA	0.00%	NA	NA	NA	6.90%	NA	2.41%

Notes:
NA - Not applicable (Either 1) Parameter not analyzed or 2) One or both sample results exhibit concentrations less than 5 times the RDL)
Bold - Calculation is outside of the acceptable RPD range.

Appendix C

Laboratory Certificates

Maxxam
A Bureau Veritas Group Company

Your Project #: 14-1360
Site Location: OH PARK / HARBOURSIDE EAST

Attention: Nadine Wambolt

Dillon Consulting Limited
275 Charlotte St
Sydney, NS
CANADA B1P 1C6

Report Date: 2018/12/07
Report #: R5516021
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B8V8008
Received: 2018/11/28, 16:13

Sample Matrix: Water
Samples Received: 9

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Reference
Carbonate, Bicarbonate and Hydroxide (1)	9	N/A	2018/12/05	N/A	SM 23 4500-CO2 D
Alkalinity (1)	8	N/A	2018/12/06	ATL SOP 00013	EPA 310.2 R1974 m
Alkalinity (1)	1	N/A	2018/12/07	ATL SOP 00013	EPA 310.2 R1974 m
Benzo(b/j)fluoranthene Sum (water) (1)	2	N/A	2018/12/05	N/A	Auto Calc.
Benzo(b/j)fluoranthene Sum (water) (1)	7	N/A	2018/12/06	N/A	Auto Calc.
Chloride (1)	3	N/A	2018/12/05	ATL SOP 00014	SM 23 4500-Cl- E m
Chloride (1)	6	N/A	2018/12/06	ATL SOP 00014	SM 23 4500-Cl- E m
Colour (1)	3	N/A	2018/12/05	ATL SOP 00020	SM 23 2120C m
Colour (1)	6	N/A	2018/12/06	ATL SOP 00020	SM 23 2120C m
Conductance - water (1)	9	N/A	2018/12/05	ATL SOP 00004	SM 23 2510B m
Hardness (calculated as CaCO3) (1)	2	N/A	2018/12/05	ATL SOP 00048	Auto Calc
Hardness (calculated as CaCO3) (1)	7	N/A	2018/12/06	ATL SOP 00048	Auto Calc
Mercury - Total (CVAA,LL) (1)	9	2018/12/05	2018/12/06	ATL SOP 00026	EPA 245.1 R3 m
Metals Water Diss. MS (as rec'd) (1)	9	N/A	2018/12/05	ATL SOP 00058	EPA 6020A R1 m
Ion Balance (% Difference) (1)	3	N/A	2018/12/06	N/A	Auto Calc.
Ion Balance (% Difference) (1)	6	N/A	2018/12/07	N/A	Auto Calc.
Anion and Cation Sum (1)	9	N/A	2018/12/06	N/A	Auto Calc.
Nitrogen Ammonia - water (1)	2	N/A	2018/12/04	ATL SOP 00015	EPA 350.1 R2 m
Nitrogen Ammonia - water (1)	7	N/A	2018/12/05	ATL SOP 00015	EPA 350.1 R2 m
Nitrogen - Nitrate + Nitrite (1)	3	N/A	2018/12/05	ATL SOP 00016	USGS I-2547-11m
Nitrogen - Nitrate + Nitrite (1)	6	N/A	2018/12/06	ATL SOP 00016	USGS I-2547-11m
Nitrogen - Nitrite (1)	3	N/A	2018/12/05	ATL SOP 00017	SM 23 4500-NO2- B m
Nitrogen - Nitrite (1)	6	N/A	2018/12/06	ATL SOP 00017	SM 23 4500-NO2- B m
Nitrogen - Nitrate (as N) (1)	3	N/A	2018/12/05	ATL SOP 00018	ASTM D3867-16
Nitrogen - Nitrate (as N) (1)	6	N/A	2018/12/07	ATL SOP 00018	ASTM D3867-16
PAH in Water by GC/MS (SIM) (1)	9	2018/12/04	2018/12/05	ATL SOP 00103	EPA 8270D 2014 m
pH (1, 2)	9	N/A	2018/12/05	ATL SOP 00003	SM 23 4500-H+ B m
Phosphorus - ortho (1)	3	N/A	2018/12/05	ATL SOP 00021	SM 23 4500-P E m
Phosphorus - ortho (1)	6	N/A	2018/12/06	ATL SOP 00021	SM 23 4500-P E m
Sat. pH and Langelier Index (@ 20C) (1)	3	N/A	2018/12/06	ATL SOP 00049	Auto Calc.

Maxxam Analytics International Corporation o/a Maxxam Analytics 465 George St., Unit G, Sydney, NS, B1P 1K5 Tel:902 567 1255 Toll Free: 888 535 7770 Fax: 902 539 6504 www.maxxam.ca

Maxxam
A Bureau Veritas Group Company

Your Project #: 14-1360
Site Location: OH PARK / HARBOURSIDE EAST

Attention: Nadine Wambolt

Dillon Consulting Limited
275 Charlotte St
Sydney, NS
CANADA B1P 1C6

Report Date: 2018/12/07
Report #: R5516021
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B8V8008
Received: 2018/11/28, 16:13

Sample Matrix: Water
Samples Received: 9

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Reference
Sat. pH and Langelier Index (@ 20C) (1)	6	N/A	2018/12/07	ATL SOP 00049	Auto Calc.
Sat. pH and Langelier Index (@ 4C) (1)	3	N/A	2018/12/06	ATL SOP 00049	Auto Calc.
Sat. pH and Langelier Index (@ 4C) (1)	6	N/A	2018/12/07	ATL SOP 00049	Auto Calc.
Reactive Silica (1)	3	N/A	2018/12/05	ATL SOP 00022	EPA 366.0 m
Reactive Silica (1)	1	N/A	2018/12/06	ATL SOP 00022	EPA 366.0 m
Reactive Silica (1)	5	N/A	2018/12/07	ATL SOP 00022	EPA 366.0 m
Sulphate (1)	3	N/A	2018/12/05	ATL SOP 00023	ASTM D516-16 m
Sulphate (1)	6	N/A	2018/12/06	ATL SOP 00023	ASTM D516-16 m
Total Dissolved Solids (TDS calc) (1)	3	N/A	2018/12/06	N/A	Auto Calc.
Total Dissolved Solids (TDS calc) (1)	6	N/A	2018/12/07	N/A	Auto Calc.
Organic carbon - Total (TOC) (1, 3)	1	N/A	2018/12/05	ATL SOP 00203	SM 23 5310B m
Organic carbon - Total (TOC) (1, 3)	8	N/A	2018/12/06	ATL SOP 00203	SM 23 5310B m
Turbidity (1)	2	N/A	2018/12/05	ATL SOP 00011	EPA 180.1 R2 m
Turbidity (1)	7	N/A	2018/12/06	ATL SOP 00011	EPA 180.1 R2 m

Remarks:

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

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

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

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

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Your Project #: 14-1360
Site Location: OH PARK / HARBOURSIDE EAST

Attention: Nadine Wambolt

Dillon Consulting Limited
275 Charlotte St
Sydney, NS
CANADA B1P 1C6

Report Date: 2018/12/07
Report #: R5516021
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B8V8008

Received: 2018/11/28, 16:13

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

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

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

(1) This test was performed by Maxxam Bedford

(2) The APHA Standard Method require pH to be analyzed within 15 minutes of sampling and therefore field analysis is required for compliance. All Laboratory pH analyses in this report are reported past the APHA Standard Method holding time.

(3) TOC / DOC present in the sample should be considered as non-purgeable TOC / DOC.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Natalie MacAskill, Key Account Specialist
Email: NMacAskill@maxxam.ca
Phone# (902)567-1255 Ext:17

==========

This report has been generated and distributed using a secure automated process.

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

Maxxam Job #: B8V8008
Report Date: 2018/12/07

Dillon Consulting Limited
Client Project #: 14-1360
Site Location: OH PARK / HARBOURSIDE EAST

RESULTS OF ANALYSES OF WATER

Maxxam ID		IKI856			IKI878			IKI880		
Sampling Date		2018/11/28			2018/11/28			2018/11/28		
	UNITS	MCES-006-MW	RDL	QC Batch	CODT-205-MWA	RDL	QC Batch	CONCW-101-MWB	RDL	QC Batch
Calculated Parameters										
Anion Sum	me/L	2.93	N/A	5860721	5.47	N/A	5860721	6.08	N/A	5860721
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	51	1.0	5860715	220	1.0	5860715	51	1.0	5860715
Calculated TDS	mg/L	200	1.0	5860726	310	1.0	5860726	390	1.0	5860726
Carb. Alkalinity (calc. as CaCO3)	mg/L	6.9	1.0	5860715	<1.0	1.0	5860715	1.9	1.0	5860715
Cation Sum	me/L	3.34	N/A	5860721	5.78	N/A	5860721	6.15	N/A	5860721
Hardness (CaCO3)	mg/L	150	1.0	5860716	220	1.0	5860716	180	1.0	5860716
Ion Balance (% Difference)	%	6.54	N/A	5860718	2.76	N/A	5860718	0.570	N/A	5860718
Langelier Index (@ 20C)	N/A	1.22		5860722	0.284		5860722	0.698		5860722
Langelier Index (@ 4C)	N/A	0.973		5860725	0.0350		5860725	0.450		5860725
Nitrate (N)	mg/L	1.6	0.050	5862564	<0.050	0.050	5862564	0.12	0.050	5860515
Saturation pH (@ 20C)	N/A	7.93		5860722	7.19		5860722	7.90		5860722
Saturation pH (@ 4C)	N/A	8.18		5860725	7.44		5860725	8.15		5860725
Inorganics										
Total Alkalinity (Total as CaCO3)	mg/L	59	5.0	5872250	220	25	5869975	54	5.0	5869975
Dissolved Chloride (Cl-)	mg/L	11	1.0	5872252	14	1.0	5869983	94	1.0	5869983
Colour	TCU	13	5.0	5872255	13	5.0	5869987	6.7	5.0	5869987
Nitrate + Nitrite (N)	mg/L	1.7	0.050	5872257	<0.050	0.050	5869991	0.17	0.050	5869991
Nitrite (N)	mg/L	0.028	0.010	5872258	<0.010	0.010	5869992	0.055	0.010	5869992
Nitrogen (Ammonia Nitrogen)	mg/L	0.087	0.050	5871701	0.74	0.050	5871703	0.44	0.050	5871701
Total Organic Carbon (C)	mg/L	4.6	0.50	5873858	9.7	0.50	5873855	3.4	0.50	5873855
Orthophosphate (P)	mg/L	<0.010	0.010	5872256	<0.010	0.010	5869988	<0.010	0.010	5869988
pH	pH	9.15	N/A	5871524	7.47	N/A	5871529	8.60	N/A	5871524
Reactive Silica (SiO2)	mg/L	14	0.50	5872254	15	0.50	5869986	21	1.0	5869986
Dissolved Sulphate (SO4)	mg/L	64	2.0	5872253	33	2.0	5869985	110	10	5869985
Turbidity	NTU	1.9	0.10	5873854	140	1.0	5871693	0.25	0.10	5871697
Conductivity	uS/cm	280	1.0	5871526	510	1.0	5871531	630	1.0	5871526

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable

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Maxxam Job #: B8V8008
Report Date: 2018/12/07

Dillon Consulting Limited
Client Project #: 14-1360
Site Location: OH PARK / HARBOURSIDE EAST

RESULTS OF ANALYSES OF WATER

Maxxam ID		IKI881			IKI882			IKI883		
Sampling Date		2018/11/28			2018/11/28			2018/11/28		
	UNITS	CONPL-202-MWA	RDL	QC Batch	COTS-001-MWB	RDL	QC Batch	COSB-002-MWA	RDL	QC Batch
Calculated Parameters										
Anion Sum	me/L	8.79	N/A	5860721	9.00	N/A	5860721	21.5	N/A	5860721
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	300	1.0	5860715	280	1.0	5860715	130	1.0	5860715
Calculated TDS	mg/L	480	1.0	5860726	500	1.0	5860726	1400	1.0	5860726
Carb. Alkalinity (calc. as CaCO3)	mg/L	1.3	1.0	5860715	2.0	1.0	5860715	<1.0	1.0	5860715
Cation Sum	me/L	8.28	N/A	5860721	8.36	N/A	5860721	20.3	N/A	5860721
Hardness (CaCO3)	mg/L	390	1.0	5860716	330	1.0	5860716	970	1.0	5860716
Ion Balance (% Difference)	%	2.99	N/A	5860718	3.69	N/A	5860718	2.73	N/A	5860718
Langelier Index (@ 20C)	N/A	0.775		5860722	0.911		5860722	-0.499		5860722
Langelier Index (@ 4C)	N/A	0.527		5860725	0.663		5860725	-0.744		5860725
Nitrate (N)	mg/L	<0.050	0.050	5860515	0.14	0.050	5860515	0.13	0.050	5860515
Saturation pH (@ 20C)	N/A	6.89		5860722	6.96		5860722	7.04		5860722
Saturation pH (@ 4C)	N/A	7.14		5860725	7.21		5860725	7.28		5860725
Inorganics										
Total Alkalinity (Total as CaCO3)	mg/L	300	25	5869975	280	25	5872250	130	25	5872250
Dissolved Chloride (Cl-)	mg/L	12	1.0	5869983	46	1.0	5872252	9.9	1.0	5872252
Colour	TCU	<5.0	5.0	5869987	<5.0	5.0	5872255	52	25	5872255
Nitrate + Nitrite (N)	mg/L	<0.050	0.050	5869991	0.14	0.050	5872257	0.13	0.050	5872257
Nitrite (N)	mg/L	<0.010	0.010	5869992	<0.010	0.010	5872258	<0.010	0.010	5872258
Nitrogen (Ammonia Nitrogen)	mg/L	<0.050	0.050	5871701	0.57	0.050	5869479	0.58	0.050	5869479
Total Organic Carbon (C)	mg/L	2.5	0.50	5873855	<5.0 (1)	5.0	5871926	1.4	0.50	5871975
Orthophosphate (P)	mg/L	<0.010	0.010	5869988	0.014	0.010	5872256	<0.010	0.010	5872256
pH	pH	7.66	N/A	5871545	7.88	N/A	5871524	6.54	N/A	5871524
Reactive Silica (SiO2)	mg/L	11	0.50	5869986	15	0.50	5872254	26	1.0	5872254
Dissolved Sulphate (SO4)	mg/L	110	10	5869985	96 (2)	4.0	5872253	900	40	5872253
Turbidity	NTU	18	0.10	5873854	2.3	0.10	5873854	19	0.10	5873854
Conductivity	uS/cm	770	1.0	5871546	800	1.0	5871526	1700	1.0	5871526

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable
(1) Elevated reporting limit due to turbidity.
(2) Elevated reporting limit due to sample matrix.

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Maxxam Job #: B8V8008
Report Date: 2018/12/07

Dillon Consulting Limited
Client Project #: 14-1360
Site Location: OH PARK / HARBOURSIDE EAST

RESULTS OF ANALYSES OF WATER

Maxxam ID		IKI884			IKI886		IKI887		
Sampling Date		2018/11/28			2018/11/28		2018/11/28		
	UNITS	MCES-001-MWA	RDL	QC Batch	MCES-001-MWB	RDL	FD-11	RDL	QC Batch
Calculated Parameters									
Anion Sum	me/L	8.28	N/A	5860721	7.20	N/A	6.17	N/A	5860721
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	<1.0	1.0	5860715	<1.0	1.0	57	1.0	5860715
Calculated TDS	mg/L	580	1.0	5860726	520	1.0	390	1.0	5860726
Carb. Alkalinity (calc. as CaCO3)	mg/L	<1.0	1.0	5860715	<1.0	1.0	2.3	1.0	5860715
Cation Sum	me/L	13.4	N/A	5860721	12.2	N/A	6.01	N/A	5860721
Hardness (CaCO3)	mg/L	600	1.0	5860716	530	1.0	180	1.0	5860716
Ion Balance (% Difference)	%	23.8	N/A	5860718	25.7	N/A	1.31	N/A	5860718
Langelier Index (@ 20C)	N/A	NC		5860722	NC		0.762		5860722
Langelier Index (@ 4C)	N/A	NC		5860725	NC		0.514		5860725
Nitrate (N)	mg/L	<0.050	0.050	5860515	0.34	0.050	0.11	0.050	5860515
Saturation pH (@ 20C)	N/A	NC		5860722	NC		7.86		5860722
Saturation pH (@ 4C)	N/A	NC		5860725	NC		8.11		5860725
Inorganics									
Total Alkalinity (Total as CaCO3)	mg/L	240	25	5872250	180	25	60	5.0	5872250
Dissolved Chloride (Cl-)	mg/L	36	1.0	5872252	55	1.0	91	1.0	5872252
Colour	TCU	<5.0	5.0	5872255	<5.0	5.0	7.5	5.0	5872255
Nitrate + Nitrite (N)	mg/L	0.29	0.050	5872257	0.59	0.050	0.16	0.050	5872257
Nitrite (N)	mg/L	0.26	0.010	5872258	0.25	0.010	0.052	0.010	5872258
Nitrogen (Ammonia Nitrogen)	mg/L	0.47	0.050	5871703	0.37	0.050	0.41	0.050	5871703
Total Organic Carbon (C)	mg/L	2.5	0.50	5873858	3.2	0.50	3.4	0.50	5873858
Orthophosphate (P)	mg/L	<0.010	0.010	5872256	<0.010	0.010	0.012	0.010	5872256
pH	pH	12.0 (1)	N/A	5871524	11.9 (1)	N/A	8.62	N/A	5871524
Reactive Silica (SiO2)	mg/L	2.0	0.50	5872254	2.5	0.50	21	1.0	5872254
Dissolved Sulphate (SO4)	mg/L	110	10	5872253	94	2.0	110	10	5872253
Turbidity	NTU	0.75	0.10	5873853	0.25	0.10	0.29	0.10	5873854
Conductivity	uS/cm	2300	1.0	5871526	1900	1.0	640	1.0	5871526

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable
(1) pH: linear range exceedance. Extended linearity confirmed.

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Maxxam Job #: B8V8008
Report Date: 2018/12/07

Dillon Consulting Limited
Client Project #: 14-1360
Site Location: OH PARK / HARBOURSIDE EAST

MERCURY BY COLD VAPOUR AA (WATER)

Maxxam ID		IKI856	IKI878	IKI880	IKI881	IKI882		
Sampling Date		2018/11/28	2018/11/28	2018/11/28	2018/11/28	2018/11/28		
	UNITS	MCES-006-MW	CODT-205-MWA	CONCW-101-MWB	CONPL-202-MWA	COTS-001-MWB	RDL	QC Batch
Metals								
Total Mercury (Hg)	ug/L	<0.013	<0.013	<0.013	<0.013	<0.013	0.013	5871757

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam ID		IKI883	IKI884	IKI886	IKI887		
Sampling Date		2018/11/28	2018/11/28	2018/11/28	2018/11/28		
	UNITS	COSB-002-MWA	MCES-001-MWA	MCES-001-MWB	FD-11	RDL	QC Batch
Metals							
Total Mercury (Hg)	ug/L	<0.013	<0.013	<0.013	<0.013	0.013	5871757

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B8V8008
Report Date: 2018/12/07

Dillon Consulting Limited
Client Project #: 14-1360
Site Location: OH PARK / HARBOURSIDE EAST

ELEMENTS BY ICP/MS (WATER)

Maxxam ID		IKI856	IKI878		IKI880	IKI881		
Sampling Date		2018/11/28	2018/11/28		2018/11/28	2018/11/28		
	UNITS	MCES-006-MW	CODT-205-MWA	QC Batch	CONCW-101-MWB	CONPL-202-MWA	RDL	QC Batch
Metals								
Dissolved Aluminum (Al)	ug/L	200	7.6	5869649	45	9.6	5.0	5869675
Dissolved Antimony (Sb)	ug/L	<1.0	<1.0	5869649	<1.0	<1.0	1.0	5869675
Dissolved Arsenic (As)	ug/L	7.2	11	5869649	11	<1.0	1.0	5869675
Dissolved Barium (Ba)	ug/L	110	260	5869649	36	29	1.0	5869675
Dissolved Beryllium (Be)	ug/L	<1.0	<1.0	5869649	<1.0	<1.0	1.0	5869675
Dissolved Bismuth (Bi)	ug/L	<2.0	<2.0	5869649	<2.0	<2.0	2.0	5869675
Dissolved Boron (B)	ug/L	<50	<50	5869649	55	<50	50	5869675
Dissolved Cadmium (Cd)	ug/L	0.048	0.028	5869649	0.028	0.051	0.010	5869675
Dissolved Calcium (Ca)	ug/L	56000	78000	5869649	68000	120000	100	5869675
Dissolved Chromium (Cr)	ug/L	<1.0	<1.0	5869649	<1.0	<1.0	1.0	5869675
Dissolved Cobalt (Co)	ug/L	<0.40	<0.40	5869649	<0.40	<0.40	0.40	5869675
Dissolved Copper (Cu)	ug/L	5.1	<2.0	5869649	<2.0	<2.0	2.0	5869675
Dissolved Iron (Fe)	ug/L	220	14000	5869649	<50	<50	50	5869675
Dissolved Lead (Pb)	ug/L	<0.50	<0.50	5869649	<0.50	<0.50	0.50	5869675
Dissolved Magnesium (Mg)	ug/L	1700	7400	5869649	3000	19000	100	5869675
Dissolved Manganese (Mn)	ug/L	740	1400	5869649	31	390	2.0	5869675
Dissolved Molybdenum (Mo)	ug/L	2.7	2.6	5869649	11	<2.0	2.0	5869675
Dissolved Nickel (Ni)	ug/L	<2.0	<2.0	5869649	<2.0	<2.0	2.0	5869675
Dissolved Phosphorus (P)	ug/L	<100	<100	5869649	<100	<100	100	5869675
Dissolved Potassium (K)	ug/L	3900	4200	5869649	5900	1400	100	5869675
Dissolved Selenium (Se)	ug/L	1.5	<1.0	5869649	<1.0	<1.0	1.0	5869675
Dissolved Silver (Ag)	ug/L	<0.10	<0.10	5869649	<0.10	<0.10	0.10	5869675
Dissolved Sodium (Na)	ug/L	6800	15000	5869649	54000	12000	100	5869675
Dissolved Strontium (Sr)	ug/L	440	1800	5869649	460	400	2.0	5869675
Dissolved Thallium (Tl)	ug/L	<0.10	<0.10	5869649	<0.10	<0.10	0.10	5869675
Dissolved Tin (Sn)	ug/L	<2.0	<2.0	5869649	<2.0	<2.0	2.0	5869675
Dissolved Titanium (Ti)	ug/L	<2.0	<2.0	5869649	<2.0	<2.0	2.0	5869675
Dissolved Uranium (U)	ug/L	0.13	0.35	5869649	1.5	1.5	0.10	5869675
Dissolved Vanadium (V)	ug/L	110	<2.0	5869649	4.7	<2.0	2.0	5869675
Dissolved Zinc (Zn)	ug/L	<5.0	36	5869649	<5.0	<5.0	5.0	5869675

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B8V8008
Report Date: 2018/12/07

Dillon Consulting Limited
Client Project #: 14-1360
Site Location: OH PARK / HARBOURSIDE EAST

ELEMENTS BY ICP/MS (WATER)

Maxxam ID		IKI882	IKI883		IKI884	IKI886	IKI887		
Sampling Date		2018/11/28	2018/11/28		2018/11/28	2018/11/28	2018/11/28		
	UNITS	COTS-001-MWB	COSB-002-MWA	QC Batch	MCES-001-MWA	MCES-001-MWB	FD-11	RDL	QC Batch
Metals									
Dissolved Aluminum (Al)	ug/L	6.9	63	5869675	43	650	48	5.0	5871739
Dissolved Antimony (Sb)	ug/L	<1.0	<1.0	5869675	<1.0	2.2	<1.0	1.0	5871739
Dissolved Arsenic (As)	ug/L	<1.0	<1.0	5869675	<1.0	<1.0	10	1.0	5871739
Dissolved Barium (Ba)	ug/L	33	29	5869675	150	260	35	1.0	5871739
Dissolved Beryllium (Be)	ug/L	<1.0	<1.0	5869675	<1.0	<1.0	<1.0	1.0	5871739
Dissolved Bismuth (Bi)	ug/L	<2.0	<2.0	5869675	<2.0	<2.0	<2.0	2.0	5871739
Dissolved Boron (B)	ug/L	<50	110	5869675	<50	<50	51	50	5871739
Dissolved Cadmium (Cd)	ug/L	0.031	0.43	5869675	0.018	<0.010	0.054	0.010	5871739
Dissolved Calcium (Ca)	ug/L	110000	280000	5869675	240000	210000	67000	100	5871739
Dissolved Chromium (Cr)	ug/L	<1.0	<1.0	5869675	7.9	5.8	<1.0	1.0	5871739
Dissolved Cobalt (Co)	ug/L	<0.40	2.2	5869675	<0.40	<0.40	<0.40	0.40	5871739
Dissolved Copper (Cu)	ug/L	<2.0	<2.0	5869675	2.8	2.4	<2.0	2.0	5871739
Dissolved Iron (Fe)	ug/L	<50	7600	5869675	<50	<50	<50	50	5871739
Dissolved Lead (Pb)	ug/L	<0.50	<0.50	5869675	4.9	<0.50	<0.50	0.50	5871739
Dissolved Magnesium (Mg)	ug/L	13000	65000	5869675	<100	<100	2900	100	5871739
Dissolved Manganese (Mn)	ug/L	700	17000	5869675	<2.0	<2.0	30	2.0	5871739
Dissolved Molybdenum (Mo)	ug/L	<2.0	<2.0	5869675	9.0	11	10	2.0	5871739
Dissolved Nickel (Ni)	ug/L	<2.0	140	5869675	<2.0	<2.0	<2.0	2.0	5871739
Dissolved Phosphorus (P)	ug/L	<100	<100	5869675	<100	<100	<100	100	5871739
Dissolved Potassium (K)	ug/L	2900	7300	5869675	13000	13000	5800	100	5871739
Dissolved Selenium (Se)	ug/L	<1.0	<1.0	5869675	1.5	1.8	<1.0	1.0	5871739
Dissolved Silver (Ag)	ug/L	<0.10	<0.10	5869675	<0.10	<0.10	<0.10	0.10	5871739
Dissolved Sodium (Na)	ug/L	36000	10000	5869675	26000	29000	52000	100	5871739
Dissolved Strontium (Sr)	ug/L	1500	870	5869675	1000	1100	460	2.0	5871739
Dissolved Thallium (Tl)	ug/L	<0.10	<0.10	5869675	<0.10	<0.10	<0.10	0.10	5871739
Dissolved Tin (Sn)	ug/L	3.2	<2.0	5869675	<2.0	<2.0	<2.0	2.0	5871739
Dissolved Titanium (Ti)	ug/L	<2.0	<2.0	5869675	<2.0	<2.0	<2.0	2.0	5871739
Dissolved Uranium (U)	ug/L	1.1	0.25	5869675	<0.10	<0.10	1.4	0.10	5871739
Dissolved Vanadium (V)	ug/L	<2.0	<2.0	5869675	16	2.7	4.3	2.0	5871739
Dissolved Zinc (Zn)	ug/L	<5.0	190	5869675	<5.0	<5.0	<5.0	5.0	5871739

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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SEMI-VOLATILE ORGANICS BY GC-MS (WATER)

Maxxam ID		IKI856	IKI878	IKI880	IKI881	IKI882		
Sampling Date		2018/11/28	2018/11/28	2018/11/28	2018/11/28	2018/11/28		
	UNITS	MCES-006-MW	CODT-205-MWA	CONCW-101-MWB	CONPL-202-MWA	COTS-001-MWB	RDL	QC Batch
Polyaromatic Hydrocarbons								
1-Methylnaphthalene	ug/L	4.1	<0.050	<0.050	<0.050	<0.050	0.050	5869527
2-Methylnaphthalene	ug/L	2.0	<0.050	<0.050	<0.050	<0.050	0.050	5869527
Acenaphthene	ug/L	4.1	0.053	0.024	0.025	<0.010	0.010	5869527
Acenaphthylene	ug/L	0.096	0.079	0.026	0.035	0.013	0.010	5869527
Anthracene	ug/L	0.12	<0.010	0.017	0.079	0.027	0.010	5869527
Benzo(a)anthracene	ug/L	0.088	<0.010	<0.010	0.16	0.015	0.010	5869527
Benzo(a)pyrene	ug/L	0.034	<0.010	<0.010	0.12	0.010	0.010	5869527
Benzo(b)fluoranthene	ug/L	0.029	<0.010	<0.010	0.095	<0.010	0.010	5869527
Benzo(b/j)fluoranthene	ug/L	0.043	<0.020	<0.020	0.16	<0.020	0.020	5860385
Benzo(g,h,i)perylene	ug/L	0.017	<0.010	<0.010	0.066	<0.010	0.010	5869527
Benzo(j)fluoranthene	ug/L	0.015	<0.010	<0.010	0.063	<0.010	0.010	5869527
Benzo(k)fluoranthene	ug/L	0.018	<0.010	<0.010	0.067	<0.010	0.010	5869527
Chrysene	ug/L	0.083	<0.010	<0.010	0.14	0.014	0.010	5869527
Dibenz(a,h)anthracene	ug/L	<0.010	<0.010	<0.010	0.021	<0.010	0.010	5869527
Fluoranthene	ug/L	0.37	0.021	0.033	0.34	0.089	0.010	5869527
Fluorene	ug/L	1.1	0.047	0.030	0.042	0.017	0.010	5869527
Indeno(1,2,3-cd)pyrene	ug/L	0.013	<0.010	<0.010	0.062	<0.010	0.010	5869527
Naphthalene	ug/L	36	<0.20	<0.20	<0.20	<0.20	0.20	5869527
Perylene	ug/L	<0.010	<0.010	<0.010	0.031	<0.010	0.010	5869527
Phenanthrene	ug/L	0.68	0.025	0.078	0.29	0.095	0.010	5869527
Pyrene	ug/L	0.27	0.014	0.024	0.27	0.062	0.010	5869527
Surrogate Recovery (%)								
D10-Anthracene	%	94	102	88	88	94		5869527
D14-Terphenyl	%	98	101	96	94	97		5869527
D8-Acenaphthylene	%	97	97	91	85	92		5869527

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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SEMI-VOLATILE ORGANICS BY GC-MS (WATER)

Maxxam ID		IKI883	IKI884		IKI886		IKI887		
Sampling Date		2018/11/28	2018/11/28		2018/11/28		2018/11/28		
	UNITS	COSB-002-MWA	MCES-001-MWA	RDL	MCES-001-MWB	RDL	FD-11	RDL	QC Batch
Polyaromatic Hydrocarbons									
1-Methylnaphthalene	ug/L	<0.050	0.13	0.050	<0.050	0.050	<0.050	0.050	5869527
2-Methylnaphthalene	ug/L	<0.050	<0.050	0.050	<0.050	0.050	<0.050	0.050	5869527
Acenaphthene	ug/L	<0.010	0.059	0.010	<0.010	0.010	0.021	0.010	5869527
Acenaphthylene	ug/L	<0.010	0.083	0.010	<0.010	0.010	0.022	0.010	5869527
Anthracene	ug/L	<0.010	0.024	0.010	<0.010	0.010	0.013	0.010	5869527
Benzo(a)anthracene	ug/L	<0.010	0.018	0.010	<0.010	0.010	<0.010	0.010	5869527
Benzo(a)pyrene	ug/L	<0.010	<0.010	0.010	<0.010	0.010	<0.010	0.010	5869527
Benzo(b)fluoranthene	ug/L	<0.010	<0.010	0.010	<0.010	0.010	<0.010	0.010	5869527
Benzo(b/j)fluoranthene	ug/L	<0.020	<0.020	0.020	<0.020	0.020	<0.020	0.020	5860385
Benzo(g,h,i)perylene	ug/L	<0.010	<0.010	0.010	<0.010	0.010	<0.010	0.010	5869527
Benzo(j)fluoranthene	ug/L	<0.010	<0.010	0.010	<0.010	0.010	<0.010	0.010	5869527
Benzo(k)fluoranthene	ug/L	<0.010	<0.010	0.010	<0.010	0.010	<0.010	0.010	5869527
Chrysene	ug/L	<0.010	0.018	0.010	<0.010	0.010	<0.010	0.010	5869527
Dibenz(a,h)anthracene	ug/L	<0.010	<0.010	0.010	<0.010	0.010	<0.010	0.010	5869527
Fluoranthene	ug/L	0.013	0.11	0.010	<0.010	0.010	0.026	0.010	5869527
Fluorene	ug/L	<0.010	0.094	0.010	<0.010	0.010	0.026	0.010	5869527
Indeno(1,2,3-cd)pyrene	ug/L	<0.010	<0.010	0.010	<0.010	0.010	<0.010	0.010	5869527
Naphthalene	ug/L	<0.20	<0.20	0.20	<0.20	0.20	<0.20	0.20	5869527
Perylene	ug/L	<0.010	<0.010	0.010	<0.010	0.010	<0.010	0.010	5869527
Phenanthrene	ug/L	0.015	0.055	0.010	<0.020 (1)	0.020	0.068	0.010	5869527
Pyrene	ug/L	0.011	0.20	0.010	<0.010	0.010	0.019	0.010	5869527
Surrogate Recovery (%)									
D10-Anthracene	%	85	97		99		93		5869527
D14-Terphenyl	%	97	99		99		97		5869527
D8-Acenaphthylene	%	87	96		99		91		5869527

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
(1) Elevated PAH RDL(s) due to matrix / co-extractive interference.

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Maxxam Job #: B8V8008
Report Date: 2018/12/07

Dillon Consulting Limited
Client Project #: 14-1360
Site Location: OH PARK / HARBOURSIDE EAST

GENERAL COMMENTS

Sample IKI856 [MCES-006-MW] : Poor RCAp Ion Balance due to sample matrix.

Sample IKI884 [MCES-001-MWA] : Poor RCAp Ion Balance due to sample matrix.

Sample IKI886 [MCES-001-MWB] : Poor RCAp Ion Balance due to sample matrix.

Results relate only to the items tested.

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QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
5869479	SRM	Matrix Spike	Nitrogen (Ammonia Nitrogen)	2018/12/04		93	%	80 - 120
5869479	SRM	Spiked Blank	Nitrogen (Ammonia Nitrogen)	2018/12/04		95	%	80 - 120
5869479	SRM	Method Blank	Nitrogen (Ammonia Nitrogen)	2018/12/04	<0.050		mg/L	
5869479	SRM	RPD	Nitrogen (Ammonia Nitrogen)	2018/12/04	NC		%	20
5869527	LGE	Matrix Spike	D10-Anthracene	2018/12/05		86	%	50 - 130
			D14-Terphenyl	2018/12/05		91	%	50 - 130
			D8-Acenaphthylene	2018/12/05		87	%	50 - 130
			1-Methylnaphthalene	2018/12/05		79	%	50 - 130
			2-Methylnaphthalene	2018/12/05		80	%	50 - 130
			Acenaphthene	2018/12/05		84	%	50 - 130
			Acenaphthylene	2018/12/05		91	%	50 - 130
			Anthracene	2018/12/05		87	%	50 - 130
			Benzo(a)anthracene	2018/12/05		92	%	50 - 130
			Benzo(a)pyrene	2018/12/05		85	%	50 - 130
			Benzo(b)fluoranthene	2018/12/05		98	%	50 - 130
			Benzo(g,h,i)perylene	2018/12/05		87	%	50 - 130
			Benzo(j)fluoranthene	2018/12/05		88	%	50 - 130
			Benzo(k)fluoranthene	2018/12/05		97	%	50 - 130
			Chrysene	2018/12/05		95	%	50 - 130
			Dibenz(a,h)anthracene	2018/12/05		79	%	50 - 130
			Fluoranthene	2018/12/05		96	%	50 - 130
			Fluorene	2018/12/05		91	%	50 - 130
			Indeno(1,2,3-cd)pyrene	2018/12/05		87	%	50 - 130
			Naphthalene	2018/12/05		NC	%	50 - 130
			Perylene	2018/12/05		86	%	50 - 130
			Phenanthrene	2018/12/05		91	%	50 - 130
			Pyrene	2018/12/05		93	%	50 - 130
5869527	LGE	Spiked Blank	D10-Anthracene	2018/12/05		92	%	50 - 130
			D14-Terphenyl	2018/12/05		94	%	50 - 130
			D8-Acenaphthylene	2018/12/05		91	%	50 - 130
			1-Methylnaphthalene	2018/12/05		85	%	50 - 130
			2-Methylnaphthalene	2018/12/05		88	%	50 - 130
			Acenaphthene	2018/12/05		89	%	50 - 130
			Acenaphthylene	2018/12/05		97	%	50 - 130
			Anthracene	2018/12/05		95	%	50 - 130
			Benzo(a)anthracene	2018/12/05		95	%	50 - 130
			Benzo(a)pyrene	2018/12/05		92	%	50 - 130
			Benzo(b)fluoranthene	2018/12/05		103	%	50 - 130
			Benzo(g,h,i)perylene	2018/12/05		101	%	50 - 130
			Benzo(j)fluoranthene	2018/12/05		94	%	50 - 130
			Benzo(k)fluoranthene	2018/12/05		103	%	50 - 130
			Chrysene	2018/12/05		98	%	50 - 130
			Dibenz(a,h)anthracene	2018/12/05		92	%	50 - 130
			Fluoranthene	2018/12/05		101	%	50 - 130
			Fluorene	2018/12/05		96	%	50 - 130
			Indeno(1,2,3-cd)pyrene	2018/12/05		100	%	50 - 130
			Naphthalene	2018/12/05		84	%	50 - 130
			Perylene	2018/12/05		91	%	50 - 130
			Phenanthrene	2018/12/05		102	%	50 - 130
			Pyrene	2018/12/05		98	%	50 - 130
5869527	LGE	Method Blank	D10-Anthracene	2018/12/05		112	%	50 - 130
			D14-Terphenyl	2018/12/05		116	%	50 - 130
			D8-Acenaphthylene	2018/12/05		106	%	50 - 130

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			1-Methylnaphthalene	2018/12/05	<0.050		ug/L	
			2-Methylnaphthalene	2018/12/05	<0.050		ug/L	
			Acenaphthene	2018/12/05	<0.010		ug/L	
			Acenaphthylene	2018/12/05	<0.010		ug/L	
			Anthracene	2018/12/05	<0.010		ug/L	
			Benzo(a)anthracene	2018/12/05	<0.010		ug/L	
			Benzo(a)pyrene	2018/12/05	<0.010		ug/L	
			Benzo(b)fluoranthene	2018/12/05	<0.010		ug/L	
			Benzo(g,h,i)perylene	2018/12/05	<0.010		ug/L	
			Benzo(j)fluoranthene	2018/12/05	<0.010		ug/L	
			Benzo(k)fluoranthene	2018/12/05	<0.010		ug/L	
			Chrysene	2018/12/05	<0.010		ug/L	
			Dibenz(a,h)anthracene	2018/12/05	<0.010		ug/L	
			Fluoranthene	2018/12/05	<0.010		ug/L	
			Fluorene	2018/12/05	<0.010		ug/L	
			Indeno(1,2,3-cd)pyrene	2018/12/05	<0.010		ug/L	
			Naphthalene	2018/12/05	<0.20		ug/L	
			Perylene	2018/12/05	<0.010		ug/L	
			Phenanthrene	2018/12/05	<0.010		ug/L	
			Pyrene	2018/12/05	<0.010		ug/L	
5869527	LGE	RPD	1-Methylnaphthalene	2018/12/05	NC		%	40
			2-Methylnaphthalene	2018/12/05	NC		%	40
			Acenaphthene	2018/12/05	NC		%	40
			Acenaphthylene	2018/12/05	NC		%	40
			Anthracene	2018/12/05	NC		%	40
			Benzo(a)anthracene	2018/12/05	NC		%	40
			Benzo(a)pyrene	2018/12/05	NC		%	40
			Benzo(b)fluoranthene	2018/12/05	NC		%	40
			Benzo(g,h,i)perylene	2018/12/05	NC		%	40
			Benzo(j)fluoranthene	2018/12/05	NC		%	40
			Benzo(k)fluoranthene	2018/12/05	NC		%	40
			Chrysene	2018/12/05	NC		%	40
			Dibenz(a,h)anthracene	2018/12/05	NC		%	40
			Fluoranthene	2018/12/05	NC		%	40
			Fluorene	2018/12/05	NC		%	40
			Indeno(1,2,3-cd)pyrene	2018/12/05	NC		%	40
			Naphthalene	2018/12/05	NC		%	40
			Perylene	2018/12/05	NC		%	40
			Phenanthrene	2018/12/05	NC		%	40
			Pyrene	2018/12/05	NC		%	40
5869649	BAN	Matrix Spike	Dissolved Aluminum (Al)	2018/12/05		92	%	80 - 120
			Dissolved Antimony (Sb)	2018/12/05		104	%	80 - 120
			Dissolved Arsenic (As)	2018/12/05		99	%	80 - 120
			Dissolved Barium (Ba)	2018/12/05		102	%	80 - 120
			Dissolved Beryllium (Be)	2018/12/05		105	%	80 - 120
			Dissolved Bismuth (Bi)	2018/12/05		99	%	80 - 120
			Dissolved Boron (B)	2018/12/05		101	%	80 - 120
			Dissolved Cadmium (Cd)	2018/12/05		103	%	80 - 120
			Dissolved Calcium (Ca)	2018/12/05		NC	%	80 - 120
			Dissolved Chromium (Cr)	2018/12/05		96	%	80 - 120
			Dissolved Cobalt (Co)	2018/12/05		97	%	80 - 120
			Dissolved Copper (Cu)	2018/12/05		93	%	80 - 120
			Dissolved Iron (Fe)	2018/12/05		97	%	80 - 120

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Dissolved Lead (Pb)	2018/12/05		99	%	80 - 120
			Dissolved Magnesium (Mg)	2018/12/05		NC	%	80 - 120
			Dissolved Manganese (Mn)	2018/12/05		NC	%	80 - 120
			Dissolved Molybdenum (Mo)	2018/12/05		106	%	80 - 120
			Dissolved Nickel (Ni)	2018/12/05		94	%	80 - 120
			Dissolved Phosphorus (P)	2018/12/05		102	%	80 - 120
			Dissolved Potassium (K)	2018/12/05		104	%	80 - 120
			Dissolved Selenium (Se)	2018/12/05		96	%	80 - 120
			Dissolved Silver (Ag)	2018/12/05		96	%	80 - 120
			Dissolved Sodium (Na)	2018/12/05		NC	%	80 - 120
			Dissolved Strontium (Sr)	2018/12/05		NC	%	80 - 120
			Dissolved Thallium (Tl)	2018/12/05		99	%	80 - 120
			Dissolved Tin (Sn)	2018/12/05		106	%	80 - 120
			Dissolved Titanium (Ti)	2018/12/05		102	%	80 - 120
			Dissolved Uranium (U)	2018/12/05		105	%	80 - 120
			Dissolved Vanadium (V)	2018/12/05		101	%	80 - 120
			Dissolved Zinc (Zn)	2018/12/05		96	%	80 - 120
5869649	BAN	Spiked Blank	Dissolved Aluminum (Al)	2018/12/05		99	%	80 - 120
			Dissolved Antimony (Sb)	2018/12/05		101	%	80 - 120
			Dissolved Arsenic (As)	2018/12/05		97	%	80 - 120
			Dissolved Barium (Ba)	2018/12/05		105	%	80 - 120
			Dissolved Beryllium (Be)	2018/12/05		106	%	80 - 120
			Dissolved Bismuth (Bi)	2018/12/05		101	%	80 - 120
			Dissolved Boron (B)	2018/12/05		104	%	80 - 120
			Dissolved Cadmium (Cd)	2018/12/05		103	%	80 - 120
			Dissolved Calcium (Ca)	2018/12/05		102	%	80 - 120
			Dissolved Chromium (Cr)	2018/12/05		96	%	80 - 120
			Dissolved Cobalt (Co)	2018/12/05		99	%	80 - 120
			Dissolved Copper (Cu)	2018/12/05		96	%	80 - 120
			Dissolved Iron (Fe)	2018/12/05		98	%	80 - 120
			Dissolved Lead (Pb)	2018/12/05		102	%	80 - 120
			Dissolved Magnesium (Mg)	2018/12/05		100	%	80 - 120
			Dissolved Manganese (Mn)	2018/12/05		100	%	80 - 120
			Dissolved Molybdenum (Mo)	2018/12/05		100	%	80 - 120
			Dissolved Nickel (Ni)	2018/12/05		98	%	80 - 120
			Dissolved Phosphorus (P)	2018/12/05		103	%	80 - 120
			Dissolved Potassium (K)	2018/12/05		106	%	80 - 120
			Dissolved Selenium (Se)	2018/12/05		97	%	80 - 120
			Dissolved Silver (Ag)	2018/12/05		99	%	80 - 120
			Dissolved Sodium (Na)	2018/12/05		96	%	80 - 120
			Dissolved Strontium (Sr)	2018/12/05		99	%	80 - 120
			Dissolved Thallium (Tl)	2018/12/05		102	%	80 - 120
			Dissolved Tin (Sn)	2018/12/05		105	%	80 - 120
			Dissolved Titanium (Ti)	2018/12/05		103	%	80 - 120
			Dissolved Uranium (U)	2018/12/05		104	%	80 - 120
			Dissolved Vanadium (V)	2018/12/05		100	%	80 - 120
			Dissolved Zinc (Zn)	2018/12/05		98	%	80 - 120
5869649	BAN	Method Blank	Dissolved Aluminum (Al)	2018/12/05	<5.0		ug/L	
			Dissolved Antimony (Sb)	2018/12/05	<1.0		ug/L	
			Dissolved Arsenic (As)	2018/12/05	<1.0		ug/L	
			Dissolved Barium (Ba)	2018/12/05	<1.0		ug/L	
			Dissolved Beryllium (Be)	2018/12/05	<1.0		ug/L	
			Dissolved Bismuth (Bi)	2018/12/05	<2.0		ug/L	

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Dissolved Boron (B)	2018/12/05	<50		ug/L	
			Dissolved Cadmium (Cd)	2018/12/05	<0.010		ug/L	
			Dissolved Calcium (Ca)	2018/12/05	<100		ug/L	
			Dissolved Chromium (Cr)	2018/12/05	<1.0		ug/L	
			Dissolved Cobalt (Co)	2018/12/05	<0.40		ug/L	
			Dissolved Copper (Cu)	2018/12/05	<2.0		ug/L	
			Dissolved Iron (Fe)	2018/12/05	<50		ug/L	
			Dissolved Lead (Pb)	2018/12/05	<0.50		ug/L	
			Dissolved Magnesium (Mg)	2018/12/05	<100		ug/L	
			Dissolved Manganese (Mn)	2018/12/05	<2.0		ug/L	
			Dissolved Molybdenum (Mo)	2018/12/05	<2.0		ug/L	
			Dissolved Nickel (Ni)	2018/12/05	<2.0		ug/L	
			Dissolved Phosphorus (P)	2018/12/05	<100		ug/L	
			Dissolved Potassium (K)	2018/12/05	<100		ug/L	
			Dissolved Selenium (Se)	2018/12/05	<1.0		ug/L	
			Dissolved Silver (Ag)	2018/12/05	<0.10		ug/L	
			Dissolved Sodium (Na)	2018/12/05	<100		ug/L	
			Dissolved Strontium (Sr)	2018/12/05	<2.0		ug/L	
			Dissolved Thallium (Tl)	2018/12/05	<0.10		ug/L	
			Dissolved Tin (Sn)	2018/12/05	<2.0		ug/L	
			Dissolved Titanium (Ti)	2018/12/05	<2.0		ug/L	
			Dissolved Uranium (U)	2018/12/05	<0.10		ug/L	
			Dissolved Vanadium (V)	2018/12/05	<2.0		ug/L	
			Dissolved Zinc (Zn)	2018/12/05	<5.0		ug/L	
5869649	BAN	RPD	Dissolved Aluminum (Al)	2018/12/05	0.064		%	20
			Dissolved Antimony (Sb)	2018/12/05	NC		%	20
			Dissolved Arsenic (As)	2018/12/05	NC		%	20
			Dissolved Barium (Ba)	2018/12/05	2.6		%	20
			Dissolved Beryllium (Be)	2018/12/05	NC		%	20
			Dissolved Bismuth (Bi)	2018/12/05	NC		%	20
			Dissolved Boron (B)	2018/12/05	0.089		%	20
			Dissolved Cadmium (Cd)	2018/12/05	1.5		%	20
			Dissolved Calcium (Ca)	2018/12/05	0.14		%	20
			Dissolved Chromium (Cr)	2018/12/05	NC		%	20
			Dissolved Cobalt (Co)	2018/12/05	5.1		%	20
			Dissolved Copper (Cu)	2018/12/05	NC		%	20
			Dissolved Iron (Fe)	2018/12/05	NC		%	20
			Dissolved Lead (Pb)	2018/12/05	NC		%	20
			Dissolved Magnesium (Mg)	2018/12/05	1.1		%	20
			Dissolved Manganese (Mn)	2018/12/05	0.39		%	20
			Dissolved Molybdenum (Mo)	2018/12/05	NC		%	20
			Dissolved Nickel (Ni)	2018/12/05	9.2		%	20
			Dissolved Phosphorus (P)	2018/12/05	NC		%	20
			Dissolved Potassium (K)	2018/12/05	0.56		%	20
			Dissolved Selenium (Se)	2018/12/05	5.4		%	20
			Dissolved Silver (Ag)	2018/12/05	NC		%	20
			Dissolved Sodium (Na)	2018/12/05	1.3		%	20
			Dissolved Strontium (Sr)	2018/12/05	0.52		%	20
			Dissolved Thallium (Tl)	2018/12/05	0.018		%	20
			Dissolved Tin (Sn)	2018/12/05	NC		%	20
			Dissolved Titanium (Ti)	2018/12/05	NC		%	20
			Dissolved Uranium (U)	2018/12/05	NC		%	20
			Dissolved Vanadium (V)	2018/12/05	NC		%	20

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QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Dissolved Zinc (Zn)	2018/12/05	NC		%	20
5869675	AWL	Matrix Spike	Dissolved Aluminum (Al)	2018/12/05		98	%	80 - 120
			Dissolved Antimony (Sb)	2018/12/05		100	%	80 - 120
			Dissolved Arsenic (As)	2018/12/05		101	%	80 - 120
			Dissolved Barium (Ba)	2018/12/05		99	%	80 - 120
			Dissolved Beryllium (Be)	2018/12/05		104	%	80 - 120
			Dissolved Bismuth (Bi)	2018/12/05		103	%	80 - 120
			Dissolved Boron (B)	2018/12/05		101	%	80 - 120
			Dissolved Cadmium (Cd)	2018/12/05		103	%	80 - 120
			Dissolved Calcium (Ca)	2018/12/05		100	%	80 - 120
			Dissolved Chromium (Cr)	2018/12/05		100	%	80 - 120
			Dissolved Cobalt (Co)	2018/12/05		98	%	80 - 120
			Dissolved Copper (Cu)	2018/12/05		99	%	80 - 120
			Dissolved Iron (Fe)	2018/12/05		101	%	80 - 120
			Dissolved Lead (Pb)	2018/12/05		101	%	80 - 120
			Dissolved Magnesium (Mg)	2018/12/05		102	%	80 - 120
			Dissolved Manganese (Mn)	2018/12/05		100	%	80 - 120
			Dissolved Molybdenum (Mo)	2018/12/05		101	%	80 - 120
			Dissolved Nickel (Ni)	2018/12/05		100	%	80 - 120
			Dissolved Phosphorus (P)	2018/12/05		106	%	80 - 120
			Dissolved Potassium (K)	2018/12/05		106	%	80 - 120
			Dissolved Selenium (Se)	2018/12/05		102	%	80 - 120
			Dissolved Silver (Ag)	2018/12/05		101	%	80 - 120
			Dissolved Sodium (Na)	2018/12/05		98	%	80 - 120
			Dissolved Strontium (Sr)	2018/12/05		98	%	80 - 120
			Dissolved Thallium (Tl)	2018/12/05		102	%	80 - 120
			Dissolved Tin (Sn)	2018/12/05		101	%	80 - 120
			Dissolved Titanium (Ti)	2018/12/05		99	%	80 - 120
			Dissolved Uranium (U)	2018/12/05		106	%	80 - 120
			Dissolved Vanadium (V)	2018/12/05		102	%	80 - 120
			Dissolved Zinc (Zn)	2018/12/05		99	%	80 - 120
5869675	AWL	Spiked Blank	Dissolved Aluminum (Al)	2018/12/05		101	%	80 - 120
			Dissolved Antimony (Sb)	2018/12/05		100	%	80 - 120
			Dissolved Arsenic (As)	2018/12/05		99	%	80 - 120
			Dissolved Barium (Ba)	2018/12/05		99	%	80 - 120
			Dissolved Beryllium (Be)	2018/12/05		104	%	80 - 120
			Dissolved Bismuth (Bi)	2018/12/05		104	%	80 - 120
			Dissolved Boron (B)	2018/12/05		104	%	80 - 120
			Dissolved Cadmium (Cd)	2018/12/05		102	%	80 - 120
			Dissolved Calcium (Ca)	2018/12/05		101	%	80 - 120
			Dissolved Chromium (Cr)	2018/12/05		100	%	80 - 120
			Dissolved Cobalt (Co)	2018/12/05		98	%	80 - 120
			Dissolved Copper (Cu)	2018/12/05		100	%	80 - 120
			Dissolved Iron (Fe)	2018/12/05		103	%	80 - 120
			Dissolved Lead (Pb)	2018/12/05		100	%	80 - 120
			Dissolved Magnesium (Mg)	2018/12/05		104	%	80 - 120
			Dissolved Manganese (Mn)	2018/12/05		99	%	80 - 120
			Dissolved Molybdenum (Mo)	2018/12/05		103	%	80 - 120
			Dissolved Nickel (Ni)	2018/12/05		100	%	80 - 120
			Dissolved Phosphorus (P)	2018/12/05		107	%	80 - 120
			Dissolved Potassium (K)	2018/12/05		105	%	80 - 120
			Dissolved Selenium (Se)	2018/12/05		100	%	80 - 120
			Dissolved Silver (Ag)	2018/12/05		98	%	80 - 120

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QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Dissolved Sodium (Na)	2018/12/05		101	%	80 - 120
			Dissolved Strontium (Sr)	2018/12/05		99	%	80 - 120
			Dissolved Thallium (Tl)	2018/12/05		102	%	80 - 120
			Dissolved Tin (Sn)	2018/12/05		102	%	80 - 120
			Dissolved Titanium (Ti)	2018/12/05		101	%	80 - 120
			Dissolved Uranium (U)	2018/12/05		106	%	80 - 120
			Dissolved Vanadium (V)	2018/12/05		100	%	80 - 120
			Dissolved Zinc (Zn)	2018/12/05		100	%	80 - 120
5869675	AWL	Method Blank	Dissolved Aluminum (Al)	2018/12/05	<5.0		ug/L	
			Dissolved Antimony (Sb)	2018/12/05	<1.0		ug/L	
			Dissolved Arsenic (As)	2018/12/05	<1.0		ug/L	
			Dissolved Barium (Ba)	2018/12/05	<1.0		ug/L	
			Dissolved Beryllium (Be)	2018/12/05	<1.0		ug/L	
			Dissolved Bismuth (Bi)	2018/12/05	<2.0		ug/L	
			Dissolved Boron (B)	2018/12/05	<50		ug/L	
			Dissolved Cadmium (Cd)	2018/12/05	<0.010		ug/L	
			Dissolved Calcium (Ca)	2018/12/05	<100		ug/L	
			Dissolved Chromium (Cr)	2018/12/05	<1.0		ug/L	
			Dissolved Cobalt (Co)	2018/12/05	<0.40		ug/L	
			Dissolved Copper (Cu)	2018/12/05	<2.0		ug/L	
			Dissolved Iron (Fe)	2018/12/05	<50		ug/L	
			Dissolved Lead (Pb)	2018/12/05	<0.50		ug/L	
			Dissolved Magnesium (Mg)	2018/12/05	<100		ug/L	
			Dissolved Manganese (Mn)	2018/12/05	<2.0		ug/L	
			Dissolved Molybdenum (Mo)	2018/12/05	<2.0		ug/L	
			Dissolved Nickel (Ni)	2018/12/05	<2.0		ug/L	
			Dissolved Phosphorus (P)	2018/12/05	<100		ug/L	
			Dissolved Potassium (K)	2018/12/05	<100		ug/L	
			Dissolved Selenium (Se)	2018/12/05	<1.0		ug/L	
			Dissolved Silver (Ag)	2018/12/05	<0.10		ug/L	
			Dissolved Sodium (Na)	2018/12/05	<100		ug/L	
			Dissolved Strontium (Sr)	2018/12/05	<2.0		ug/L	
			Dissolved Thallium (Tl)	2018/12/05	<0.10		ug/L	
			Dissolved Tin (Sn)	2018/12/05	<2.0		ug/L	
			Dissolved Titanium (Ti)	2018/12/05	<2.0		ug/L	
			Dissolved Uranium (U)	2018/12/05	<0.10		ug/L	
			Dissolved Vanadium (V)	2018/12/05	<2.0		ug/L	
			Dissolved Zinc (Zn)	2018/12/05	<5.0		ug/L	
5869675	AWL	RPD	Dissolved Aluminum (Al)	2018/12/05	12		%	20
			Dissolved Antimony (Sb)	2018/12/05	NC		%	20
			Dissolved Arsenic (As)	2018/12/05	7.1		%	20
			Dissolved Barium (Ba)	2018/12/05	1.9		%	20
			Dissolved Beryllium (Be)	2018/12/05	NC		%	20
			Dissolved Bismuth (Bi)	2018/12/05	NC		%	20
			Dissolved Boron (B)	2018/12/05	NC		%	20
			Dissolved Cadmium (Cd)	2018/12/05	3.7		%	20
			Dissolved Calcium (Ca)	2018/12/05	0.94		%	20
			Dissolved Chromium (Cr)	2018/12/05	NC		%	20
			Dissolved Cobalt (Co)	2018/12/05	NC		%	20
			Dissolved Copper (Cu)	2018/12/05	0.76		%	20
			Dissolved Iron (Fe)	2018/12/05	NC		%	20
			Dissolved Lead (Pb)	2018/12/05	NC		%	20
			Dissolved Magnesium (Mg)	2018/12/05	1.4		%	20

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QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Dissolved Manganese (Mn)	2018/12/05	0.074		%	20
			Dissolved Molybdenum (Mo)	2018/12/05	2.7		%	20
			Dissolved Nickel (Ni)	2018/12/05	NC		%	20
			Dissolved Phosphorus (P)	2018/12/05	0.018		%	20
			Dissolved Potassium (K)	2018/12/05	4.8		%	20
			Dissolved Selenium (Se)	2018/12/05	NC		%	20
			Dissolved Silver (Ag)	2018/12/05	NC		%	20
			Dissolved Sodium (Na)	2018/12/05	1.1		%	20
			Dissolved Strontium (Sr)	2018/12/05	2.4		%	20
			Dissolved Thallium (Tl)	2018/12/05	NC		%	20
			Dissolved Tin (Sn)	2018/12/05	NC		%	20
			Dissolved Titanium (Ti)	2018/12/05	NC		%	20
			Dissolved Uranium (U)	2018/12/05	3.2		%	20
			Dissolved Vanadium (V)	2018/12/05	NC		%	20
			Dissolved Zinc (Zn)	2018/12/05	3.0		%	20
5869975	NRG	Matrix Spike	Total Alkalinity (Total as CaCO3)	2018/12/05		102	%	80 - 120
5869975	NRG	Spiked Blank	Total Alkalinity (Total as CaCO3)	2018/12/05		115	%	80 - 120
5869975	NRG	Method Blank	Total Alkalinity (Total as CaCO3)	2018/12/05	<5.0		mg/L	
5869975	NRG	RPD	Total Alkalinity (Total as CaCO3)	2018/12/05	0.59		%	25
5869983	NRG	Matrix Spike	Dissolved Chloride (Cl-)	2018/12/05		NC	%	80 - 120
5869983	NRG	QC Standard	Dissolved Chloride (Cl-)	2018/12/05		109	%	80 - 120
5869983	NRG	Spiked Blank	Dissolved Chloride (Cl-)	2018/12/05		98	%	80 - 120
5869983	NRG	Method Blank	Dissolved Chloride (Cl-)	2018/12/05	<1.0		mg/L	
5869983	NRG	RPD	Dissolved Chloride (Cl-)	2018/12/05	0.29		%	25
5869985	NRG	Matrix Spike	Dissolved Sulphate (SO4)	2018/12/05		100	%	80 - 120
5869985	NRG	Spiked Blank	Dissolved Sulphate (SO4)	2018/12/05		98	%	80 - 120
5869985	NRG	Method Blank	Dissolved Sulphate (SO4)	2018/12/05	<2.0		mg/L	
5869985	NRG	RPD	Dissolved Sulphate (SO4)	2018/12/05	2.1		%	25
5869986	NRG	Matrix Spike	Reactive Silica (SiO2)	2018/12/05		97	%	80 - 120
5869986	NRG	Spiked Blank	Reactive Silica (SiO2)	2018/12/05		98	%	80 - 120
5869986	NRG	Method Blank	Reactive Silica (SiO2)	2018/12/05	<0.50		mg/L	
5869986	NRG	RPD	Reactive Silica (SiO2)	2018/12/05	0.17		%	25
5869987	NRG	Spiked Blank	Colour	2018/12/05		98	%	80 - 120
5869987	NRG	Method Blank	Colour	2018/12/05	<5.0		TCU	
5869987	NRG	RPD	Colour	2018/12/05	2.8		%	20
5869988	NRG	Matrix Spike	Orthophosphate (P)	2018/12/05		92	%	80 - 120
5869988	NRG	Spiked Blank	Orthophosphate (P)	2018/12/05		95	%	80 - 120
5869988	NRG	Method Blank	Orthophosphate (P)	2018/12/05	<0.010		mg/L	
5869988	NRG	RPD	Orthophosphate (P)	2018/12/05	NC		%	25
5869991	NRG	Matrix Spike	Nitrate + Nitrite (N)	2018/12/05		93	%	80 - 120
5869991	NRG	Spiked Blank	Nitrate + Nitrite (N)	2018/12/05		91	%	80 - 120
5869991	NRG	Method Blank	Nitrate + Nitrite (N)	2018/12/05	<0.050		mg/L	
5869991	NRG	RPD	Nitrate + Nitrite (N)	2018/12/05	NC		%	25
5869992	NRG	Matrix Spike	Nitrite (N)	2018/12/05		92	%	80 - 120
5869992	NRG	Spiked Blank	Nitrite (N)	2018/12/05		100	%	80 - 120
5869992	NRG	Method Blank	Nitrite (N)	2018/12/05	<0.010		mg/L	
5869992	NRG	RPD	Nitrite (N)	2018/12/05	NC		%	20
5871524	NHU	QC Standard	pH	2018/12/05		100	%	97 - 103
5871524	NHU	RPD	pH	2018/12/05	0		%	N/A
5871526	NHU	Spiked Blank	Conductivity	2018/12/05		101	%	80 - 120
5871526	NHU	Method Blank	Conductivity	2018/12/05	1.5, RDL=1.0		uS/cm	
5871526	NHU	RPD	Conductivity	2018/12/05	0.28		%	25

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QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
5871529	NHU	QC Standard	pH	2018/12/05		100	%	97 - 103
5871529	NHU	RPD	pH	2018/12/05	0.15		%	N/A
5871531	NHU	Spiked Blank	Conductivity	2018/12/05		102	%	80 - 120
5871531	NHU	Method Blank	Conductivity	2018/12/05	1.8, RDL=1.0		uS/cm	
5871531	NHU	RPD	Conductivity	2018/12/05	0.90		%	25
5871545	NHU	QC Standard	pH	2018/12/05		100	%	97 - 103
5871545	NHU	RPD	pH	2018/12/05	1.1		%	N/A
5871546	NHU	Spiked Blank	Conductivity	2018/12/05		101	%	80 - 120
5871546	NHU	Method Blank	Conductivity	2018/12/05	1.3, RDL=1.0		uS/cm	
5871546	NHU	RPD	Conductivity	2018/12/05	0		%	25
5871693	NHU	QC Standard	Turbidity	2018/12/05		96	%	80 - 120
5871693	NHU	Spiked Blank	Turbidity	2018/12/05		98	%	80 - 120
5871693	NHU	Method Blank	Turbidity	2018/12/05	<0.10		NTU	
5871693	NHU	RPD	Turbidity	2018/12/05	9.4		%	20
5871697	NHU	QC Standard	Turbidity	2018/12/05		96	%	80 - 120
5871697	NHU	Spiked Blank	Turbidity	2018/12/05		98	%	80 - 120
5871697	NHU	Method Blank	Turbidity	2018/12/05	<0.10		NTU	
5871697	NHU	RPD	Turbidity	2018/12/05	7.4		%	20
5871701	SRM	Matrix Spike	Nitrogen (Ammonia Nitrogen)	2018/12/05		92	%	80 - 120
5871701	SRM	Spiked Blank	Nitrogen (Ammonia Nitrogen)	2018/12/05		98	%	80 - 120
5871701	SRM	Method Blank	Nitrogen (Ammonia Nitrogen)	2018/12/05	<0.050		mg/L	
5871701	SRM	RPD	Nitrogen (Ammonia Nitrogen)	2018/12/05	9.7		%	20
5871703	SRM	Matrix Spike	Nitrogen (Ammonia Nitrogen)	2018/12/05		97	%	80 - 120
5871703	SRM	Spiked Blank	Nitrogen (Ammonia Nitrogen)	2018/12/05		97	%	80 - 120
5871703	SRM	Method Blank	Nitrogen (Ammonia Nitrogen)	2018/12/05	<0.050		mg/L	
5871703	SRM	RPD	Nitrogen (Ammonia Nitrogen)	2018/12/05	5.8		%	20
5871739	AWL	Matrix Spike	Dissolved Aluminum (Al)	2018/12/05		97	%	80 - 120
			Dissolved Antimony (Sb)	2018/12/05		103	%	80 - 120
			Dissolved Arsenic (As)	2018/12/05		100	%	80 - 120
			Dissolved Barium (Ba)	2018/12/05		95	%	80 - 120
			Dissolved Beryllium (Be)	2018/12/05		103	%	80 - 120
			Dissolved Bismuth (Bi)	2018/12/05		101	%	80 - 120
			Dissolved Boron (B)	2018/12/05		100	%	80 - 120
			Dissolved Cadmium (Cd)	2018/12/05		106	%	80 - 120
			Dissolved Calcium (Ca)	2018/12/05		NC	%	80 - 120
			Dissolved Chromium (Cr)	2018/12/05		98	%	80 - 120
			Dissolved Cobalt (Co)	2018/12/05		97	%	80 - 120
			Dissolved Copper (Cu)	2018/12/05		96	%	80 - 120
			Dissolved Iron (Fe)	2018/12/05		100	%	80 - 120
			Dissolved Lead (Pb)	2018/12/05		99	%	80 - 120
			Dissolved Magnesium (Mg)	2018/12/05		NC	%	80 - 120
			Dissolved Manganese (Mn)	2018/12/05		99	%	80 - 120
			Dissolved Molybdenum (Mo)	2018/12/05		103	%	80 - 120
			Dissolved Nickel (Ni)	2018/12/05		97	%	80 - 120
			Dissolved Phosphorus (P)	2018/12/05		105	%	80 - 120
			Dissolved Potassium (K)	2018/12/05		101	%	80 - 120
			Dissolved Selenium (Se)	2018/12/05		100	%	80 - 120
			Dissolved Silver (Ag)	2018/12/05		100	%	80 - 120
			Dissolved Sodium (Na)	2018/12/05		NC	%	80 - 120
			Dissolved Strontium (Sr)	2018/12/05		NC	%	80 - 120
			Dissolved Thallium (Tl)	2018/12/05		102	%	80 - 120

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Dissolved Tin (Sn)	2018/12/05		104	%	80 - 120
			Dissolved Titanium (Ti)	2018/12/05		95	%	80 - 120
			Dissolved Uranium (U)	2018/12/05		105	%	80 - 120
			Dissolved Vanadium (V)	2018/12/05		101	%	80 - 120
			Dissolved Zinc (Zn)	2018/12/05		99	%	80 - 120
5871739	AWL	Spiked Blank	Dissolved Aluminum (Al)	2018/12/05		97	%	80 - 120
			Dissolved Antimony (Sb)	2018/12/05		101	%	80 - 120
			Dissolved Arsenic (As)	2018/12/05		98	%	80 - 120
			Dissolved Barium (Ba)	2018/12/05		99	%	80 - 120
			Dissolved Beryllium (Be)	2018/12/05		103	%	80 - 120
			Dissolved Bismuth (Bi)	2018/12/05		104	%	80 - 120
			Dissolved Boron (B)	2018/12/05		100	%	80 - 120
			Dissolved Cadmium (Cd)	2018/12/05		106	%	80 - 120
			Dissolved Calcium (Ca)	2018/12/05		101	%	80 - 120
			Dissolved Chromium (Cr)	2018/12/05		98	%	80 - 120
			Dissolved Cobalt (Co)	2018/12/05		98	%	80 - 120
			Dissolved Copper (Cu)	2018/12/05		98	%	80 - 120
			Dissolved Iron (Fe)	2018/12/05		101	%	80 - 120
			Dissolved Lead (Pb)	2018/12/05		99	%	80 - 120
			Dissolved Magnesium (Mg)	2018/12/05		102	%	80 - 120
			Dissolved Manganese (Mn)	2018/12/05		99	%	80 - 120
			Dissolved Molybdenum (Mo)	2018/12/05		100	%	80 - 120
			Dissolved Nickel (Ni)	2018/12/05		100	%	80 - 120
			Dissolved Phosphorus (P)	2018/12/05		104	%	80 - 120
			Dissolved Potassium (K)	2018/12/05		103	%	80 - 120
			Dissolved Selenium (Se)	2018/12/05		100	%	80 - 120
			Dissolved Silver (Ag)	2018/12/05		98	%	80 - 120
			Dissolved Sodium (Na)	2018/12/05		98	%	80 - 120
			Dissolved Strontium (Sr)	2018/12/05		100	%	80 - 120
			Dissolved Thallium (Tl)	2018/12/05		102	%	80 - 120
			Dissolved Tin (Sn)	2018/12/05		104	%	80 - 120
			Dissolved Titanium (Ti)	2018/12/05		99	%	80 - 120
			Dissolved Uranium (U)	2018/12/05		104	%	80 - 120
			Dissolved Vanadium (V)	2018/12/05		100	%	80 - 120
			Dissolved Zinc (Zn)	2018/12/05		101	%	80 - 120
5871739	AWL	Method Blank	Dissolved Aluminum (Al)	2018/12/05	<5.0		ug/L	
			Dissolved Antimony (Sb)	2018/12/05	<1.0		ug/L	
			Dissolved Arsenic (As)	2018/12/05	<1.0		ug/L	
			Dissolved Barium (Ba)	2018/12/05	<1.0		ug/L	
			Dissolved Beryllium (Be)	2018/12/05	<1.0		ug/L	
			Dissolved Bismuth (Bi)	2018/12/05	<2.0		ug/L	
			Dissolved Boron (B)	2018/12/05	<50		ug/L	
			Dissolved Cadmium (Cd)	2018/12/05	<0.010		ug/L	
			Dissolved Calcium (Ca)	2018/12/05	<100		ug/L	
			Dissolved Chromium (Cr)	2018/12/05	<1.0		ug/L	
			Dissolved Cobalt (Co)	2018/12/05	<0.40		ug/L	
			Dissolved Copper (Cu)	2018/12/05	<2.0		ug/L	
			Dissolved Iron (Fe)	2018/12/05	<50		ug/L	
			Dissolved Lead (Pb)	2018/12/05	<0.50		ug/L	
			Dissolved Magnesium (Mg)	2018/12/05	<100		ug/L	
			Dissolved Manganese (Mn)	2018/12/05	<2.0		ug/L	
			Dissolved Molybdenum (Mo)	2018/12/05	<2.0		ug/L	
			Dissolved Nickel (Ni)	2018/12/05	<2.0		ug/L	

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Dissolved Phosphorus (P)	2018/12/05	<100		ug/L	
			Dissolved Potassium (K)	2018/12/05	<100		ug/L	
			Dissolved Selenium (Se)	2018/12/05	<1.0		ug/L	
			Dissolved Silver (Ag)	2018/12/05	<0.10		ug/L	
			Dissolved Sodium (Na)	2018/12/05	<100		ug/L	
			Dissolved Strontium (Sr)	2018/12/05	<2.0		ug/L	
			Dissolved Thallium (Tl)	2018/12/05	<0.10		ug/L	
			Dissolved Tin (Sn)	2018/12/05	<2.0		ug/L	
			Dissolved Titanium (Ti)	2018/12/05	<2.0		ug/L	
			Dissolved Uranium (U)	2018/12/05	<0.10		ug/L	
			Dissolved Vanadium (V)	2018/12/05	<2.0		ug/L	
			Dissolved Zinc (Zn)	2018/12/05	<5.0		ug/L	
5871739	AWL	RPD	Dissolved Aluminum (Al)	2018/12/05	NC		%	20
			Dissolved Antimony (Sb)	2018/12/05	NC		%	20
			Dissolved Arsenic (As)	2018/12/05	NC		%	20
			Dissolved Barium (Ba)	2018/12/05	0.11		%	20
			Dissolved Beryllium (Be)	2018/12/05	NC		%	20
			Dissolved Bismuth (Bi)	2018/12/05	NC		%	20
			Dissolved Boron (B)	2018/12/05	NC		%	20
			Dissolved Cadmium (Cd)	2018/12/05	NC		%	20
			Dissolved Calcium (Ca)	2018/12/05	0.55		%	20
			Dissolved Chromium (Cr)	2018/12/05	NC		%	20
			Dissolved Cobalt (Co)	2018/12/05	NC		%	20
			Dissolved Copper (Cu)	2018/12/05	NC		%	20
			Dissolved Iron (Fe)	2018/12/05	NC		%	20
			Dissolved Lead (Pb)	2018/12/05	NC		%	20
			Dissolved Magnesium (Mg)	2018/12/05	0.50		%	20
			Dissolved Manganese (Mn)	2018/12/05	NC		%	20
			Dissolved Molybdenum (Mo)	2018/12/05	9.7		%	20
			Dissolved Nickel (Ni)	2018/12/05	NC		%	20
			Dissolved Phosphorus (P)	2018/12/05	NC		%	20
			Dissolved Potassium (K)	2018/12/05	2.1		%	20
			Dissolved Selenium (Se)	2018/12/05	NC		%	20
			Dissolved Silver (Ag)	2018/12/05	NC		%	20
			Dissolved Sodium (Na)	2018/12/05	0.93		%	20
			Dissolved Strontium (Sr)	2018/12/05	0.32		%	20
			Dissolved Thallium (Tl)	2018/12/05	NC		%	20
			Dissolved Tin (Sn)	2018/12/05	NC		%	20
			Dissolved Titanium (Ti)	2018/12/05	NC		%	20
			Dissolved Uranium (U)	2018/12/05	3.1		%	20
			Dissolved Vanadium (V)	2018/12/05	NC		%	20
			Dissolved Zinc (Zn)	2018/12/05	NC		%	20
5871757	CCR	Matrix Spike [IKI878-04]	Total Mercury (Hg)	2018/12/06		95	%	80 - 120
5871757	CCR	Spiked Blank	Total Mercury (Hg)	2018/12/06		101	%	80 - 120
5871757	CCR	Method Blank	Total Mercury (Hg)	2018/12/06	<0.013		ug/L	
5871757	CCR	RPD [IKI856-04]	Total Mercury (Hg)	2018/12/06	NC		%	20
5871926	HM2	Matrix Spike [IKI882-03]	Total Organic Carbon (C)	2018/12/05		94	%	85 - 115
5871926	HM2	Spiked Blank	Total Organic Carbon (C)	2018/12/05		100	%	80 - 120
5871926	HM2	Method Blank	Total Organic Carbon (C)	2018/12/05	<0.50		mg/L	
5871926	HM2	RPD [IKI882-03]	Total Organic Carbon (C)	2018/12/05	NC (1)		%	15
5871975	HM2	Matrix Spike	Total Organic Carbon (C)	2018/12/05		103	%	85 - 115
5871975	HM2	Spiked Blank	Total Organic Carbon (C)	2018/12/05		100	%	80 - 120
5871975	HM2	Method Blank	Total Organic Carbon (C)	2018/12/05	<0.50		mg/L	

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
5871975	HM2	RPD	Total Organic Carbon (C)	2018/12/05	0.15		%	15
5872250	NRG	Matrix Spike	Total Alkalinity (Total as CaCO3)	2018/12/07		NC	%	80 - 120
5872250	NRG	Spiked Blank	Total Alkalinity (Total as CaCO3)	2018/12/06		108	%	80 - 120
5872250	NRG	Method Blank	Total Alkalinity (Total as CaCO3)	2018/12/06	<5.0		mg/L	
5872250	NRG	RPD	Total Alkalinity (Total as CaCO3)	2018/12/07	0.14		%	25
5872252	NRG	Matrix Spike	Dissolved Chloride (Cl-)	2018/12/06		NC	%	80 - 120
5872252	NRG	QC Standard	Dissolved Chloride (Cl-)	2018/12/06		108	%	80 - 120
5872252	NRG	Spiked Blank	Dissolved Chloride (Cl-)	2018/12/06		99	%	80 - 120
5872252	NRG	Method Blank	Dissolved Chloride (Cl-)	2018/12/06	<1.0		mg/L	
5872252	NRG	RPD	Dissolved Chloride (Cl-)	2018/12/06	2.1		%	25
5872253	NRG	Matrix Spike	Dissolved Sulphate (SO4)	2018/12/06		101	%	80 - 120
5872253	NRG	Spiked Blank	Dissolved Sulphate (SO4)	2018/12/06		99	%	80 - 120
5872253	NRG	Method Blank	Dissolved Sulphate (SO4)	2018/12/06	<2.0		mg/L	
5872253	NRG	RPD	Dissolved Sulphate (SO4)	2018/12/06	0.39		%	25
5872254	NRG	Matrix Spike	Reactive Silica (SiO2)	2018/12/06		NC	%	80 - 120
5872254	NRG	Spiked Blank	Reactive Silica (SiO2)	2018/12/07		101	%	80 - 120
5872254	NRG	Method Blank	Reactive Silica (SiO2)	2018/12/07	<0.50		mg/L	
5872254	NRG	RPD	Reactive Silica (SiO2)	2018/12/06	0.48		%	25
5872255	NRG	Spiked Blank	Colour	2018/12/06		104	%	80 - 120
5872255	NRG	Method Blank	Colour	2018/12/06	<5.0		TCU	
5872255	NRG	RPD	Colour	2018/12/06	20		%	20
5872256	NRG	Matrix Spike	Orthophosphate (P)	2018/12/06		93	%	80 - 120
5872256	NRG	Spiked Blank	Orthophosphate (P)	2018/12/06		98	%	80 - 120
5872256	NRG	Method Blank	Orthophosphate (P)	2018/12/06	<0.010		mg/L	
5872256	NRG	RPD	Orthophosphate (P)	2018/12/06	NC		%	25
5872257	NRG	Matrix Spike	Nitrate + Nitrite (N)	2018/12/06		95	%	80 - 120
5872257	NRG	Spiked Blank	Nitrate + Nitrite (N)	2018/12/06		95	%	80 - 120
5872257	NRG	Method Blank	Nitrate + Nitrite (N)	2018/12/06	<0.050		mg/L	
5872257	NRG	RPD	Nitrate + Nitrite (N)	2018/12/06	2.2		%	25
5872258	NRG	Matrix Spike	Nitrite (N)	2018/12/06		97	%	80 - 120
5872258	NRG	Spiked Blank	Nitrite (N)	2018/12/06		100	%	80 - 120
5872258	NRG	Method Blank	Nitrite (N)	2018/12/06	<0.010		mg/L	
5872258	NRG	RPD	Nitrite (N)	2018/12/06	NC		%	20
5873853	NHU	QC Standard	Turbidity	2018/12/06		94	%	80 - 120
5873853	NHU	Spiked Blank	Turbidity	2018/12/06		99	%	80 - 120
5873853	NHU	Method Blank	Turbidity	2018/12/06	<0.10		NTU	
5873853	NHU	RPD	Turbidity	2018/12/06	0.96		%	20
5873854	NHU	QC Standard	Turbidity	2018/12/06		95	%	80 - 120
5873854	NHU	Spiked Blank	Turbidity	2018/12/06		99	%	80 - 120
5873854	NHU	Method Blank	Turbidity	2018/12/06	<0.10		NTU	
5873854	NHU	RPD	Turbidity	2018/12/06	NC		%	20
5873855	HM2	Matrix Spike	Total Organic Carbon (C)	2018/12/06		113	%	85 - 115
5873855	HM2	Spiked Blank	Total Organic Carbon (C)	2018/12/06		100	%	80 - 120
5873855	HM2	Method Blank	Total Organic Carbon (C)	2018/12/06	<0.50		mg/L	
5873855	HM2	RPD	Total Organic Carbon (C)	2018/12/06	5.6		%	15
5873858	HM2	Matrix Spike	Total Organic Carbon (C)	2018/12/06		110	%	85 - 115
5873858	HM2	Spiked Blank	Total Organic Carbon (C)	2018/12/06		101	%	80 - 120
5873858	HM2	Method Blank	Total Organic Carbon (C)	2018/12/06	<0.50		mg/L	

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
5873858	HM2	RPD	Total Organic Carbon (C)	2018/12/06	0.77		%	15

N/A = Not Applicable

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

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

QC Standard: A sample of known concentration prepared by an external agency under stringent conditions. Used as an independent check of method accuracy.

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

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

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

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

(1) Elevated reporting limit due to turbidity.

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VALIDATION SIGNATURE PAGE

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

Mike MacGillivray, Scientific Specialist (Inorganics)

Rosemarie MacDonald, Scientific Specialist (Organics)

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

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Maxxam
A Bureau Veritas Group Company

Your Project #: 14-1360
Site Location: OH PARK / HARBOURSIDE EAST

Attention: Nadine Wambolt

Dillon Consulting Limited
275 Charlotte St
Sydney, NS
CANADA B1P 1C6

Report Date: 2018/12/12
Report #: R5522461
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B8W2373
Received: 2018/12/03, 16:05

Sample Matrix: Water
Samples Received: 11

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Reference
Carbonate, Bicarbonate and Hydroxide (1)	9	N/A	2018/12/07	N/A	SM 23 4500-CO2 D
Carbonate, Bicarbonate and Hydroxide (1)	2	N/A	2018/12/10	N/A	SM 23 4500-CO2 D
Alkalinity (1)	11	N/A	2018/12/10	ATL SOP 00013	EPA 310.2 R1974 m
Benzo(b/j)fluoranthene Sum (water) (1)	11	N/A	2018/12/10	N/A	Auto Calc.
Chloride (1)	11	N/A	2018/12/07	ATL SOP 00014	SM 23 4500-Cl- E m
Colour (1)	11	N/A	2018/12/07	ATL SOP 00020	SM 23 2120C m
Conductance - water (1)	11	N/A	2018/12/07	ATL SOP 00004	SM 23 2510B m
Hardness (calculated as CaCO3) (1)	3	N/A	2018/12/11	ATL SOP 00048	Auto Calc
Hardness (calculated as CaCO3) (1)	8	N/A	2018/12/12	ATL SOP 00048	Auto Calc
Mercury - Total (CVAA,LL) (1)	11	2018/12/07	2018/12/10	ATL SOP 00026	EPA 245.1 R3 m
Metals Water Diss. MS (as rec'd) (1)	9	N/A	2018/12/11	ATL SOP 00058	EPA 6020A R1 m
Metals Water Diss. MS (as rec'd) (1)	2	N/A	2018/12/12	ATL SOP 00058	EPA 6020A R1 m
Ion Balance (% Difference) (1)	3	N/A	2018/12/11	N/A	Auto Calc.
Ion Balance (% Difference) (1)	8	N/A	2018/12/12	N/A	Auto Calc.
Anion and Cation Sum (1)	3	N/A	2018/12/11	N/A	Auto Calc.
Anion and Cation Sum (1)	8	N/A	2018/12/12	N/A	Auto Calc.
Nitrogen Ammonia - water (1)	11	N/A	2018/12/10	ATL SOP 00015	EPA 350.1 R2 m
Nitrogen - Nitrate + Nitrite (1)	11	N/A	2018/12/07	ATL SOP 00016	USGS I-2547-11m
Nitrogen - Nitrite (1)	11	N/A	2018/12/07	ATL SOP 00017	SM 23 4500-NO2- B m
Nitrogen - Nitrate (as N) (1)	11	N/A	2018/12/10	ATL SOP 00018	ASTM D3867-16
PAH in Water by GC/MS (SIM) (1)	7	2018/12/06	2018/12/07	ATL SOP 00103	EPA 8270D 2014 m
PAH in Water by GC/MS (SIM) (1)	4	2018/12/06	2018/12/08	ATL SOP 00103	EPA 8270D 2014 m
pH (1, 2)	9	N/A	2018/12/07	ATL SOP 00003	SM 23 4500-H+ B m
pH (1, 2)	2	N/A	2018/12/10	ATL SOP 00003	SM 23 4500-H+ B m
Phosphorus - ortho (1)	11	N/A	2018/12/07	ATL SOP 00021	SM 23 4500-P E m
Sat. pH and Langelier Index (@ 20C) (1)	3	N/A	2018/12/11	ATL SOP 00049	Auto Calc.
Sat. pH and Langelier Index (@ 20C) (1)	8	N/A	2018/12/12	ATL SOP 00049	Auto Calc.
Sat. pH and Langelier Index (@ 4C) (1)	3	N/A	2018/12/11	ATL SOP 00049	Auto Calc.
Sat. pH and Langelier Index (@ 4C) (1)	8	N/A	2018/12/12	ATL SOP 00049	Auto Calc.
Reactive Silica (1)	11	N/A	2018/12/10	ATL SOP 00022	EPA 366.0 m
Sulphate (1)	11	N/A	2018/12/07	ATL SOP 00023	ASTM D516-16 m
Total Dissolved Solids (TDS calc) (1)	3	N/A	2018/12/11	N/A	Auto Calc.

Maxxam
A Bureau Veritas Group Company

Your Project #: 14-1360
Site Location: OH PARK / HARBOURSIDE EAST

Attention: Nadine Wambolt

Dillon Consulting Limited
275 Charlotte St
Sydney, NS
CANADA B1P 1C6

Report Date: 2018/12/12
Report #: R5522461
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B8W2373
Received: 2018/12/03, 16:05

Sample Matrix: Water
Samples Received: 11

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Reference
Total Dissolved Solids (TDS calc) (1)	8	N/A	2018/12/12	N/A	Auto Calc.
Organic carbon - Total (TOC) (1, 3)	9	N/A	2018/12/11	ATL SOP 00203	SM 23 5310B m
Organic carbon - Total (TOC) (1, 3)	2	N/A	2018/12/12	ATL SOP 00203	SM 23 5310B m
Turbidity (1)	1	N/A	2018/12/10	ATL SOP 00011	EPA 180.1 R2 m
Turbidity (1)	10	N/A	2018/12/11	ATL SOP 00011	EPA 180.1 R2 m

Remarks:

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

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

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

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by Maxxam, results relate to the supplied samples tested.

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
(1) This test was performed by Maxxam Bedford
(2) The APHA Standard Method require pH to be analyzed within 15 minutes of sampling and therefore field analysis is required for compliance. All Laboratory pH analyses in this report are reported past the APHA Standard Method holding time.
(3) TOC / DOC present in the sample should be considered as non-purgeable TOC / DOC.

Encryption Key

Maxxam Analytics International Corporation o/a Maxxam Analytics 465 George St., Unit G, Sydney, NS, B1P 1K5 Tel:902 567 1255 Toll Free: 888 535 7770 Fax: 902 539 6504 www.maxxam.ca

Your Project #: 14-1360
Site Location: OH PARK / HARBOURSIDE EAST

Attention: Nadine Wambolt

Dillon Consulting Limited
275 Charlotte St
Sydney, NS
CANADA B1P 1C6

Report Date: 2018/12/12
Report #: R5522461
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B8W2373
Received: 2018/12/03, 16:05

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Natalie MacAskill, Key Account Specialist
Email: NMacAskill@maxxam.ca
Phone# (902)567-1255 Ext:17

==========

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Maxxam Job #: B8W2373
Report Date: 2018/12/12

Dillon Consulting Limited
Client Project #: 14-1360
Site Location: OH PARK / HARBOURSIDE EAST

RESULTS OF ANALYSES OF WATER

Maxxam ID		ILI609			ILI610		
Sampling Date		2018/12/03			2018/12/03		
	UNITS	COSCW-001-MWA	RDL	QC Batch	COSCW-001-MWB	RDL	QC Batch
Calculated Parameters							
Anion Sum	me/L	5.43	N/A	5868494	5.32	N/A	5868494
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	210	1.0	5868489	210	1.0	5868489
Calculated TDS	mg/L	300	1.0	5868501	290	1.0	5868501
Carb. Alkalinity (calc. as CaCO3)	mg/L	<1.0	1.0	5868489	1.8	1.0	5868489
Cation Sum	me/L	5.17	N/A	5868494	5.25	N/A	5868494
Hardness (CaCO3)	mg/L	230	1.0	5868490	220	1.0	5868490
Ion Balance (% Difference)	%	2.45	N/A	5868492	0.660	N/A	5868492
Langelier Index (@ 20C)	N/A	0.383		5868497	0.707		5868497
Langelier Index (@ 4C)	N/A	0.134		5868500	0.458		5868500
Nitrate (N)	mg/L	<0.050	0.050	5868495	<0.050	0.050	5868495
Saturation pH (@ 20C)	N/A	7.22		5868497	7.26		5868497
Saturation pH (@ 4C)	N/A	7.47		5868500	7.51		5868500
Inorganics							
Total Alkalinity (Total as CaCO3)	mg/L	210	25	5874524	210	25	5874562
Dissolved Chloride (Cl-)	mg/L	13	1.0	5874533	14	1.0	5874569
Colour	TCU	<5.0	5.0	5874545	<5.0	5.0	5874579
Nitrate + Nitrite (N)	mg/L	<0.050	0.050	5874547	<0.050	0.050	5874582
Nitrite (N)	mg/L	<0.010	0.010	5874548	<0.010	0.010	5874584
Nitrogen (Ammonia Nitrogen)	mg/L	0.058	0.050	5879282	0.055	0.050	5879282
Total Organic Carbon (C)	mg/L	<5.0 (1)	5.0	5879490	1.7	0.50	5879432
Orthophosphate (P)	mg/L	<0.010	0.010	5874546	<0.010	0.010	5874580
pH	pH	7.60	N/A	5876080	7.96	N/A	5876088
Reactive Silica (SiO2)	mg/L	12	0.50	5874543	12	0.50	5874575
Dissolved Sulphate (SO4)	mg/L	46	2.0	5874534	31	2.0	5874572
Turbidity	NTU	110	1.0	5881459	0.39	0.10	5881459
Conductivity	uS/cm	480	1.0	5876084	480	1.0	5876090

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable
(1) Elevated reporting limit due to turbidity.

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Maxxam Job #: B8W2373
Report Date: 2018/12/12

Dillon Consulting Limited
Client Project #: 14-1360
Site Location: OH PARK / HARBOURSIDE EAST

RESULTS OF ANALYSES OF WATER

Maxxam ID		ILI611		ILI612			ILI613		
Sampling Date		2018/12/03		2018/12/03			2018/12/03		
	UNITS	COSCW-002-MWA	QC Batch	COSCW-002-MWB	RDL	QC Batch	COBT-003-MWB	RDL	QC Batch
Calculated Parameters									
Anion Sum	me/L	9.47	5868494	6.23	N/A	5868494	11.3	N/A	5868494
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	330	5868489	190	1.0	5868489	220	1.0	5868489
Calculated TDS	mg/L	530	5868501	360	1.0	5868501	630	1.0	5868501
Carb. Alkalinity (calc. as CaCO3)	mg/L	1.5	5868489	1.4	1.0	5868489	1.5	1.0	5868489
Cation Sum	me/L	9.26	5868494	6.29	N/A	5868494	10.6	N/A	5868494
Hardness (CaCO3)	mg/L	450	5868490	260	1.0	5868490	320	1.0	5868490
Ion Balance (% Difference)	%	1.12	5868492	0.480	N/A	5868492	2.92	N/A	5868492
Langelier Index (@ 20C)	N/A	0.918	5868497	0.668		5868497	0.726		5868497
Langelier Index (@ 4C)	N/A	0.671	5868500	0.419		5868500	0.478		5868500
Nitrate (N)	mg/L	<0.050	5868495	0.081	0.050	5868495	<0.050	0.050	5868495
Saturation pH (@ 20C)	N/A	6.78	5868497	7.22		5868497	7.13		5868497
Saturation pH (@ 4C)	N/A	7.03	5868500	7.47		5868500	7.38		5868500
Inorganics									
Total Alkalinity (Total as CaCO3)	mg/L	330	5874562	190	25	5874562	220	25	5874562
Dissolved Chloride (Cl-)	mg/L	6.9	5874569	9.7	1.0	5874569	190	1.0	5874569
Colour	TCU	<5.0	5874579	<5.0	5.0	5874579	<5.0	5.0	5874579
Nitrate + Nitrite (N)	mg/L	<0.050	5874582	0.081	0.050	5874582	<0.050	0.050	5874582
Nitrite (N)	mg/L	<0.010	5874584	<0.010	0.010	5874584	<0.010	0.010	5874584
Nitrogen (Ammonia Nitrogen)	mg/L	<0.050	5879283	<0.050	0.050	5879283	0.058	0.050	5879282
Total Organic Carbon (C)	mg/L	0.82	5879504	0.72	0.50	5879432	1.1	0.50	5879432
Orthophosphate (P)	mg/L	<0.010	5874580	<0.010	0.010	5874580	<0.010	0.010	5874580
pH	pH	7.70	5876080	7.89	N/A	5876088	7.86	N/A	5876062
Reactive Silica (SiO2)	mg/L	13	5874575	9.1	0.50	5874575	14	0.50	5874575
Dissolved Sulphate (SO4)	mg/L	130	5874572	100	10	5874572	74	2.0	5874572
Turbidity	NTU	7.4	5881448	3.5	0.10	5881459	0.53	0.10	5881459
Conductivity	uS/cm	800	5876084	570	1.0	5876090	1100	1.0	5876065

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Maxxam Job #: B8W2373
Report Date: 2018/12/12

Dillon Consulting Limited
Client Project #: 14-1360
Site Location: OH PARK / HARBOURSIDE EAST

RESULTS OF ANALYSES OF WATER

Maxxam ID		ILI614		ILI615			ILI616		
Sampling Date		2018/12/03		2018/12/03			2018/12/03		
	UNITS	COBB-004-MWA	QC Batch	COBC-004-MWA	RDL	QC Batch	COBP-006-MWA	RDL	QC Batch
Calculated Parameters									
Anion Sum	me/L	12.0	5868494	12.0	N/A	5868494	8.21	N/A	5868494
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	180	5868489	180	1.0	5868489	260	1.0	5868489
Calculated TDS	mg/L	770	5868501	730	1.0	5868501	470	1.0	5868501
Carb. Alkalinity (calc. as CaCO3)	mg/L	<1.0	5868489	1.5	1.0	5868489	1.3	1.0	5868489
Cation Sum	me/L	12.1	5868494	11.5	N/A	5868494	8.31	N/A	5868494
Hardness (CaCO3)	mg/L	580	5868490	460	1.0	5868490	330	1.0	5868490
Ion Balance (% Difference)	%	0.540	5868492	2.13	N/A	5868492	0.610	N/A	5868492
Langelier Index (@ 20C)	N/A	0.769	5868497	0.836		5868497	0.735		5868497
Langelier Index (@ 4C)	N/A	0.523	5868500	0.589		5868500	0.487		5868500
Nitrate (N)	mg/L	<0.050	5868495	1.5	0.050	5868495	<0.050	0.050	5868495
Saturation pH (@ 20C)	N/A	6.92	5868497	7.10		5868497	7.00		5868497
Saturation pH (@ 4C)	N/A	7.16	5868500	7.35		5868500	7.25		5868500
Inorganics									
Total Alkalinity (Total as CaCO3)	mg/L	180	5874562	180	25	5874562	270	25	5876176
Dissolved Chloride (Cl-)	mg/L	18	5874569	76	1.0	5874569	45	1.0	5876179
Colour	TCU	5.5	5874579	<5.0	5.0	5874579	80	25	5876184
Nitrate + Nitrite (N)	mg/L	<0.050	5874582	1.5	0.050	5874582	<0.050	0.050	5876188
Nitrite (N)	mg/L	<0.010	5874584	<0.010	0.010	5874584	<0.010	0.010	5876190
Nitrogen (Ammonia Nitrogen)	mg/L	0.060	5879282	<0.050	0.050	5879283	1.2	0.050	5879283
Total Organic Carbon (C)	mg/L	7.6	5879432	1.4	0.50	5879490	8.8	0.50	5879490
Orthophosphate (P)	mg/L	0.013	5874580	0.16	0.010	5874580	<0.010	0.010	5876186
pH	pH	7.68	5876080	7.94	N/A	5876080	7.73	N/A	5876062
Reactive Silica (SiO2)	mg/L	27	5874575	24	1.0	5874575	15	0.50	5876183
Dissolved Sulphate (SO4)	mg/L	380	5874572	290	10	5874572	79	2.0	5876181
Turbidity	NTU	0.71	5881444	1.3	0.10	5881459	160	1.0	5881459
Conductivity	uS/cm	1000	5876084	1100	1.0	5876084	760	1.0	5876065

RDL = Reportable Detection Limit
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Maxxam Job #: B8W2373
Report Date: 2018/12/12

Dillon Consulting Limited
Client Project #: 14-1360
Site Location: OH PARK / HARBOURSIDE EAST

RESULTS OF ANALYSES OF WATER

Maxxam ID		ILI617			ILI687			ILI719		
Sampling Date		2018/12/03			2018/12/03			2018/12/03		
	UNITS	COCP-110-MW	RDL	QC Batch	COBC-002-MWA	RDL	QC Batch	FD-12	RDL	QC Batch
Calculated Parameters										
Anion Sum	me/L	10.0	N/A	5868494	23.0	N/A	5868494	8.22	N/A	5868494
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	200	1.0	5868489	66	1.0	5868489	270	1.0	5868489
Calculated TDS	mg/L	620	1.0	5868501	1300	1.0	5868501	470	1.0	5868501
Carb. Alkalinity (calc. as CaCO3)	mg/L	1.2	1.0	5868489	<1.0	1.0	5868489	<1.0	1.0	5868489
Cation Sum	me/L	9.78	N/A	5868494	22.4	N/A	5868494	8.43	N/A	5868494
Hardness (CaCO3)	mg/L	410	1.0	5868490	550	1.0	5868490	340	1.0	5868490
Ion Balance (% Difference)	%	1.16	N/A	5868492	1.35	N/A	5868492	1.26	N/A	5868492
Langelier Index (@ 20C)	N/A	0.750		5868497	-1.06		5868497	0.340		5868497
Langelier Index (@ 4C)	N/A	0.502		5868500	-1.31		5868500	0.0920		5868500
Nitrate (N)	mg/L	<0.050	0.050	5868495	0.17	0.050	5868495	<0.050	0.050	5868495
Saturation pH (@ 20C)	N/A	7.05		5868497	7.50		5868497	6.99		5868497
Saturation pH (@ 4C)	N/A	7.30		5868500	7.74		5868500	7.24		5868500
Inorganics										
Total Alkalinity (Total as CaCO3)	mg/L	200	25	5874562	66	5.0	5874562	270	25	5874562
Dissolved Chloride (Cl-)	mg/L	62	1.0	5874569	620	5.0	5874569	44	1.0	5874569
Colour	TCU	6.3	5.0	5874579	<5.0	5.0	5874579	16	5.0	5874579
Nitrate + Nitrite (N)	mg/L	<0.050	0.050	5874582	0.17	0.050	5874582	<0.050	0.050	5874582
Nitrite (N)	mg/L	<0.010	0.010	5874584	<0.010	0.010	5874584	<0.010	0.010	5874584
Nitrogen (Ammonia Nitrogen)	mg/L	1.0	0.050	5879283	<0.050	0.050	5879283	1.2	0.050	5879282
Total Organic Carbon (C)	mg/L	6.1 (1)	5.0	5879504	1.8	0.50	5879432	8.5	0.50	5879432
Orthophosphate (P)	mg/L	<0.010	0.010	5874580	<0.010	0.010	5874580	<0.010	0.010	5874580
pH	pH	7.80	N/A	5876080	6.44	N/A	5876080	7.33	N/A	5876080
Reactive Silica (SiO2)	mg/L	31	1.0	5874575	2.8	0.50	5874575	15	0.50	5874575
Dissolved Sulphate (SO4)	mg/L	210	10	5874572	200	10	5874572	77	2.0	5874572
Turbidity	NTU	68	0.10	5881444	2.7	0.10	5879261	170	1.0	5881444
Conductivity	uS/cm	930	1.0	5876084	2400	1.0	5876084	730	1.0	5876084

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable
(1) Elevated reporting limit due to turbidity.

Maxxam Job #: B8W2373
Report Date: 2018/12/12

Dillon Consulting Limited
Client Project #: 14-1360
Site Location: OH PARK / HARBOURSIDE EAST

MERCURY BY COLD VAPOUR AA (WATER)

Maxxam ID		ILI609	ILI610	ILI611	ILI612		
Sampling Date		2018/12/03	2018/12/03	2018/12/03	2018/12/03		
	UNITS	COSCW-001-MWA	COSCW-001-MWB	COSCW-002-MWA	COSCW-002-MWB	RDL	QC Batch
Metals							
Total Mercury (Hg)	ug/L	<0.013	<0.013	<0.013	<0.013	0.013	5876206

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam ID		ILI613	ILI614	ILI615	ILI616	ILI617		
Sampling Date		2018/12/03	2018/12/03	2018/12/03	2018/12/03	2018/12/03		
	UNITS	COBT-003-MWB	COBB-004-MWA	COBC-004-MWA	COBP-006-MWA	COCP-110-MW	RDL	QC Batch
Metals								
Total Mercury (Hg)	ug/L	<0.013	<0.013	<0.013	<0.013	0.017	0.013	5876206

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam ID		ILI687	ILI719		
Sampling Date		2018/12/03	2018/12/03		
	UNITS	COBC-002-MWA	FD-12	RDL	QC Batch
Metals					
Total Mercury (Hg)	ug/L	<0.013	<0.013	0.013	5876206

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B8W2373
Report Date: 2018/12/12

Dillon Consulting Limited
Client Project #: 14-1360
Site Location: OH PARK / HARBOURSIDE EAST

ELEMENTS BY ICP/MS (WATER)

Maxxam ID		ILI609		ILI610	ILI611		
Sampling Date		2018/12/03		2018/12/03	2018/12/03		
	UNITS	COSCW-001-MWA	QC Batch	COSCW-001-MWB	COSCW-002-MWA	RDL	QC Batch
Metals							
Dissolved Aluminum (Al)	ug/L	<5.0	5879354	6.6	<5.0	5.0	5879359
Dissolved Antimony (Sb)	ug/L	<1.0	5879354	<1.0	<1.0	1.0	5879359
Dissolved Arsenic (As)	ug/L	<1.0	5879354	<1.0	<1.0	1.0	5879359
Dissolved Barium (Ba)	ug/L	55	5879354	130	22	1.0	5879359
Dissolved Beryllium (Be)	ug/L	<1.0	5879354	<1.0	<1.0	1.0	5879359
Dissolved Bismuth (Bi)	ug/L	<2.0	5879354	<2.0	<2.0	2.0	5879359
Dissolved Boron (B)	ug/L	<50	5879354	57	<50	50	5879359
Dissolved Cadmium (Cd)	ug/L	0.10	5879354	0.073	0.12	0.010	5879359
Dissolved Calcium (Ca)	ug/L	77000	5879354	68000	150000	100	5879359
Dissolved Chromium (Cr)	ug/L	<1.0	5879354	<1.0	<1.0	1.0	5879359
Dissolved Cobalt (Co)	ug/L	<0.40	5879354	<0.40	<0.40	0.40	5879359
Dissolved Copper (Cu)	ug/L	5.0	5879354	<2.0	15	2.0	5879359
Dissolved Iron (Fe)	ug/L	<50	5879354	82	<50	50	5879359
Dissolved Lead (Pb)	ug/L	<0.50	5879354	<0.50	<0.50	0.50	5879359
Dissolved Magnesium (Mg)	ug/L	8400	5879354	12000	16000	100	5879359
Dissolved Manganese (Mn)	ug/L	340	5879354	98	<2.0	2.0	5879359
Dissolved Molybdenum (Mo)	ug/L	<2.0	5879354	4.3	<2.0	2.0	5879359
Dissolved Nickel (Ni)	ug/L	<2.0	5879354	<2.0	<2.0	2.0	5879359
Dissolved Phosphorus (P)	ug/L	<100	5879354	<100	<100	100	5879359
Dissolved Potassium (K)	ug/L	1500	5879354	3300	1400	100	5879359
Dissolved Selenium (Se)	ug/L	<1.0	5879354	<1.0	<1.0	1.0	5879359
Dissolved Silver (Ag)	ug/L	<0.10	5879354	<0.10	<0.10	0.10	5879359
Dissolved Sodium (Na)	ug/L	14000	5879354	18000	7300	100	5879359
Dissolved Strontium (Sr)	ug/L	620	5879354	1300	240	2.0	5879359
Dissolved Thallium (Tl)	ug/L	<0.10	5879354	<0.10	<0.10	0.10	5879359
Dissolved Tin (Sn)	ug/L	<2.0	5879354	<2.0	<2.0	2.0	5879359
Dissolved Titanium (Ti)	ug/L	<2.0	5879354	<2.0	<2.0	2.0	5879359
Dissolved Uranium (U)	ug/L	0.68	5879354	1.3	3.8	0.10	5879359
Dissolved Vanadium (V)	ug/L	<2.0	5879354	<2.0	<2.0	2.0	5879359
Dissolved Zinc (Zn)	ug/L	62	5879354	<5.0	100	5.0	5879359

RDL = Reportable Detection Limit
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Maxxam Job #: B8W2373
Report Date: 2018/12/12

Dillon Consulting Limited
Client Project #: 14-1360
Site Location: OH PARK / HARBOURSIDE EAST

ELEMENTS BY ICP/MS (WATER)

Maxxam ID		ILI612	ILI613	ILI614	ILI615	ILI616		
Sampling Date		2018/12/03	2018/12/03	2018/12/03	2018/12/03	2018/12/03		
	UNITS	COSCW-002-MWB	COBT-003-MWB	COBB-004-MWA	COBC-004-MWA	COBP-006-MWA	RDL	QC Batch
Metals								
Dissolved Aluminum (Al)	ug/L	15	<5.0	<5.0	340	9.8	5.0	5879354
Dissolved Antimony (Sb)	ug/L	<1.0	<1.0	<1.0	2.5	<1.0	1.0	5879354
Dissolved Arsenic (As)	ug/L	<1.0	2.4	2.3	4.9	<1.0	1.0	5879354
Dissolved Barium (Ba)	ug/L	34	48	89	30	110	1.0	5879354
Dissolved Beryllium (Be)	ug/L	<1.0	<1.0	<1.0	<1.0	<1.0	1.0	5879354
Dissolved Bismuth (Bi)	ug/L	<2.0	<2.0	<2.0	<2.0	<2.0	2.0	5879354
Dissolved Boron (B)	ug/L	<50	57	85	80	59	50	5879354
Dissolved Cadmium (Cd)	ug/L	0.11	0.016	0.12	0.096	0.086	0.010	5879354
Dissolved Calcium (Ca)	ug/L	87000	110000	220000	140000	110000	100	5879354
Dissolved Chromium (Cr)	ug/L	<1.0	<1.0	<1.0	1.0	<1.0	1.0	5879354
Dissolved Cobalt (Co)	ug/L	<0.40	0.44	0.60	<0.40	<0.40	0.40	5879354
Dissolved Copper (Cu)	ug/L	5.4	<2.0	<2.0	3.6	<2.0	2.0	5879354
Dissolved Iron (Fe)	ug/L	<50	220	170	<50	13000	50	5879354
Dissolved Lead (Pb)	ug/L	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	5879354
Dissolved Magnesium (Mg)	ug/L	11000	12000	7700	24000	14000	100	5879354
Dissolved Manganese (Mn)	ug/L	33	2200	1300	21	4800	2.0	5879354
Dissolved Molybdenum (Mo)	ug/L	3.7	<2.0	13	3.8	<2.0	2.0	5879354
Dissolved Nickel (Ni)	ug/L	<2.0	<2.0	2.2	<2.0	<2.0	2.0	5879354
Dissolved Phosphorus (P)	ug/L	<100	<100	<100	200	130	100	5879354
Dissolved Potassium (K)	ug/L	1400	2700	4200	4100	4000	100	5879354
Dissolved Selenium (Se)	ug/L	<1.0	<1.0	<1.0	8.7	<1.0	1.0	5879354
Dissolved Silver (Ag)	ug/L	<0.10	<0.10	<0.10	<0.10	<0.10	0.10	5879354
Dissolved Sodium (Na)	ug/L	24000	97000	10000	50000	24000	100	5879354
Dissolved Strontium (Sr)	ug/L	140	1300	880	400	460	2.0	5879354
Dissolved Thallium (Tl)	ug/L	<0.10	<0.10	<0.10	<0.10	<0.10	0.10	5879354
Dissolved Tin (Sn)	ug/L	<2.0	<2.0	<2.0	<2.0	<2.0	2.0	5879354
Dissolved Titanium (Ti)	ug/L	<2.0	<2.0	<2.0	<2.0	<2.0	2.0	5879354
Dissolved Uranium (U)	ug/L	1.6	0.49	8.0	0.68	<0.10	0.10	5879354
Dissolved Vanadium (V)	ug/L	<2.0	<2.0	<2.0	11	<2.0	2.0	5879354
Dissolved Zinc (Zn)	ug/L	38	41	<5.0	20	52	5.0	5879354

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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ELEMENTS BY ICP/MS (WATER)

Maxxam ID		ILI617		ILI687		ILI719		
Sampling Date		2018/12/03		2018/12/03		2018/12/03		
	UNITS	COCP-110-MW	QC Batch	COBC-002-MWA	QC Batch	FD-12	RDL	QC Batch
Metals								
Dissolved Aluminum (Al)	ug/L	6.3	5879354	20	5879359	10	5.0	5879354
Dissolved Antimony (Sb)	ug/L	2.6	5879354	<1.0	5879359	<1.0	1.0	5879354
Dissolved Arsenic (As)	ug/L	18	5879354	<1.0	5879359	<1.0	1.0	5879354
Dissolved Barium (Ba)	ug/L	75	5879354	21	5879359	110	1.0	5879354
Dissolved Beryllium (Be)	ug/L	<1.0	5879354	<1.0	5879359	<1.0	1.0	5879354
Dissolved Bismuth (Bi)	ug/L	<2.0	5879354	<2.0	5879359	<2.0	2.0	5879354
Dissolved Boron (B)	ug/L	72	5879354	69	5879359	60	50	5879354
Dissolved Cadmium (Cd)	ug/L	0.13	5879354	0.21	5879359	0.15	0.010	5879354
Dissolved Calcium (Ca)	ug/L	140000	5879354	190000	5879359	110000	100	5879354
Dissolved Chromium (Cr)	ug/L	<1.0	5879354	<1.0	5879359	<1.0	1.0	5879354
Dissolved Cobalt (Co)	ug/L	<0.40	5879354	<0.40	5879359	<0.40	0.40	5879354
Dissolved Copper (Cu)	ug/L	<2.0	5879354	8.8	5879359	<2.0	2.0	5879354
Dissolved Iron (Fe)	ug/L	2200	5879354	<50	5879359	13000	50	5879354
Dissolved Lead (Pb)	ug/L	<0.50	5879354	<0.50	5879359	<0.50	0.50	5879354
Dissolved Magnesium (Mg)	ug/L	13000	5879354	20000	5879359	14000	100	5879354
Dissolved Manganese (Mn)	ug/L	260	5879354	53	5879359	4900	2.0	5879354
Dissolved Molybdenum (Mo)	ug/L	7.2	5879354	<2.0	5879359	<2.0	2.0	5879354
Dissolved Nickel (Ni)	ug/L	<2.0	5879354	<2.0	5879359	<2.0	2.0	5879354
Dissolved Phosphorus (P)	ug/L	200	5879354	<100	5879359	110	100	5879354
Dissolved Potassium (K)	ug/L	11000	5879354	3300	5879359	4000	100	5879354
Dissolved Selenium (Se)	ug/L	1.0	5879354	5.1	5879359	<1.0	1.0	5879354
Dissolved Silver (Ag)	ug/L	<0.10	5879354	<0.10	5879359	<0.10	0.10	5879354
Dissolved Sodium (Na)	ug/L	28000	5879354	260000	5879359	24000	100	5879354
Dissolved Strontium (Sr)	ug/L	580	5879354	850	5879359	470	2.0	5879354
Dissolved Thallium (Tl)	ug/L	<0.10	5879354	<0.10	5879359	<0.10	0.10	5879354
Dissolved Tin (Sn)	ug/L	<2.0	5879354	<2.0	5879359	<2.0	2.0	5879354
Dissolved Titanium (Ti)	ug/L	<2.0	5879354	<2.0	5879359	<2.0	2.0	5879354
Dissolved Uranium (U)	ug/L	2.6	5879354	<0.10	5879359	<0.10	0.10	5879354
Dissolved Vanadium (V)	ug/L	7.0	5879354	<2.0	5879359	<2.0	2.0	5879354
Dissolved Zinc (Zn)	ug/L	5.5	5879354	120	5879359	52	5.0	5879354

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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SEMI-VOLATILE ORGANICS BY GC-MS (WATER)

Maxxam ID		ILI609	ILI610	ILI611	ILI612		
Sampling Date		2018/12/03	2018/12/03	2018/12/03	2018/12/03		
	UNITS	COSCW-001-MWA	COSCW-001-MWB	COSCW-002-MWA	COSCW-002-MWB	RDL	QC Batch
Polyaromatic Hydrocarbons							
1-Methylnaphthalene	ug/L	<0.050	<0.050	<0.050	<0.050	0.050	5874006
2-Methylnaphthalene	ug/L	<0.050	<0.050	<0.050	<0.050	0.050	5874006
Acenaphthene	ug/L	<0.010	<0.010	<0.010	<0.010	0.010	5874006
Acenaphthylene	ug/L	<0.010	<0.010	<0.010	<0.010	0.010	5874006
Anthracene	ug/L	<0.010	<0.010	<0.010	<0.010	0.010	5874006
Benzo(a)anthracene	ug/L	<0.010	<0.010	0.012	<0.010	0.010	5874006
Benzo(a)pyrene	ug/L	<0.010	<0.010	<0.010	<0.010	0.010	5874006
Benzo(b)fluoranthene	ug/L	<0.010	<0.010	<0.010	<0.010	0.010	5874006
Benzo(b/j)fluoranthene	ug/L	<0.020	<0.020	<0.020	<0.020	0.020	5868091
Benzo(g,h,i)perylene	ug/L	<0.010	<0.010	<0.010	<0.010	0.010	5874006
Benzo(j)fluoranthene	ug/L	<0.010	<0.010	<0.010	<0.010	0.010	5874006
Benzo(k)fluoranthene	ug/L	<0.010	<0.010	<0.010	<0.010	0.010	5874006
Chrysene	ug/L	<0.010	<0.010	0.013	<0.010	0.010	5874006
Dibenz(a,h)anthracene	ug/L	<0.010	<0.010	<0.010	<0.010	0.010	5874006
Fluoranthene	ug/L	0.027	<0.010	0.034	0.010	0.010	5874006
Fluorene	ug/L	<0.010	<0.010	0.011	<0.010	0.010	5874006
Indeno(1,2,3-cd)pyrene	ug/L	<0.010	<0.010	<0.010	<0.010	0.010	5874006
Naphthalene	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	5874006
Perylene	ug/L	<0.010	<0.010	<0.010	<0.010	0.010	5874006
Phenanthrene	ug/L	0.024	<0.010	0.034	0.019	0.010	5874006
Pyrene	ug/L	0.014	<0.010	0.023	<0.010	0.010	5874006
Surrogate Recovery (%)							
D10-Anthracene	%	93	99	101	103		5874006
D14-Terphenyl	%	87 (1)	94	96 (1)	98		5874006
D8-Acenaphthylene	%	87	93	95	96		5874006

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
(1) PAH sample contained sediment.

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SEMI-VOLATILE ORGANICS BY GC-MS (WATER)

Maxxam ID		ILI613	ILI614		ILI615		ILI616		
Sampling Date		2018/12/03	2018/12/03		2018/12/03		2018/12/03		
	UNITS	COBT-003-MWB	COBB-004-MWA	RDL	COBC-004-MWA	RDL	COBP-006-MWA	RDL	QC Batch
Polyaromatic Hydrocarbons									
1-Methylnaphthalene	ug/L	<0.050	<0.050	0.050	0.084	0.050	13	0.050	5874006
2-Methylnaphthalene	ug/L	<0.050	<0.050	0.050	<0.050	0.050	<0.050	0.050	5874006
Acenaphthene	ug/L	<0.010	<0.010	0.010	<0.10 (1)	0.10	22	0.010	5874006
Acenaphthylene	ug/L	<0.010	<0.010	0.010	<0.010	0.010	0.28	0.010	5874006
Anthracene	ug/L	<0.010	<0.010	0.010	<0.010	0.010	0.030	0.010	5874006
Benzo(a)anthracene	ug/L	<0.010	<0.010	0.010	<0.010	0.010	0.035	0.010	5874006
Benzo(a)pyrene	ug/L	<0.010	<0.010	0.010	<0.010	0.010	0.029	0.010	5874006
Benzo(b)fluoranthene	ug/L	<0.010	<0.010	0.010	<0.010	0.010	0.024	0.010	5874006
Benzo(b/j)fluoranthene	ug/L	<0.020	<0.020	0.020	<0.020	0.020	0.040	0.020	5868091
Benzo(g,h,i)perylene	ug/L	<0.010	<0.010	0.010	<0.010	0.010	0.016	0.010	5874006
Benzo(j)fluoranthene	ug/L	<0.010	<0.010	0.010	<0.010	0.010	0.016	0.010	5874006
Benzo(k)fluoranthene	ug/L	<0.010	<0.010	0.010	<0.010	0.010	0.016	0.010	5874006
Chrysene	ug/L	<0.010	<0.010	0.010	<0.010	0.010	0.036	0.010	5874006
Dibenz(a,h)anthracene	ug/L	<0.010	<0.010	0.010	<0.010	0.010	<0.010	0.010	5874006
Fluoranthene	ug/L	<0.010	<0.010	0.010	<0.010	0.010	0.071	0.010	5874006
Fluorene	ug/L	<0.010	<0.010	0.010	<0.010	0.010	1.8	0.010	5874006
Indeno(1,2,3-cd)pyrene	ug/L	<0.010	<0.010	0.010	<0.010	0.010	0.016	0.010	5874006
Naphthalene	ug/L	<0.20	<0.20	0.20	<0.20	0.20	27	0.20	5874006
Perylene	ug/L	<0.010	<0.010	0.010	<0.010	0.010	<0.010	0.010	5874006
Phenanthrene	ug/L	<0.010	<0.010	0.010	<0.010	0.010	0.21	0.010	5874006
Pyrene	ug/L	<0.010	<0.010	0.010	<0.010	0.010	0.068	0.010	5874006
Surrogate Recovery (%)									
D10-Anthracene	%	104	101		100		81		5874006
D14-Terphenyl	%	98	95		97		83		5874006
D8-Acenaphthylene	%	96	93		93		80		5874006

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
(1) Elevated PAH RDL(s) due to matrix / co-extractive interference.

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SEMI-VOLATILE ORGANICS BY GC-MS (WATER)

Maxxam ID		ILI617	ILI687	ILI719		
Sampling Date		2018/12/03	2018/12/03	2018/12/03		
	UNITS	COCP-110-MW	COBC-002-MWA	FD-12	RDL	QC Batch
Polyaromatic Hydrocarbons						
1-Methylnaphthalene	ug/L	<0.050	<0.050	14	0.050	5874006
2-Methylnaphthalene	ug/L	<0.050	<0.050	<0.050	0.050	5874006
Acenaphthene	ug/L	0.035	0.064	23	0.010	5874006
Acenaphthylene	ug/L	0.015	<0.010	0.29	0.010	5874006
Anthracene	ug/L	0.072	<0.010	0.028	0.010	5874006
Benzo(a)anthracene	ug/L	0.16	<0.010	0.021	0.010	5874006
Benzo(a)pyrene	ug/L	0.11	<0.010	0.019	0.010	5874006
Benzo(b)fluoranthene	ug/L	0.092	<0.010	0.016	0.010	5874006
Benzo(b/j)fluoranthene	ug/L	0.15	<0.020	<0.020	0.020	5868091
Benzo(g,h,i)perylene	ug/L	0.065	<0.010	0.011	0.010	5874006
Benzo(j)fluoranthene	ug/L	0.053	<0.010	<0.010	0.010	5874006
Benzo(k)fluoranthene	ug/L	0.054	<0.010	<0.010	0.010	5874006
Chrysene	ug/L	0.19	<0.010	0.023	0.010	5874006
Dibenz(a,h)anthracene	ug/L	0.018	<0.010	<0.010	0.010	5874006
Fluoranthene	ug/L	0.30	<0.010	0.047	0.010	5874006
Fluorene	ug/L	0.041	<0.010	1.8	0.010	5874006
Indeno(1,2,3-cd)pyrene	ug/L	0.057	<0.010	<0.010	0.010	5874006
Naphthalene	ug/L	<0.20	<0.20	28	0.20	5874006
Perylene	ug/L	0.026	<0.010	<0.010	0.010	5874006
Phenanthrene	ug/L	0.24	<0.010	0.21	0.010	5874006
Pyrene	ug/L	0.32	<0.010	0.045	0.010	5874006
Surrogate Recovery (%)						
D10-Anthracene	%	87	103	82		5874006
D14-Terphenyl	%	91 (1)	100	82		5874006
D8-Acenaphthylene	%	83	96	79		5874006

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
(1) PAH sample contained sediment.

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GENERAL COMMENTS

Results relate only to the items tested.

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QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
5874006	LGE	Matrix Spike	D10-Anthracene	2018/12/07		88	%	50 - 130
			D14-Terphenyl	2018/12/07		85	%	50 - 130
			D8-Acenaphthylene	2018/12/07		84	%	50 - 130
			1-Methylnaphthalene	2018/12/07		79	%	50 - 130
			2-Methylnaphthalene	2018/12/07		81	%	50 - 130
			Acenaphthene	2018/12/07		82	%	50 - 130
			Acenaphthylene	2018/12/07		83	%	50 - 130
			Anthracene	2018/12/07		84	%	50 - 130
			Benzo(a)anthracene	2018/12/07		85	%	50 - 130
			Benzo(a)pyrene	2018/12/07		79	%	50 - 130
			Benzo(b)fluoranthene	2018/12/07		91	%	50 - 130
			Benzo(g,h,i)perylene	2018/12/07		91	%	50 - 130
			Benzo(j)fluoranthene	2018/12/07		81	%	50 - 130
			Benzo(k)fluoranthene	2018/12/07		86	%	50 - 130
			Chrysene	2018/12/07		89	%	50 - 130
			Dibenz(a,h)anthracene	2018/12/07		85	%	50 - 130
			Fluoranthene	2018/12/07		88	%	50 - 130
			Fluorene	2018/12/07		89	%	50 - 130
			Indeno(1,2,3-cd)pyrene	2018/12/07		89	%	50 - 130
			Naphthalene	2018/12/07		76	%	50 - 130
			Perylene	2018/12/07		81	%	50 - 130
			Phenanthrene	2018/12/07		91	%	50 - 130
			Pyrene	2018/12/07		85	%	50 - 130
5874006	LGE	Spiked Blank	D10-Anthracene	2018/12/07		98	%	50 - 130
			D14-Terphenyl	2018/12/07		93	%	50 - 130
			D8-Acenaphthylene	2018/12/07		94	%	50 - 130
			1-Methylnaphthalene	2018/12/07		91	%	50 - 130
			2-Methylnaphthalene	2018/12/07		94	%	50 - 130
			Acenaphthene	2018/12/07		98	%	50 - 130
			Acenaphthylene	2018/12/07		94	%	50 - 130
			Anthracene	2018/12/07		94	%	50 - 130
			Benzo(a)anthracene	2018/12/07		90	%	50 - 130
			Benzo(a)pyrene	2018/12/07		87	%	50 - 130
			Benzo(b)fluoranthene	2018/12/07		99	%	50 - 130
			Benzo(g,h,i)perylene	2018/12/07		99	%	50 - 130
			Benzo(j)fluoranthene	2018/12/07		90	%	50 - 130
			Benzo(k)fluoranthene	2018/12/07		99	%	50 - 130
			Chrysene	2018/12/07		97	%	50 - 130
			Dibenz(a,h)anthracene	2018/12/07		86	%	50 - 130
			Fluoranthene	2018/12/07		99	%	50 - 130
			Fluorene	2018/12/07		101	%	50 - 130
			Indeno(1,2,3-cd)pyrene	2018/12/07		97	%	50 - 130
			Naphthalene	2018/12/07		91	%	50 - 130
			Perylene	2018/12/07		90	%	50 - 130
			Phenanthrene	2018/12/07		106	%	50 - 130
			Pyrene	2018/12/07		98	%	50 - 130
5874006	LGE	Method Blank	D10-Anthracene	2018/12/07		110	%	50 - 130
			D14-Terphenyl	2018/12/07		103	%	50 - 130
			D8-Acenaphthylene	2018/12/07		101	%	50 - 130
			1-Methylnaphthalene	2018/12/07	<0.050		ug/L	
			2-Methylnaphthalene	2018/12/07	<0.050		ug/L	
			Acenaphthene	2018/12/07	<0.010		ug/L	
			Acenaphthylene	2018/12/07	<0.010		ug/L	
			Anthracene	2018/12/07	<0.010		ug/L	

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Benzo(a)anthracene	2018/12/07	<0.010		ug/L	
			Benzo(a)pyrene	2018/12/07	<0.010		ug/L	
			Benzo(b)fluoranthene	2018/12/07	<0.010		ug/L	
			Benzo(g,h,i)perylene	2018/12/07	<0.010		ug/L	
			Benzo(j)fluoranthene	2018/12/07	<0.010		ug/L	
			Benzo(k)fluoranthene	2018/12/07	<0.010		ug/L	
			Chrysene	2018/12/07	<0.010		ug/L	
			Dibenz(a,h)anthracene	2018/12/07	<0.010		ug/L	
			Fluoranthene	2018/12/07	<0.010		ug/L	
			Fluorene	2018/12/07	<0.010		ug/L	
			Indeno(1,2,3-cd)pyrene	2018/12/07	<0.010		ug/L	
			Naphthalene	2018/12/07	<0.20		ug/L	
			Perylene	2018/12/07	<0.010		ug/L	
			Phenanthrene	2018/12/07	<0.010		ug/L	
			Pyrene	2018/12/07	<0.010		ug/L	
5874006	LGE	RPD	1-Methylnaphthalene	2018/12/07	1.7		%	40
			2-Methylnaphthalene	2018/12/07	2.1		%	40
			Acenaphthene	2018/12/07	8.1		%	40
			Acenaphthylene	2018/12/07	NC		%	40
			Anthracene	2018/12/07	13		%	40
			Benzo(a)anthracene	2018/12/07	11		%	40
			Benzo(a)pyrene	2018/12/07	15		%	40
			Benzo(b)fluoranthene	2018/12/07	8.4		%	40
			Benzo(g,h,i)perylene	2018/12/07	4.4		%	40
			Benzo(j)fluoranthene	2018/12/07	3.3		%	40
			Benzo(k)fluoranthene	2018/12/07	11		%	40
			Chrysene	2018/12/07	10		%	40
			Dibenz(a,h)anthracene	2018/12/07	NC		%	40
			Fluoranthene	2018/12/07	18		%	40
			Fluorene	2018/12/07	6.1		%	40
			Indeno(1,2,3-cd)pyrene	2018/12/07	NC (1)		%	40
			Naphthalene	2018/12/07	1.8		%	40
			Perylene	2018/12/07	NC		%	40
			Phenanthrene	2018/12/07	12		%	40
			Pyrene	2018/12/07	19		%	40
5874524	NRG	Matrix Spike	Total Alkalinity (Total as CaCO3)	2018/12/10		NC	%	80 - 120
5874524	NRG	Spiked Blank	Total Alkalinity (Total as CaCO3)	2018/12/10		111	%	80 - 120
5874524	NRG	Method Blank	Total Alkalinity (Total as CaCO3)	2018/12/10	<5.0		mg/L	
5874524	NRG	RPD	Total Alkalinity (Total as CaCO3)	2018/12/10	1.2		%	25
5874533	NRG	Matrix Spike	Dissolved Chloride (Cl-)	2018/12/07		NC	%	80 - 120
5874533	NRG	QC Standard	Dissolved Chloride (Cl-)	2018/12/07		105	%	80 - 120
5874533	NRG	Spiked Blank	Dissolved Chloride (Cl-)	2018/12/07		97	%	80 - 120
5874533	NRG	Method Blank	Dissolved Chloride (Cl-)	2018/12/07	<1.0		mg/L	
5874533	NRG	RPD	Dissolved Chloride (Cl-)	2018/12/07	0.18		%	25
5874534	NRG	Matrix Spike	Dissolved Sulphate (SO4)	2018/12/07		NC	%	80 - 120
5874534	NRG	Spiked Blank	Dissolved Sulphate (SO4)	2018/12/07		97	%	80 - 120
5874534	NRG	Method Blank	Dissolved Sulphate (SO4)	2018/12/07	<2.0		mg/L	
5874534	NRG	RPD	Dissolved Sulphate (SO4)	2018/12/07	1.4		%	25
5874543	NRG	Matrix Spike	Reactive Silica (SiO2)	2018/12/10		97	%	80 - 120
5874543	NRG	Spiked Blank	Reactive Silica (SiO2)	2018/12/10		100	%	80 - 120
5874543	NRG	Method Blank	Reactive Silica (SiO2)	2018/12/10	<0.50		mg/L	
5874543	NRG	RPD	Reactive Silica (SiO2)	2018/12/10	0.50		%	25
5874545	NRG	Spiked Blank	Colour	2018/12/07		99	%	80 - 120
5874545	NRG	Method Blank	Colour	2018/12/07	<5.0		TCU	

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5874545	NRG	RPD	Colour	2018/12/07	NC		%	20
5874546	NRG	Matrix Spike	Orthophosphate (P)	2018/12/07		93	%	80 - 120
5874546	NRG	Spiked Blank	Orthophosphate (P)	2018/12/07		95	%	80 - 120
5874546	NRG	Method Blank	Orthophosphate (P)	2018/12/07	<0.010		mg/L	
5874546	NRG	RPD	Orthophosphate (P)	2018/12/07	NC		%	25
5874547	NRG	Matrix Spike	Nitrate + Nitrite (N)	2018/12/07		NC	%	80 - 120
5874547	NRG	Spiked Blank	Nitrate + Nitrite (N)	2018/12/07		90	%	80 - 120
5874547	NRG	Method Blank	Nitrate + Nitrite (N)	2018/12/07	<0.050		mg/L	
5874547	NRG	RPD	Nitrate + Nitrite (N)	2018/12/07	10		%	25
5874548	NRG	Matrix Spike	Nitrite (N)	2018/12/07		95	%	80 - 120
5874548	NRG	Spiked Blank	Nitrite (N)	2018/12/07		93	%	80 - 120
5874548	NRG	Method Blank	Nitrite (N)	2018/12/07	<0.010		mg/L	
5874548	NRG	RPD	Nitrite (N)	2018/12/07	NC		%	20
5874562	NRG	Matrix Spike	Total Alkalinity (Total as CaCO3)	2018/12/10		NC	%	80 - 120
5874562	NRG	Spiked Blank	Total Alkalinity (Total as CaCO3)	2018/12/10		107	%	80 - 120
5874562	NRG	Method Blank	Total Alkalinity (Total as CaCO3)	2018/12/10	<5.0		mg/L	
5874562	NRG	RPD	Total Alkalinity (Total as CaCO3)	2018/12/10	4.6		%	25
5874569	NRG	Matrix Spike	Dissolved Chloride (Cl-)	2018/12/07		94	%	80 - 120
5874569	NRG	QC Standard	Dissolved Chloride (Cl-)	2018/12/07		104	%	80 - 120
5874569	NRG	Spiked Blank	Dissolved Chloride (Cl-)	2018/12/07		97	%	80 - 120
5874569	NRG	Method Blank	Dissolved Chloride (Cl-)	2018/12/07	<1.0		mg/L	
5874569	NRG	RPD	Dissolved Chloride (Cl-)	2018/12/07	2.4		%	25
5874572	NRG	Matrix Spike	Dissolved Sulphate (SO4)	2018/12/07		NC	%	80 - 120
5874572	NRG	Spiked Blank	Dissolved Sulphate (SO4)	2018/12/07		95	%	80 - 120
5874572	NRG	Method Blank	Dissolved Sulphate (SO4)	2018/12/07	<2.0		mg/L	
5874572	NRG	RPD	Dissolved Sulphate (SO4)	2018/12/07	2.4		%	25
5874575	NRG	Matrix Spike	Reactive Silica (SiO2)	2018/12/10		99	%	80 - 120
5874575	NRG	Spiked Blank	Reactive Silica (SiO2)	2018/12/10		100	%	80 - 120
5874575	NRG	Method Blank	Reactive Silica (SiO2)	2018/12/10	<0.50		mg/L	
5874575	NRG	RPD	Reactive Silica (SiO2)	2018/12/10	0.70		%	25
5874579	NRG	Spiked Blank	Colour	2018/12/07		109	%	80 - 120
5874579	NRG	Method Blank	Colour	2018/12/07	<5.0		TCU	
5874579	NRG	RPD	Colour	2018/12/07	NC		%	20
5874580	NRG	Matrix Spike	Orthophosphate (P)	2018/12/07		94	%	80 - 120
5874580	NRG	Spiked Blank	Orthophosphate (P)	2018/12/07		98	%	80 - 120
5874580	NRG	Method Blank	Orthophosphate (P)	2018/12/07	<0.010		mg/L	
5874580	NRG	RPD	Orthophosphate (P)	2018/12/07	NC		%	25
5874582	NRG	Matrix Spike	Nitrate + Nitrite (N)	2018/12/07		97	%	80 - 120
5874582	NRG	Spiked Blank	Nitrate + Nitrite (N)	2018/12/07		90	%	80 - 120
5874582	NRG	Method Blank	Nitrate + Nitrite (N)	2018/12/07	<0.050		mg/L	
5874582	NRG	RPD	Nitrate + Nitrite (N)	2018/12/07	0.11		%	25
5874584	NRG	Matrix Spike	Nitrite (N)	2018/12/07		96	%	80 - 120
5874584	NRG	Spiked Blank	Nitrite (N)	2018/12/07		98	%	80 - 120
5874584	NRG	Method Blank	Nitrite (N)	2018/12/07	<0.010		mg/L	
5874584	NRG	RPD	Nitrite (N)	2018/12/07	5.6		%	20
5876062	NHU	QC Standard	pH	2018/12/07		100	%	97 - 103
5876062	NHU	RPD	pH	2018/12/07	0.82		%	N/A
5876065	NHU	Spiked Blank	Conductivity	2018/12/07		102	%	80 - 120
5876065	NHU	Method Blank	Conductivity	2018/12/07	1.9, RDL=1.0		uS/cm	
5876065	NHU	RPD	Conductivity	2018/12/07	0.34		%	25
5876080	NHU	QC Standard	pH	2018/12/07		100	%	97 - 103
5876080	NHU	RPD	pH	2018/12/07	0.79		%	N/A
5876084	NHU	Spiked Blank	Conductivity	2018/12/07		97	%	80 - 120

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5876084	NHU	Method Blank	Conductivity	2018/12/07	1.6, RDL=1.0		uS/cm	
5876084	NHU	RPD	Conductivity	2018/12/07	0.17		%	25
5876088	NHU	QC Standard	pH	2018/12/07		100	%	97 - 103
5876088	NHU	RPD	pH	2018/12/07	1.0		%	N/A
5876090	NHU	Spiked Blank	Conductivity	2018/12/07		97	%	80 - 120
5876090	NHU	Method Blank	Conductivity	2018/12/07	1.4, RDL=1.0		uS/cm	
5876090	NHU	RPD	Conductivity	2018/12/07	0.77		%	25
5876176	NRG	Matrix Spike [ILI616-01]	Total Alkalinity (Total as CaCO3)	2018/12/10		NC	%	80 - 120
5876176	NRG	Spiked Blank	Total Alkalinity (Total as CaCO3)	2018/12/10		108	%	80 - 120
5876176	NRG	Method Blank	Total Alkalinity (Total as CaCO3)	2018/12/10	<5.0		mg/L	
5876176	NRG	RPD [ILI616-01]	Total Alkalinity (Total as CaCO3)	2018/12/10	0.033		%	25
5876179	NRG	Matrix Spike [ILI616-01]	Dissolved Chloride (Cl-)	2018/12/07		103	%	80 - 120
5876179	NRG	QC Standard	Dissolved Chloride (Cl-)	2018/12/07		106	%	80 - 120
5876179	NRG	Spiked Blank	Dissolved Chloride (Cl-)	2018/12/07		96	%	80 - 120
5876179	NRG	Method Blank	Dissolved Chloride (Cl-)	2018/12/07	<1.0		mg/L	
5876179	NRG	RPD [ILI616-01]	Dissolved Chloride (Cl-)	2018/12/07	0.78		%	25
5876181	NRG	Matrix Spike [ILI616-01]	Dissolved Sulphate (SO4)	2018/12/07		NC	%	80 - 120
5876181	NRG	Spiked Blank	Dissolved Sulphate (SO4)	2018/12/07		95	%	80 - 120
5876181	NRG	Method Blank	Dissolved Sulphate (SO4)	2018/12/07	<2.0		mg/L	
5876181	NRG	RPD [ILI616-01]	Dissolved Sulphate (SO4)	2018/12/07	1.6		%	25
5876183	NRG	Matrix Spike [ILI616-01]	Reactive Silica (SiO2)	2018/12/10		NC	%	80 - 120
5876183	NRG	Spiked Blank	Reactive Silica (SiO2)	2018/12/10		102	%	80 - 120
5876183	NRG	Method Blank	Reactive Silica (SiO2)	2018/12/10	<0.50		mg/L	
5876183	NRG	RPD [ILI616-01]	Reactive Silica (SiO2)	2018/12/10	0.49		%	25
5876184	NRG	Spiked Blank	Colour	2018/12/07		101	%	80 - 120
5876184	NRG	Method Blank	Colour	2018/12/07	<5.0		TCU	
5876184	NRG	RPD [ILI616-01]	Colour	2018/12/07	3.0		%	20
5876186	NRG	Matrix Spike [ILI616-01]	Orthophosphate (P)	2018/12/07		93	%	80 - 120
5876186	NRG	Spiked Blank	Orthophosphate (P)	2018/12/07		97	%	80 - 120
5876186	NRG	Method Blank	Orthophosphate (P)	2018/12/07	<0.010		mg/L	
5876186	NRG	RPD [ILI616-01]	Orthophosphate (P)	2018/12/07	NC		%	25
5876188	NRG	Matrix Spike [ILI616-01]	Nitrate + Nitrite (N)	2018/12/07		96	%	80 - 120
5876188	NRG	Spiked Blank	Nitrate + Nitrite (N)	2018/12/07		91	%	80 - 120
5876188	NRG	Method Blank	Nitrate + Nitrite (N)	2018/12/07	<0.050		mg/L	
5876188	NRG	RPD [ILI616-01]	Nitrate + Nitrite (N)	2018/12/07	NC		%	25
5876190	NRG	Matrix Spike [ILI616-01]	Nitrite (N)	2018/12/07		98	%	80 - 120
5876190	NRG	Spiked Blank	Nitrite (N)	2018/12/07		96	%	80 - 120
5876190	NRG	Method Blank	Nitrite (N)	2018/12/07	<0.010		mg/L	
5876190	NRG	RPD [ILI616-01]	Nitrite (N)	2018/12/07	NC		%	20
5876206	CCR	Matrix Spike	Total Mercury (Hg)	2018/12/10		97	%	80 - 120
5876206	CCR	Spiked Blank	Total Mercury (Hg)	2018/12/10		98	%	80 - 120
5876206	CCR	Method Blank	Total Mercury (Hg)	2018/12/10	<0.013		ug/L	
5876206	CCR	RPD	Total Mercury (Hg)	2018/12/10	NC		%	20
5879261	NHU	QC Standard	Turbidity	2018/12/10		101	%	80 - 120
5879261	NHU	Spiked Blank	Turbidity	2018/12/10		100	%	80 - 120
5879261	NHU	Method Blank	Turbidity	2018/12/10	<0.10		NTU	
5879261	NHU	RPD [ILI687-01]	Turbidity	2018/12/10	5.7		%	20
5879282	SRM	Matrix Spike	Nitrogen (Ammonia Nitrogen)	2018/12/10		90	%	80 - 120
5879282	SRM	Spiked Blank	Nitrogen (Ammonia Nitrogen)	2018/12/10		96	%	80 - 120
5879282	SRM	Method Blank	Nitrogen (Ammonia Nitrogen)	2018/12/10	<0.050		mg/L	
5879282	SRM	RPD	Nitrogen (Ammonia Nitrogen)	2018/12/10	NC		%	20
5879283	SRM	Matrix Spike	Nitrogen (Ammonia Nitrogen)	2018/12/10		81	%	80 - 120

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5879283	SRM	Spiked Blank	Nitrogen (Ammonia Nitrogen)	2018/12/10		95	%	80 - 120
5879283	SRM	Method Blank	Nitrogen (Ammonia Nitrogen)	2018/12/10	<0.050		mg/L	
5879283	SRM	RPD	Nitrogen (Ammonia Nitrogen)	2018/12/10	NC		%	20
5879354	MLB	Matrix Spike	Dissolved Aluminum (Al)	2018/12/11		100	%	80 - 120
			Dissolved Antimony (Sb)	2018/12/11		106	%	80 - 120
			Dissolved Arsenic (As)	2018/12/11		102	%	80 - 120
			Dissolved Barium (Ba)	2018/12/11		NC	%	80 - 120
			Dissolved Beryllium (Be)	2018/12/11		99	%	80 - 120
			Dissolved Bismuth (Bi)	2018/12/11		100	%	80 - 120
			Dissolved Boron (B)	2018/12/11		95	%	80 - 120
			Dissolved Cadmium (Cd)	2018/12/11		103	%	80 - 120
			Dissolved Calcium (Ca)	2018/12/11		NC	%	80 - 120
			Dissolved Chromium (Cr)	2018/12/11		98	%	80 - 120
			Dissolved Cobalt (Co)	2018/12/11		99	%	80 - 120
			Dissolved Copper (Cu)	2018/12/11		96	%	80 - 120
			Dissolved Iron (Fe)	2018/12/11		101	%	80 - 120
			Dissolved Lead (Pb)	2018/12/11		98	%	80 - 120
			Dissolved Magnesium (Mg)	2018/12/11		95	%	80 - 120
			Dissolved Manganese (Mn)	2018/12/11		102	%	80 - 120
			Dissolved Molybdenum (Mo)	2018/12/11		102	%	80 - 120
			Dissolved Nickel (Ni)	2018/12/11		99	%	80 - 120
			Dissolved Phosphorus (P)	2018/12/11		106	%	80 - 120
			Dissolved Potassium (K)	2018/12/11		100	%	80 - 120
			Dissolved Selenium (Se)	2018/12/11		103	%	80 - 120
			Dissolved Silver (Ag)	2018/12/11		102	%	80 - 120
			Dissolved Sodium (Na)	2018/12/11		95	%	80 - 120
			Dissolved Strontium (Sr)	2018/12/11		NC	%	80 - 120
			Dissolved Thallium (Tl)	2018/12/11		101	%	80 - 120
			Dissolved Tin (Sn)	2018/12/11		107	%	80 - 120
			Dissolved Titanium (Ti)	2018/12/11		101	%	80 - 120
			Dissolved Uranium (U)	2018/12/11		107	%	80 - 120
			Dissolved Vanadium (V)	2018/12/11		102	%	80 - 120
			Dissolved Zinc (Zn)	2018/12/11		101	%	80 - 120
5879354	MLB	Spiked Blank	Dissolved Aluminum (Al)	2018/12/11		101	%	80 - 120
			Dissolved Antimony (Sb)	2018/12/11		104	%	80 - 120
			Dissolved Arsenic (As)	2018/12/11		99	%	80 - 120
			Dissolved Barium (Ba)	2018/12/11		98	%	80 - 120
			Dissolved Beryllium (Be)	2018/12/11		98	%	80 - 120
			Dissolved Bismuth (Bi)	2018/12/11		101	%	80 - 120
			Dissolved Boron (B)	2018/12/11		95	%	80 - 120
			Dissolved Cadmium (Cd)	2018/12/11		100	%	80 - 120
			Dissolved Calcium (Ca)	2018/12/11		99	%	80 - 120
			Dissolved Chromium (Cr)	2018/12/11		97	%	80 - 120
			Dissolved Cobalt (Co)	2018/12/11		99	%	80 - 120
			Dissolved Copper (Cu)	2018/12/11		97	%	80 - 120
			Dissolved Iron (Fe)	2018/12/11		100	%	80 - 120
			Dissolved Lead (Pb)	2018/12/11		98	%	80 - 120
			Dissolved Magnesium (Mg)	2018/12/11		103	%	80 - 120
			Dissolved Manganese (Mn)	2018/12/11		101	%	80 - 120
			Dissolved Molybdenum (Mo)	2018/12/11		102	%	80 - 120
			Dissolved Nickel (Ni)	2018/12/11		100	%	80 - 120
			Dissolved Phosphorus (P)	2018/12/11		106	%	80 - 120
			Dissolved Potassium (K)	2018/12/11		100	%	80 - 120
			Dissolved Selenium (Se)	2018/12/11		100	%	80 - 120

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			Dissolved Silver (Ag)	2018/12/11		99	%	80 - 120
			Dissolved Sodium (Na)	2018/12/11		98	%	80 - 120
			Dissolved Strontium (Sr)	2018/12/11		102	%	80 - 120
			Dissolved Thallium (Tl)	2018/12/11		101	%	80 - 120
			Dissolved Tin (Sn)	2018/12/11		104	%	80 - 120
			Dissolved Titanium (Ti)	2018/12/11		99	%	80 - 120
			Dissolved Uranium (U)	2018/12/11		105	%	80 - 120
			Dissolved Vanadium (V)	2018/12/11		101	%	80 - 120
			Dissolved Zinc (Zn)	2018/12/11		101	%	80 - 120
5879354	MLB	Method Blank	Dissolved Aluminum (Al)	2018/12/11	<5.0		ug/L	
			Dissolved Antimony (Sb)	2018/12/11	<1.0		ug/L	
			Dissolved Arsenic (As)	2018/12/11	<1.0		ug/L	
			Dissolved Barium (Ba)	2018/12/11	<1.0		ug/L	
			Dissolved Beryllium (Be)	2018/12/11	<1.0		ug/L	
			Dissolved Bismuth (Bi)	2018/12/11	<2.0		ug/L	
			Dissolved Boron (B)	2018/12/11	<50		ug/L	
			Dissolved Cadmium (Cd)	2018/12/11	<0.010		ug/L	
			Dissolved Calcium (Ca)	2018/12/11	<100		ug/L	
			Dissolved Chromium (Cr)	2018/12/11	<1.0		ug/L	
			Dissolved Cobalt (Co)	2018/12/11	<0.40		ug/L	
			Dissolved Copper (Cu)	2018/12/11	<2.0		ug/L	
			Dissolved Iron (Fe)	2018/12/11	<50		ug/L	
			Dissolved Lead (Pb)	2018/12/11	<0.50		ug/L	
			Dissolved Magnesium (Mg)	2018/12/11	<100		ug/L	
			Dissolved Manganese (Mn)	2018/12/11	<2.0		ug/L	
			Dissolved Molybdenum (Mo)	2018/12/11	<2.0		ug/L	
			Dissolved Nickel (Ni)	2018/12/11	<2.0		ug/L	
			Dissolved Phosphorus (P)	2018/12/11	<100		ug/L	
			Dissolved Potassium (K)	2018/12/11	<100		ug/L	
			Dissolved Selenium (Se)	2018/12/11	<1.0		ug/L	
			Dissolved Silver (Ag)	2018/12/11	<0.10		ug/L	
			Dissolved Sodium (Na)	2018/12/11	<100		ug/L	
			Dissolved Strontium (Sr)	2018/12/11	<2.0		ug/L	
			Dissolved Thallium (Tl)	2018/12/11	<0.10		ug/L	
			Dissolved Tin (Sn)	2018/12/11	<2.0		ug/L	
			Dissolved Titanium (Ti)	2018/12/11	<2.0		ug/L	
			Dissolved Uranium (U)	2018/12/11	<0.10		ug/L	
			Dissolved Vanadium (V)	2018/12/11	<2.0		ug/L	
			Dissolved Zinc (Zn)	2018/12/11	<5.0		ug/L	
5879354	MLB	RPD	Dissolved Cadmium (Cd)	2018/12/11	NC		%	20
			Dissolved Calcium (Ca)	2018/12/11	0.44		%	20
			Dissolved Copper (Cu)	2018/12/11	NC		%	20
			Dissolved Iron (Fe)	2018/12/11	NC		%	20
			Dissolved Lead (Pb)	2018/12/11	NC		%	20
			Dissolved Magnesium (Mg)	2018/12/11	0.40		%	20
			Dissolved Manganese (Mn)	2018/12/11	NC		%	20
			Dissolved Potassium (K)	2018/12/11	3.9		%	20
			Dissolved Sodium (Na)	2018/12/11	0.081		%	20
			Dissolved Zinc (Zn)	2018/12/11	NC		%	20
5879359	AWL	Matrix Spike	Dissolved Aluminum (Al)	2018/12/11		92	%	80 - 120
			Dissolved Antimony (Sb)	2018/12/11		99	%	80 - 120
			Dissolved Arsenic (As)	2018/12/11		97	%	80 - 120
			Dissolved Barium (Ba)	2018/12/11		98	%	80 - 120
			Dissolved Beryllium (Be)	2018/12/11		98	%	80 - 120

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Dissolved Bismuth (Bi)	2018/12/11		97	%	80 - 120
			Dissolved Boron (B)	2018/12/11		96	%	80 - 120
			Dissolved Cadmium (Cd)	2018/12/11		103	%	80 - 120
			Dissolved Calcium (Ca)	2018/12/11		96	%	80 - 120
			Dissolved Chromium (Cr)	2018/12/11		95	%	80 - 120
			Dissolved Cobalt (Co)	2018/12/11		97	%	80 - 120
			Dissolved Copper (Cu)	2018/12/11		95	%	80 - 120
			Dissolved Iron (Fe)	2018/12/11		94	%	80 - 120
			Dissolved Lead (Pb)	2018/12/11		96	%	80 - 120
			Dissolved Magnesium (Mg)	2018/12/11		99	%	80 - 120
			Dissolved Manganese (Mn)	2018/12/11		93	%	80 - 120
			Dissolved Molybdenum (Mo)	2018/12/11		100	%	80 - 120
			Dissolved Nickel (Ni)	2018/12/11		97	%	80 - 120
			Dissolved Phosphorus (P)	2018/12/11		99	%	80 - 120
			Dissolved Potassium (K)	2018/12/11		98	%	80 - 120
			Dissolved Selenium (Se)	2018/12/11		98	%	80 - 120
			Dissolved Silver (Ag)	2018/12/11		98	%	80 - 120
			Dissolved Sodium (Na)	2018/12/11		96	%	80 - 120
			Dissolved Strontium (Sr)	2018/12/11		98	%	80 - 120
			Dissolved Thallium (Tl)	2018/12/11		99	%	80 - 120
			Dissolved Tin (Sn)	2018/12/11		100	%	80 - 120
			Dissolved Titanium (Ti)	2018/12/11		94	%	80 - 120
			Dissolved Uranium (U)	2018/12/11		103	%	80 - 120
			Dissolved Vanadium (V)	2018/12/11		100	%	80 - 120
			Dissolved Zinc (Zn)	2018/12/11		99	%	80 - 120
5879359	AWL	Spiked Blank	Dissolved Aluminum (Al)	2018/12/11		96	%	80 - 120
			Dissolved Antimony (Sb)	2018/12/11		100	%	80 - 120
			Dissolved Arsenic (As)	2018/12/11		95	%	80 - 120
			Dissolved Barium (Ba)	2018/12/11		98	%	80 - 120
			Dissolved Beryllium (Be)	2018/12/11		97	%	80 - 120
			Dissolved Bismuth (Bi)	2018/12/11		100	%	80 - 120
			Dissolved Boron (B)	2018/12/11		95	%	80 - 120
			Dissolved Cadmium (Cd)	2018/12/11		102	%	80 - 120
			Dissolved Calcium (Ca)	2018/12/11		97	%	80 - 120
			Dissolved Chromium (Cr)	2018/12/11		94	%	80 - 120
			Dissolved Cobalt (Co)	2018/12/11		96	%	80 - 120
			Dissolved Copper (Cu)	2018/12/11		95	%	80 - 120
			Dissolved Iron (Fe)	2018/12/11		95	%	80 - 120
			Dissolved Lead (Pb)	2018/12/11		97	%	80 - 120
			Dissolved Magnesium (Mg)	2018/12/11		98	%	80 - 120
			Dissolved Manganese (Mn)	2018/12/11		97	%	80 - 120
			Dissolved Molybdenum (Mo)	2018/12/11		101	%	80 - 120
			Dissolved Nickel (Ni)	2018/12/11		97	%	80 - 120
			Dissolved Phosphorus (P)	2018/12/11		100	%	80 - 120
			Dissolved Potassium (K)	2018/12/11		98	%	80 - 120
			Dissolved Selenium (Se)	2018/12/11		99	%	80 - 120
			Dissolved Silver (Ag)	2018/12/11		101	%	80 - 120
			Dissolved Sodium (Na)	2018/12/11		95	%	80 - 120
			Dissolved Strontium (Sr)	2018/12/11		96	%	80 - 120
			Dissolved Thallium (Tl)	2018/12/11		100	%	80 - 120
			Dissolved Tin (Sn)	2018/12/11		101	%	80 - 120
			Dissolved Titanium (Ti)	2018/12/11		95	%	80 - 120
			Dissolved Uranium (U)	2018/12/11		105	%	80 - 120
			Dissolved Vanadium (V)	2018/12/11		98	%	80 - 120

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Dissolved Zinc (Zn)	2018/12/11		97	%	80 - 120
5879359	AWL	Method Blank	Dissolved Aluminum (Al)	2018/12/11	<5.0		ug/L	
			Dissolved Antimony (Sb)	2018/12/11	<1.0		ug/L	
			Dissolved Arsenic (As)	2018/12/11	<1.0		ug/L	
			Dissolved Barium (Ba)	2018/12/11	<1.0		ug/L	
			Dissolved Beryllium (Be)	2018/12/11	<1.0		ug/L	
			Dissolved Bismuth (Bi)	2018/12/11	<2.0		ug/L	
			Dissolved Boron (B)	2018/12/11	<50		ug/L	
			Dissolved Cadmium (Cd)	2018/12/11	<0.010		ug/L	
			Dissolved Calcium (Ca)	2018/12/11	<100		ug/L	
			Dissolved Chromium (Cr)	2018/12/11	<1.0		ug/L	
			Dissolved Cobalt (Co)	2018/12/11	<0.40		ug/L	
			Dissolved Copper (Cu)	2018/12/11	<2.0		ug/L	
			Dissolved Iron (Fe)	2018/12/11	<50		ug/L	
			Dissolved Lead (Pb)	2018/12/11	<0.50		ug/L	
			Dissolved Magnesium (Mg)	2018/12/11	<100		ug/L	
			Dissolved Manganese (Mn)	2018/12/11	<2.0		ug/L	
			Dissolved Molybdenum (Mo)	2018/12/11	<2.0		ug/L	
			Dissolved Nickel (Ni)	2018/12/11	<2.0		ug/L	
			Dissolved Phosphorus (P)	2018/12/11	<100		ug/L	
			Dissolved Potassium (K)	2018/12/11	<100		ug/L	
			Dissolved Selenium (Se)	2018/12/11	<1.0		ug/L	
			Dissolved Silver (Ag)	2018/12/11	<0.10		ug/L	
			Dissolved Sodium (Na)	2018/12/11	<100		ug/L	
			Dissolved Strontium (Sr)	2018/12/11	<2.0		ug/L	
			Dissolved Thallium (Tl)	2018/12/11	<0.10		ug/L	
			Dissolved Tin (Sn)	2018/12/11	<2.0		ug/L	
			Dissolved Titanium (Ti)	2018/12/11	<2.0		ug/L	
			Dissolved Uranium (U)	2018/12/11	<0.10		ug/L	
			Dissolved Vanadium (V)	2018/12/11	<2.0		ug/L	
			Dissolved Zinc (Zn)	2018/12/11	<5.0		ug/L	
5879359	AWL	RPD	Dissolved Aluminum (Al)	2018/12/11	2.0		%	20
			Dissolved Antimony (Sb)	2018/12/11	NC		%	20
			Dissolved Arsenic (As)	2018/12/11	NC		%	20
			Dissolved Barium (Ba)	2018/12/11	5.0		%	20
			Dissolved Beryllium (Be)	2018/12/11	NC		%	20
			Dissolved Bismuth (Bi)	2018/12/11	NC		%	20
			Dissolved Boron (B)	2018/12/11	NC		%	20
			Dissolved Cadmium (Cd)	2018/12/11	4.3		%	20
			Dissolved Calcium (Ca)	2018/12/11	0.085		%	20
			Dissolved Chromium (Cr)	2018/12/11	4.4		%	20
			Dissolved Cobalt (Co)	2018/12/11	NC		%	20
			Dissolved Copper (Cu)	2018/12/11	NC		%	20
			Dissolved Iron (Fe)	2018/12/11	1.6		%	20
			Dissolved Lead (Pb)	2018/12/11	NC		%	20
			Dissolved Magnesium (Mg)	2018/12/11	3.0		%	20
			Dissolved Manganese (Mn)	2018/12/11	2.5		%	20
			Dissolved Molybdenum (Mo)	2018/12/11	NC		%	20
			Dissolved Nickel (Ni)	2018/12/11	NC		%	20
			Dissolved Phosphorus (P)	2018/12/11	NC		%	20
			Dissolved Potassium (K)	2018/12/11	11		%	20
			Dissolved Selenium (Se)	2018/12/11	NC		%	20
			Dissolved Silver (Ag)	2018/12/11	NC		%	20
			Dissolved Sodium (Na)	2018/12/11	1.7		%	20

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Dissolved Strontium (Sr)	2018/12/11	4.5		%	20
			Dissolved Thallium (Tl)	2018/12/11	NC		%	20
			Dissolved Tin (Sn)	2018/12/11	NC		%	20
			Dissolved Titanium (Ti)	2018/12/11	NC		%	20
			Dissolved Uranium (U)	2018/12/11	NC		%	20
			Dissolved Vanadium (V)	2018/12/11	NC		%	20
			Dissolved Zinc (Zn)	2018/12/11	0.0052		%	20
5879432	HM2	Matrix Spike	Total Organic Carbon (C)	2018/12/11		102	%	85 - 115
5879432	HM2	Spiked Blank	Total Organic Carbon (C)	2018/12/11		99	%	80 - 120
5879432	HM2	Method Blank	Total Organic Carbon (C)	2018/12/11	<0.50		mg/L	
5879432	HM2	RPD	Total Organic Carbon (C)	2018/12/11	0.20		%	15
5879490	HM2	Matrix Spike	Total Organic Carbon (C)	2018/12/11		90	%	85 - 115
5879490	HM2	Spiked Blank	Total Organic Carbon (C)	2018/12/11		100	%	80 - 120
5879490	HM2	Method Blank	Total Organic Carbon (C)	2018/12/11	<0.50		mg/L	
5879490	HM2	RPD	Total Organic Carbon (C)	2018/12/11	NC (2)		%	15
5879504	HM2	Matrix Spike	Total Organic Carbon (C)	2018/12/12		111	%	85 - 115
5879504	HM2	Spiked Blank	Total Organic Carbon (C)	2018/12/12		106	%	80 - 120
5879504	HM2	Method Blank	Total Organic Carbon (C)	2018/12/12	<0.50		mg/L	
5879504	HM2	RPD	Total Organic Carbon (C)	2018/12/12	2.5		%	15
5881444	NHU	QC Standard	Turbidity	2018/12/11		97	%	80 - 120
5881444	NHU	Spiked Blank	Turbidity	2018/12/11		99	%	80 - 120
5881444	NHU	Method Blank	Turbidity	2018/12/11	<0.10		NTU	
5881444	NHU	RPD	Turbidity	2018/12/11	3.9		%	20
5881448	NHU	QC Standard	Turbidity	2018/12/11		98	%	80 - 120
5881448	NHU	Spiked Blank	Turbidity	2018/12/11		99	%	80 - 120
5881448	NHU	Method Blank	Turbidity	2018/12/11	<0.10		NTU	
5881448	NHU	RPD	Turbidity	2018/12/11	1.0		%	20
5881459	NHU	QC Standard	Turbidity	2018/12/11		97	%	80 - 120
5881459	NHU	Spiked Blank	Turbidity	2018/12/11		100	%	80 - 120
5881459	NHU	Method Blank	Turbidity	2018/12/11	<0.10		NTU	
5881459	NHU	RPD	Turbidity	2018/12/11	2.1		%	20

N/A = Not Applicable

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

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

QC Standard: A sample of known concentration prepared by an external agency under stringent conditions. Used as an independent check of method accuracy.

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

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

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

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

(1) Elevated PAH RDL(s) due to matrix / co-extractive interference.

(2) Elevated reporting limit due to turbidity.

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Maxxam Job #: B8W2373
Report Date: 2018/12/12

Dillon Consulting Limited
Client Project #: 14-1360
Site Location: OH PARK / HARBOURSIDE EAST

VALIDATION SIGNATURE PAGE

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

Mike MacGillivray, Scientific Specialist (Inorganics)

Rosemarie MacDonald, Scientific Specialist (Organics)

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

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A Bureau Veritas Group Company

Your Project #: 14-1360
Site Location: OH PARK / HARBOURSIDE EAST

Attention: Nadine Wambolt

Dillon Consulting Limited
275 Charlotte St
Sydney, NS
CANADA B1P 1C6

Report Date: 2018/12/17
Report #: R5528067
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B8W5929
Received: 2018/12/05, 16:05

Sample Matrix: Water
Samples Received: 9

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Reference
Carbonate, Bicarbonate and Hydroxide (1)	8	N/A	2018/12/11	N/A	SM 23 4500-CO2 D
Alkalinity (1)	8	N/A	2018/12/11	ATL SOP 00013	EPA 310.2 R1974 m
Benzo(b/j)fluoranthene Sum (water) (1)	9	N/A	2018/12/11	N/A	Auto Calc.
Chloride (1)	8	N/A	2018/12/11	ATL SOP 00014	SM 23 4500-Cl- E m
Colour (1)	8	N/A	2018/12/11	ATL SOP 00020	SM 23 2120C m
Conductance - water (1)	8	N/A	2018/12/11	ATL SOP 00004	SM 23 2510B m
TEH in Water (PIRI) (1)	1	2018/12/10	2018/12/11	ATL SOP 00113	Atl. RBCA v3.1 m
Hardness (calculated as CaCO3) (1)	7	N/A	2018/12/13	ATL SOP 00048	Auto Calc
Hardness (calculated as CaCO3) (1)	1	N/A	2018/12/14	ATL SOP 00048	Auto Calc
Mercury - Total (CVAA,LL) (1)	3	2018/12/11	2018/12/12	ATL SOP 00026	EPA 245.1 R3 m
Mercury - Total (CVAA,LL) (1)	5	2018/12/12	2018/12/13	ATL SOP 00026	EPA 245.1 R3 m
Metals Water Diss. MS (as rec'd) (1)	7	N/A	2018/12/12	ATL SOP 00058	EPA 6020A R1 m
Metals Water Diss. MS (as rec'd) (1)	1	N/A	2018/12/14	ATL SOP 00058	EPA 6020A R1 m
Ion Balance (% Difference) (1)	7	N/A	2018/12/13	N/A	Auto Calc.
Ion Balance (% Difference) (1)	1	N/A	2018/12/14	N/A	Auto Calc.
Anion and Cation Sum (1)	7	N/A	2018/12/13	N/A	Auto Calc.
Anion and Cation Sum (1)	1	N/A	2018/12/14	N/A	Auto Calc.
Nitrogen Ammonia - water (1)	8	N/A	2018/12/12	ATL SOP 00015	EPA 350.1 R2 m
Nitrogen - Nitrate + Nitrite (1)	8	N/A	2018/12/12	ATL SOP 00016	USGS I-2547-11m
Nitrogen - Nitrite (1)	3	N/A	2018/12/11	ATL SOP 00017	SM 23 4500-NO2- B m
Nitrogen - Nitrite (1)	5	N/A	2018/12/12	ATL SOP 00017	SM 23 4500-NO2- B m
Nitrogen - Nitrate (as N) (1)	8	N/A	2018/12/12	ATL SOP 00018	ASTM D3867-16
PAH in Water by GC/MS (SIM) (1)	7	2018/12/10	2018/12/10	ATL SOP 00103	EPA 8270D 2014 m
PAH in Water by GC/MS (SIM) (1)	2	2018/12/10	2018/12/11	ATL SOP 00103	EPA 8270D 2014 m
pH (1, 2)	8	N/A	2018/12/11	ATL SOP 00003	SM 23 4500-H+ B m
Phosphorus - ortho (1)	8	N/A	2018/12/11	ATL SOP 00021	SM 23 4500-P E m
VPH in Water (PIRI) (1)	1	N/A	2018/12/11	ATL SOP 00118	Atl. RBCA v3.1 m
Sat. pH and Langelier Index (@ 20C) (1)	7	N/A	2018/12/13	ATL SOP 00049	Auto Calc.
Sat. pH and Langelier Index (@ 20C) (1)	1	N/A	2018/12/14	ATL SOP 00049	Auto Calc.
Sat. pH and Langelier Index (@ 4C) (1)	7	N/A	2018/12/13	ATL SOP 00049	Auto Calc.
Sat. pH and Langelier Index (@ 4C) (1)	1	N/A	2018/12/14	ATL SOP 00049	Auto Calc.
Reactive Silica (1)	8	N/A	2018/12/11	ATL SOP 00022	EPA 366.0 m

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Your Project #: 14-1360
Site Location: OH PARK / HARBOURSIDE EAST

Attention: Nadine Wambolt

Dillon Consulting Limited
275 Charlotte St
Sydney, NS
CANADA B1P 1C6

Report Date: 2018/12/17
Report #: R5528067
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B8W5929
Received: 2018/12/05, 16:05

Sample Matrix: Water
Samples Received: 9

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Reference
Sulphate (1)	8	N/A	2018/12/12	ATL SOP 00023	ASTM D516-16 m
Total Dissolved Solids (TDS calc) (1)	7	N/A	2018/12/13	N/A	Auto Calc.
Total Dissolved Solids (TDS calc) (1)	1	N/A	2018/12/14	N/A	Auto Calc.
Organic carbon - Total (TOC) (1, 3)	5	N/A	2018/12/15	ATL SOP 00203	SM 23 5310B m
Organic carbon - Total (TOC) (1, 3)	3	N/A	2018/12/16	ATL SOP 00203	SM 23 5310B m
ModTPH (T1) Calc. for Water (1)	1	N/A	2018/12/12	N/A	Atl. RBCA v3 m
Turbidity (1)	8	N/A	2018/12/11	ATL SOP 00011	EPA 180.1 R2 m

Remarks:

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

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

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

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by Maxxam, results relate to the supplied samples tested.
This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
(1) This test was performed by Maxxam Bedford
(2) The APHA Standard Method require pH to be analyzed within 15 minutes of sampling and therefore field analysis is required for compliance. All Laboratory pH analyses in this report are reported past the APHA Standard Method holding time.
(3) TOC / DOC present in the sample should be considered as non-purgeable TOC / DOC.

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Your Project #: 14-1360
Site Location: OH PARK / HARBOURSIDE EAST

Attention: Nadine Wambolt

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Report Date: 2018/12/17
Report #: R5528067
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B8W5929
Received: 2018/12/05, 16:05
Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Natalie MacAskill, Key Account Specialist
Email: NMacAskill@maxxam.ca
Phone# (902)567-1255 Ext:17
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Maxxam Job #: B8W5929
Report Date: 2018/12/17

Dillon Consulting Limited
Client Project #: 14-1360
Site Location: OH PARK / HARBOURSIDE EAST

RESULTS OF ANALYSES OF WATER

Maxxam ID		IMC062			IMC063		IMC064		
Sampling Date		2018/12/05			2018/12/05		2018/12/05		
	UNITS	CODT-105-MW	RDL	QC Batch	CODT-008-MWB	QC Batch	CODT-201-MWA	RDL	QC Batch
Calculated Parameters									
Anion Sum	me/L	11.2	N/A	5874167	6.10	5874167	6.32	N/A	5874167
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	370	1.0	5874164	4.7	5874164	200	1.0	5874164
Calculated TDS	mg/L	630	1.0	5874172	380	5874172	360	1.0	5874172
Carb. Alkalinity (calc. as CaCO3)	mg/L	2.6	1.0	5874164	48	5874164	1.4	1.0	5874164
Cation Sum	me/L	10.9	N/A	5874167	6.32	5874167	6.29	N/A	5874167
Hardness (CaCO3)	mg/L	510	1.0	5874165	210	5874165	300	1.0	5874165
Ion Balance (% Difference)	%	1.45	N/A	5874166	1.77	5874166	0.240	N/A	5874166
Langelier Index (@ 20C)	N/A	1.16		5874168	2.19	5874168	0.748		5874168
Langelier Index (@ 4C)	N/A	0.914		5874170	1.94	5874170	0.499		5874170
Nitrate (N)	mg/L	2.1	0.050	5874329	0.064	5874329	1.3	0.050	5874329
Saturation pH (@ 20C)	N/A	6.71		5874168	8.85	5874168	7.12		5874168
Saturation pH (@ 4C)	N/A	6.96		5874170	9.09	5874170	7.37		5874170
Inorganics									
Total Alkalinity (Total as CaCO3)	mg/L	370	25	5879996	110	5879996	210	25	5880026
Dissolved Chloride (Cl-)	mg/L	13	1.0	5880001	87	5880001	16	1.0	5880094
Colour	TCU	<5.0	5.0	5880007	17	5880007	<5.0	5.0	5880099
Nitrate + Nitrite (N)	mg/L	2.1	0.050	5880010	0.25	5880010	1.3	0.050	5880101
Nitrite (N)	mg/L	<0.010	0.010	5880013	0.19	5880013	<0.010	0.010	5880102
Nitrogen (Ammonia Nitrogen)	mg/L	<0.050	0.050	5881445	0.36	5881461	<0.050	0.050	5881461
Total Organic Carbon (C)	mg/L	3.1	0.50	5886644	3.8	5886644	3.4	0.50	5886644
Orthophosphate (P)	mg/L	0.029	0.010	5880008	0.014	5880008	0.020	0.010	5880100
pH	pH	7.87	N/A	5881271	11.0 (1)	5881279	7.86	N/A	5881279
Reactive Silica (SiO2)	mg/L	18	0.50	5880005	19	5880005	15	0.50	5880097
Dissolved Sulphate (SO4)	mg/L	160	10	5880004	71	5880004	79	2.0	5880096
Turbidity	NTU	0.39	0.10	5881436	3.3	5881444	7.7	0.10	5881436
Conductivity	uS/cm	940	1.0	5881275	770	5881280	580	1.0	5881280

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable
(1) pH: linear range exceedance. Extended linearity confirmed.

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Maxxam Job #: B8W5929
Report Date: 2018/12/17

Dillon Consulting Limited
Client Project #: 14-1360
Site Location: OH PARK / HARBOURSIDE EAST

RESULTS OF ANALYSES OF WATER

Maxxam ID		IMC065			IMC066			IMC067		
Sampling Date		2018/12/05			2018/12/05			2018/12/05		
	UNITS	CODT-201-MWC	RDL	QC Batch	CODT-206-MW	RDL	QC Batch	SCU11-001-MWB	RDL	QC Batch
Calculated Parameters										
Anion Sum	me/L	5.57	N/A	5874167	3.19	N/A	5874167	5.88	N/A	5874167
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	210	1.0	5874164	68	1.0	5874164	60	1.0	5874164
Calculated TDS	mg/L	300	1.0	5874172	200	1.0	5874172	330	1.0	5874172
Carb. Alkalinity (calc. as CaCO3)	mg/L	1.8	1.0	5874164	<1.0	1.0	5874164	<1.0	1.0	5874164
Cation Sum	me/L	5.36	N/A	5874167	3.00	N/A	5874167	5.27	N/A	5874167
Hardness (CaCO3)	mg/L	120	1.0	5874165	130	1.0	5874165	140	1.0	5874165
Ion Balance (% Difference)	%	1.92	N/A	5874166	3.07	N/A	5874166	5.47	N/A	5874166
Langelier Index (@ 20C)	N/A	0.488		5874168	0.0930		5874168	-0.794		5874168
Langelier Index (@ 4C)	N/A	0.239		5874170	-0.157		5874170	-1.04		5874170
Nitrate (N)	mg/L	<0.050	0.050	5874329	0.15	0.050	5874329	0.13	0.050	5874329
Saturation pH (@ 20C)	N/A	7.48		5874168	7.85		5874168	7.98		5874168
Saturation pH (@ 4C)	N/A	7.73		5874170	8.10		5874170	8.23		5874170
Inorganics										
Total Alkalinity (Total as CaCO3)	mg/L	210	25	5880026	69	5.0	5880026	60	5.0	5880026
Dissolved Chloride (Cl-)	mg/L	50	1.0	5880094	20	1.0	5880094	150	1.0	5880094
Colour	TCU	5.3	5.0	5880099	9.3	5.0	5880099	46	5.0	5880099
Nitrate + Nitrite (N)	mg/L	<0.050	0.050	5880101	0.15	0.050	5880101	0.14	0.050	5880101
Nitrite (N)	mg/L	<0.010	0.010	5880102	<0.010	0.010	5880102	0.010	0.010	5880102
Nitrogen (Ammonia Nitrogen)	mg/L	0.54	0.050	5881445	<0.050	0.050	5881461	2.5	0.25	5881461
Total Organic Carbon (C)	mg/L	14 (1)	5.0	5888741	3.4	0.50	5888773	7.1	0.50	5888741
Orthophosphate (P)	mg/L	0.013	0.010	5880100	0.021	0.010	5880100	0.89	0.050	5880100
pH	pH	7.97	N/A	5881279	7.94	N/A	5881271	7.18	N/A	5881279
Reactive Silica (SiO2)	mg/L	12	0.50	5880097	19	0.50	5880097	5.4	0.50	5880097
Dissolved Sulphate (SO4)	mg/L	<2.0	2.0	5880096	59	2.0	5880096	22	2.0	5880096
Turbidity	NTU	7.7	0.10	5881444	3.2	0.10	5881436	5.0	0.10	5881444
Conductivity	uS/cm	530	1.0	5881280	310	1.0	5881275	630	1.0	5881280

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable
(1) Elevated reporting limit due to sample matrix.

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Maxxam Job #: B8W5929
Report Date: 2018/12/17

Dillon Consulting Limited
Client Project #: 14-1360
Site Location: OH PARK / HARBOURSIDE EAST

RESULTS OF ANALYSES OF WATER

Maxxam ID		IMC068			IMC086		
Sampling Date		2018/12/05			2018/12/05		
	UNITS	EB-03	RDL	QC Batch	FD-13	RDL	QC Batch
Calculated Parameters							
Anion Sum	me/L	0.190	N/A	5874167	6.02	N/A	5874167
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	5.1	1.0	5874164	<1.0	1.0	5874164
Calculated TDS	mg/L	7.0	1.0	5874172	370	1.0	5874172
Carb. Alkalinity (calc. as CaCO3)	mg/L	<1.0	1.0	5874164	2.0	1.0	5874164
Cation Sum	me/L	0.0100	N/A	5874167	6.28	N/A	5874167
Hardness (CaCO3)	mg/L	<1.0	1.0	5874165	210	1.0	5874165
Ion Balance (% Difference)	%	90.0	N/A	5874166	2.11	N/A	5874166
Langelier Index (@ 20C)	N/A	NC		5874168	0.812		5874168
Langelier Index (@ 4C)	N/A	NC		5874170	0.564		5874170
Nitrate (N)	mg/L	0.098	0.050	5873980	0.096	0.050	5873980
Saturation pH (@ 20C)	N/A	NC		5874168	10.5		5874168
Saturation pH (@ 4C)	N/A	NC		5874170	10.7		5874170
Inorganics							
Total Alkalinity (Total as CaCO3)	mg/L	5.1	5.0	5880026	110	25	5880026
Dissolved Chloride (Cl-)	mg/L	2.8	1.0	5880094	84	1.0	5880094
Colour	TCU	<5.0	5.0	5880099	17	5.0	5880099
Nitrate + Nitrite (N)	mg/L	0.098	0.050	5880101	0.29	0.050	5880101
Nitrite (N)	mg/L	<0.010	0.010	5880102	0.20	0.010	5880102
Nitrogen (Ammonia Nitrogen)	mg/L	<0.050	0.050	5881461	0.37	0.050	5881461
Total Organic Carbon (C)	mg/L	<0.50	0.50	5888773	<5.0 (1)	5.0	5886644
Orthophosphate (P)	mg/L	<0.010	0.010	5880100	0.014	0.010	5880100
pH	pH	6.61	N/A	5881279	11.3 (2)	N/A	5881271
Reactive Silica (SiO2)	mg/L	0.85	0.50	5880097	19	0.50	5880097
Dissolved Sulphate (SO4)	mg/L	<2.0	2.0	5880096	73	2.0	5880096
Turbidity	NTU	0.22	0.10	5881444	3.4	0.10	5881436
Conductivity	uS/cm	15	1.0	5881280	800	1.0	5881275

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable
(1) Elevated reporting limit due to turbidity.
(2) pH: linear range exceedance. Extended linearity confirmed.

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Maxxam Job #: B8W5929
Report Date: 2018/12/17

Dillon Consulting Limited
Client Project #: 14-1360
Site Location: OH PARK / HARBOURSIDE EAST

MERCURY BY COLD VAPOUR AA (WATER)

Maxxam ID		IMC062	IMC063	IMC064		IMC065		
Sampling Date		2018/12/05	2018/12/05	2018/12/05		2018/12/05		
	UNITS	CODT-105-MW	CODT-008-MWB	CODT-201-MWA	QC Batch	CODT-201-MWC	RDL	QC Batch
Metals								
Total Mercury (Hg)	ug/L	<0.013	<0.013	<0.013	5881274	<0.013	0.013	5883755

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam ID		IMC066	IMC067	IMC068	IMC086		
Sampling Date		2018/12/05	2018/12/05	2018/12/05	2018/12/05		
	UNITS	CODT-206-MW	SCU11-001-MWB	EB-03	FD-13	RDL	QC Batch
Metals							
Total Mercury (Hg)	ug/L	<0.013	<0.013	<0.013	<0.013	0.013	5883755

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B8W5929
Report Date: 2018/12/17

Dillon Consulting Limited
Client Project #: 14-1360
Site Location: OH PARK / HARBOURSIDE EAST

ELEMENTS BY ICP/MS (WATER)

Maxxam ID		IMC062	IMC063	IMC064	IMC065	IMC066		
Sampling Date		2018/12/05	2018/12/05	2018/12/05	2018/12/05	2018/12/05		
	UNITS	CODT-105-MW	CODT-008-MWB	CODT-201-MWA	CODT-201-MWC	CODT-206-MW	RDL	QC Batch
Metals								
Dissolved Aluminum (Al)	ug/L	15	530	8.8	7.0	23	5.0	5881963
Dissolved Antimony (Sb)	ug/L	2.2	<1.0	<1.0	<1.0	<1.0	1.0	5881963
Dissolved Arsenic (As)	ug/L	2.4	3.3	<1.0	3.6	1.3	1.0	5881963
Dissolved Barium (Ba)	ug/L	34	41	19	460	33	1.0	5881963
Dissolved Beryllium (Be)	ug/L	<1.0	<1.0	<1.0	<1.0	<1.0	1.0	5881963
Dissolved Bismuth (Bi)	ug/L	<2.0	<2.0	<2.0	<2.0	<2.0	2.0	5881963
Dissolved Boron (B)	ug/L	75	<50	<50	85	<50	50	5881963
Dissolved Cadmium (Cd)	ug/L	0.074	0.025	0.052	0.045	0.014	0.010	5881963
Dissolved Calcium (Ca)	ug/L	160000	83000	100000	42000	51000	100	5881963
Dissolved Chromium (Cr)	ug/L	<1.0	1.7	<1.0	<1.0	<1.0	1.0	5881963
Dissolved Cobalt (Co)	ug/L	<0.40	<0.40	<0.40	<0.40	<0.40	0.40	5881963
Dissolved Copper (Cu)	ug/L	6.6	3.6	3.1	<2.0	<2.0	2.0	5881963
Dissolved Iron (Fe)	ug/L	<50	<50	<50	<50	<50	50	5881963
Dissolved Lead (Pb)	ug/L	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	5881963
Dissolved Magnesium (Mg)	ug/L	24000	310	9900	4600	1800	100	5881963
Dissolved Manganese (Mn)	ug/L	<2.0	<2.0	<2.0	760	<2.0	2.0	5881963
Dissolved Molybdenum (Mo)	ug/L	5.6	7.0	2.3	<2.0	<2.0	2.0	5881963
Dissolved Nickel (Ni)	ug/L	<2.0	<2.0	<2.0	<2.0	<2.0	2.0	5881963
Dissolved Phosphorus (P)	ug/L	<100	<100	<100	<100	<100	100	5881963
Dissolved Potassium (K)	ug/L	5400	5200	2900	2400	1800	100	5881963
Dissolved Selenium (Se)	ug/L	18	1.4	4.2	<1.0	1.0	1.0	5881963
Dissolved Silver (Ag)	ug/L	<0.10	<0.10	<0.10	<0.10	<0.10	0.10	5881963
Dissolved Sodium (Na)	ug/L	15000	46000	7400	64000	6100	100	5881963
Dissolved Strontium (Sr)	ug/L	400	890	250	560	240	2.0	5881963
Dissolved Thallium (Tl)	ug/L	<0.10	<0.10	<0.10	<0.10	<0.10	0.10	5881963
Dissolved Tin (Sn)	ug/L	<2.0	<2.0	<2.0	<2.0	<2.0	2.0	5881963
Dissolved Titanium (Ti)	ug/L	<2.0	<2.0	<2.0	<2.0	<2.0	2.0	5881963
Dissolved Uranium (U)	ug/L	3.2	0.30	0.67	<0.10	1.2	0.10	5881963
Dissolved Vanadium (V)	ug/L	4.0	8.5	<2.0	<2.0	2.8	2.0	5881963
Dissolved Zinc (Zn)	ug/L	30	<5.0	34	<5.0	<5.0	5.0	5881963

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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ELEMENTS BY ICP/MS (WATER)

Maxxam ID		IMC067		IMC068	IMC086		
Sampling Date		2018/12/05		2018/12/05	2018/12/05		
	UNITS	SCU11-001-MWB	QC Batch	EB-03	FD-13	RDL	QC Batch
Metals							
Dissolved Aluminum (Al)	ug/L	25	5881970	<5.0	520	5.0	5881963
Dissolved Antimony (Sb)	ug/L	<1.0	5881970	<1.0	<1.0	1.0	5881963
Dissolved Arsenic (As)	ug/L	<1.0	5881970	<1.0	3.3	1.0	5881963
Dissolved Barium (Ba)	ug/L	53	5881970	<1.0	40	1.0	5881963
Dissolved Beryllium (Be)	ug/L	<1.0	5881970	<1.0	<1.0	1.0	5881963
Dissolved Bismuth (Bi)	ug/L	<2.0	5881970	<2.0	<2.0	2.0	5881963
Dissolved Boron (B)	ug/L	<50	5881970	<50	<50	50	5881963
Dissolved Cadmium (Cd)	ug/L	0.059	5881970	<0.010	0.026	0.010	5881963
Dissolved Calcium (Ca)	ug/L	47000	5881970	<100	83000	100	5881963
Dissolved Chromium (Cr)	ug/L	<1.0	5881970	<1.0	1.6	1.0	5881963
Dissolved Cobalt (Co)	ug/L	<0.40	5881970	<0.40	<0.40	0.40	5881963
Dissolved Copper (Cu)	ug/L	<2.0	5881970	<2.0	3.7	2.0	5881963
Dissolved Iron (Fe)	ug/L	610	5881970	<50	<50	50	5881963
Dissolved Lead (Pb)	ug/L	<0.50	5881970	<0.50	<0.50	0.50	5881963
Dissolved Magnesium (Mg)	ug/L	5200	5881970	<100	310	100	5881963
Dissolved Manganese (Mn)	ug/L	340	5881970	<2.0	<2.0	2.0	5881963
Dissolved Molybdenum (Mo)	ug/L	<2.0	5881970	<2.0	6.8	2.0	5881963
Dissolved Nickel (Ni)	ug/L	<2.0	5881970	<2.0	<2.0	2.0	5881963
Dissolved Phosphorus (P)	ug/L	1100	5881970	<100	<100	100	5881963
Dissolved Potassium (K)	ug/L	6000	5881970	<100	5200	100	5881963
Dissolved Selenium (Se)	ug/L	<1.0	5881970	<1.0	1.4	1.0	5881963
Dissolved Silver (Ag)	ug/L	<0.10	5881970	<0.10	<0.10	0.10	5881963
Dissolved Sodium (Na)	ug/L	49000	5881970	110	45000	100	5881963
Dissolved Strontium (Sr)	ug/L	750	5881970	<2.0	880	2.0	5881963
Dissolved Thallium (Tl)	ug/L	<0.10	5881970	<0.10	<0.10	0.10	5881963
Dissolved Tin (Sn)	ug/L	<2.0	5881970	<2.0	<2.0	2.0	5881963
Dissolved Titanium (Ti)	ug/L	<2.0	5881970	<2.0	<2.0	2.0	5881963
Dissolved Uranium (U)	ug/L	<0.10	5881970	<0.10	0.30	0.10	5881963
Dissolved Vanadium (V)	ug/L	<2.0	5881970	<2.0	8.8	2.0	5881963
Dissolved Zinc (Zn)	ug/L	<5.0	5881970	<5.0	<5.0	5.0	5881963

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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SEMI-VOLATILE ORGANICS BY GC-MS (WATER)

Maxxam ID		IMC062	IMC063		IMC064		IMC065		
Sampling Date		2018/12/05	2018/12/05		2018/12/05		2018/12/05		
	UNITS	CODT-105-MW	CODT-008-MWB	RDL	CODT-201-MWA	RDL	CODT-201-MWC	RDL	QC Batch
Polyaromatic Hydrocarbons									
1-Methylnaphthalene	ug/L	<0.050	0.41	0.050	5.1	0.050	670 (1)	5.0	5879365
2-Methylnaphthalene	ug/L	<0.050	0.17	0.050	3.5	0.050	490 (1)	5.0	5879365
Acenaphthene	ug/L	0.013	0.21	0.010	1.9	0.010	270 (1)	1.0	5879365
Acenaphthylene	ug/L	<0.010	0.036	0.010	0.10	0.010	10	0.010	5879365
Anthracene	ug/L	<0.010	0.13	0.010	0.49	0.010	4.2	0.010	5879365
Benzo(a)anthracene	ug/L	<0.010	0.14	0.010	1.3	0.010	0.068	0.010	5879365
Benzo(a)pyrene	ug/L	<0.010	0.11	0.010	0.99	0.010	0.011	0.010	5879365
Benzo(b)fluoranthene	ug/L	<0.010	0.091	0.010	0.83	0.010	<0.010	0.010	5879365
Benzo(b/j)fluoranthene	ug/L	<0.020	0.15	0.020	1.3	0.020	<0.020	0.020	5874327
Benzo(g,h,i)perylene	ug/L	<0.010	0.059	0.010	0.51	0.010	<0.010	0.010	5879365
Benzo(j)fluoranthene	ug/L	<0.010	0.055	0.010	0.49	0.010	<0.010	0.010	5879365
Benzo(k)fluoranthene	ug/L	<0.010	0.055	0.010	0.53	0.010	<0.010	0.010	5879365
Chrysene	ug/L	<0.010	0.15	0.010	1.4	0.010	0.056	0.010	5879365
Dibenz(a,h)anthracene	ug/L	<0.010	0.016	0.010	0.16	0.010	<0.010	0.010	5879365
Fluoranthene	ug/L	0.028	0.39	0.010	2.8	0.010	4.5	0.010	5879365
Fluorene	ug/L	<0.010	0.10	0.010	0.77	0.010	120 (1)	1.0	5879365
Indeno(1,2,3-cd)pyrene	ug/L	<0.010	0.052	0.010	0.49	0.010	<0.010	0.010	5879365
Naphthalene	ug/L	<0.20	0.56	0.20	50 (1)	2.0	7800 (1)	100	5879365
Perylene	ug/L	<0.010	0.026	0.010	0.23	0.010	<0.010	0.010	5879365
Phenanthrene	ug/L	0.013	0.21	0.010	2.4	0.010	90 (1)	1.0	5879365
Pyrene	ug/L	0.022	0.46	0.010	2.2	0.010	2.0	0.010	5879365
Surrogate Recovery (%)									
D10-Anthracene	%	98	94		97		98		5879365
D14-Terphenyl	%	99	97		101 (2)		95		5879365
D8-Acenaphthylene	%	95	94		94		113		5879365

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
(1) Elevated PAH RDL(s) due to sample dilution.
(2) PAH sample contained sediment.

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Maxxam Job #: B8W5929
Report Date: 2018/12/17

Dillon Consulting Limited
Client Project #: 14-1360
Site Location: OH PARK / HARBOURSIDE EAST

SEMI-VOLATILE ORGANICS BY GC-MS (WATER)

Maxxam ID		IMC066	IMC067	IMC068	IMC069	IMC086		
Sampling Date		2018/12/05	2018/12/05	2018/12/05	2018/12/05	2018/12/05		
	UNITS	CODT-206-MW	SCU11-001-MWB	EB-03	FB-03	FD-13	RDL	QC Batch
Polyaromatic Hydrocarbons								
1-Methylnaphthalene	ug/L	1.7	<0.050	<0.050	<0.050	0.43	0.050	5879365
2-Methylnaphthalene	ug/L	1.2	<0.050	<0.050	<0.050	0.18	0.050	5879365
Acenaphthene	ug/L	0.68	0.016	0.032	<0.010	0.21	0.010	5879365
Acenaphthylene	ug/L	0.034	<0.010	<0.010	<0.010	0.039	0.010	5879365
Anthracene	ug/L	0.016	<0.010	0.046	<0.010	0.15	0.010	5879365
Benzo(a)anthracene	ug/L	0.017	<0.010	0.021	<0.010	0.14	0.010	5879365
Benzo(a)pyrene	ug/L	0.033	<0.010	0.013	<0.010	0.11	0.010	5879365
Benzo(b)fluoranthene	ug/L	0.029	<0.010	0.011	<0.010	0.098	0.010	5879365
Benzo(b/j)fluoranthene	ug/L	0.044	<0.020	<0.020	<0.020	0.16	0.020	5874327
Benzo(g,h,i)perylene	ug/L	0.026	<0.010	<0.010	<0.010	0.061	0.010	5879365
Benzo(j)fluoranthene	ug/L	0.015	<0.010	<0.010	<0.010	0.059	0.010	5879365
Benzo(k)fluoranthene	ug/L	0.014	<0.010	<0.010	<0.010	0.059	0.010	5879365
Chrysene	ug/L	0.022	<0.010	0.021	<0.010	0.17	0.010	5879365
Dibenz(a,h)anthracene	ug/L	<0.010	<0.010	<0.010	<0.010	0.017	0.010	5879365
Fluoranthene	ug/L	0.044	0.013	0.086	<0.010	0.41	0.010	5879365
Fluorene	ug/L	0.22	<0.010	0.056	<0.010	0.11	0.010	5879365
Indeno(1,2,3-cd)pyrene	ug/L	0.021	<0.010	<0.010	<0.010	0.056	0.010	5879365
Naphthalene	ug/L	15	<0.20	<0.20	<0.20	0.69	0.20	5879365
Perylene	ug/L	0.010	<0.010	<0.010	<0.010	0.028	0.010	5879365
Phenanthrene	ug/L	0.085	0.024	0.24	<0.010	0.21	0.010	5879365
Pyrene	ug/L	0.033	<0.010	0.056	<0.010	0.47	0.010	5879365
Surrogate Recovery (%)								
D10-Anthracene	%	92	109	100	84	95		5879365
D14-Terphenyl	%	91	112	99	83	99		5879365
D8-Acenaphthylene	%	90	103	98	79	96		5879365

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B8W5929
Report Date: 2018/12/17

Dillon Consulting Limited
Client Project #: 14-1360
Site Location: OH PARK / HARBOURSIDE EAST

ATLANTIC RBCA HYDROCARBONS (WATER)

Maxxam ID		IMC065		
Sampling Date		2018/12/05		
	UNITS	CODT-201-MWC	RDL	QC Batch
Petroleum Hydrocarbons				
Benzene	mg/L	0.10	0.010	5879162
Toluene	mg/L	0.20	0.010	5879162
Ethylbenzene	mg/L	0.14	0.010	5879162
Total Xylenes	mg/L	0.56	0.020	5879162
C6 - C10 (less BTEX)	mg/L	1.2	0.10	5879162
>C10-C16 Hydrocarbons	mg/L	15	0.50	5879459
>C16-C21 Hydrocarbons	mg/L	<0.50	0.50	5879459
>C21-<C32 Hydrocarbons	mg/L	<1.0	1.0	5879459
Modified TPH (Tier1)	mg/L	16	1.0	5874309
Reached Baseline at C32	mg/L	Yes	N/A	5879459
Hydrocarbon Resemblance	mg/L	COMMENT (1)	N/A	5879459
Surrogate Recovery (%)				
Isobutylbenzene - Extractable	%	96		5879459
n-Dotriacontane - Extractable	%	74 (2)		5879459
Isobutylbenzene - Volatile	%	98 (3)		5879162

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable
(1) One product in the gas/fuel oil range.
(2) Elevated TEH RDL(s) due to sample dilution.
(3) Elevated VPH RDL(s) due to sample dilution.

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GENERAL COMMENTS

Sample IMC067 [SCU11-001-MWB] : Poor RCAp Ion Balance due to sample matrix.

Sample IMC068 [EB-03] : RCAp Ion Balance acceptable. Anion/cation agreement within 0.2 meq/L.

Results relate only to the items tested.

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QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
5879162	THL	Matrix Spike	Isobutylbenzene - Volatile	2018/12/11		102	%	70 - 130
			Benzene	2018/12/11		112	%	70 - 130
			Toluene	2018/12/11		112	%	70 - 130
			Ethylbenzene	2018/12/11		115	%	70 - 130
			Total Xylenes	2018/12/11		114	%	70 - 130
5879162	THL	Spiked Blank	Isobutylbenzene - Volatile	2018/12/11		103	%	70 - 130
			Benzene	2018/12/11		94	%	70 - 130
			Toluene	2018/12/11		94	%	70 - 130
			Ethylbenzene	2018/12/11		97	%	70 - 130
			Total Xylenes	2018/12/11		95	%	70 - 130
5879162	THL	Method Blank	Isobutylbenzene - Volatile	2018/12/10		96	%	70 - 130
			Benzene	2018/12/10	<0.0010		mg/L	
			Toluene	2018/12/10	<0.0010		mg/L	
			Ethylbenzene	2018/12/10	<0.0010		mg/L	
			Total Xylenes	2018/12/10	<0.0020		mg/L	
			C6 - C10 (less BTEX)	2018/12/10	<0.010		mg/L	
5879162	THL	RPD	Benzene	2018/12/11	NC		%	40
			Toluene	2018/12/11	NC		%	40
			Ethylbenzene	2018/12/11	NC		%	40
			Total Xylenes	2018/12/11	NC		%	40
			C6 - C10 (less BTEX)	2018/12/11	NC		%	40
5879365	LGE	Matrix Spike [IMC063-05]	D10-Anthracene	2018/12/10		94	%	50 - 130
			D14-Terphenyl	2018/12/10		96	%	50 - 130
			D8-Acenaphthylene	2018/12/10		94	%	50 - 130
			1-Methylnaphthalene	2018/12/10		88	%	50 - 130
			2-Methylnaphthalene	2018/12/10		93	%	50 - 130
			Acenaphthene	2018/12/10		96	%	50 - 130
			Acenaphthylene	2018/12/10		94	%	50 - 130
			Anthracene	2018/12/10		102	%	50 - 130
			Benzo(a)anthracene	2018/12/10		103	%	50 - 130
			Benzo(a)pyrene	2018/12/10		99	%	50 - 130
			Benzo(b)fluoranthene	2018/12/10		112	%	50 - 130
			Benzo(g,h,i)perylene	2018/12/10		111	%	50 - 130
			Benzo(j)fluoranthene	2018/12/10		95	%	50 - 130
			Benzo(k)fluoranthene	2018/12/10		104	%	50 - 130
			Chrysene	2018/12/10		111	%	50 - 130
			Dibenz(a,h)anthracene	2018/12/10		99	%	50 - 130
			Fluoranthene	2018/12/10		120	%	50 - 130
			Fluorene	2018/12/10		104	%	50 - 130
			Indeno(1,2,3-cd)pyrene	2018/12/10		106	%	50 - 130
			Naphthalene	2018/12/10		94	%	50 - 130
			Perylene	2018/12/10		95	%	50 - 130
			Phenanthrene	2018/12/10		112	%	50 - 130
			Pyrene	2018/12/10		114	%	50 - 130
5879365	LGE	Spiked Blank	D10-Anthracene	2018/12/10		98	%	50 - 130
			D14-Terphenyl	2018/12/10		98	%	50 - 130
			D8-Acenaphthylene	2018/12/10		97	%	50 - 130
			1-Methylnaphthalene	2018/12/10		94	%	50 - 130
			2-Methylnaphthalene	2018/12/10		95	%	50 - 130
			Acenaphthene	2018/12/10		98	%	50 - 130
			Acenaphthylene	2018/12/10		96	%	50 - 130
			Anthracene	2018/12/10		98	%	50 - 130
			Benzo(a)anthracene	2018/12/10		93	%	50 - 130
			Benzo(a)pyrene	2018/12/10		92	%	50 - 130

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Benzo(b)fluoranthene	2018/12/10		106	%	50 - 130
			Benzo(g,h,i)perylene	2018/12/10		108	%	50 - 130
			Benzo(j)fluoranthene	2018/12/10		94	%	50 - 130
			Benzo(k)fluoranthene	2018/12/10		100	%	50 - 130
			Chrysene	2018/12/10		102	%	50 - 130
			Dibenz(a,h)anthracene	2018/12/10		93	%	50 - 130
			Fluoranthene	2018/12/10		102	%	50 - 130
			Fluorene	2018/12/10		103	%	50 - 130
			Indeno(1,2,3-cd)pyrene	2018/12/10		104	%	50 - 130
			Naphthalene	2018/12/10		93	%	50 - 130
			Perylene	2018/12/10		95	%	50 - 130
			Phenanthrene	2018/12/10		109	%	50 - 130
			Pyrene	2018/12/10		100	%	50 - 130
5879365	LGE	Method Blank	D10-Anthracene	2018/12/10		104	%	50 - 130
			D14-Terphenyl	2018/12/10		103	%	50 - 130
			D8-Acenaphthylene	2018/12/10		99	%	50 - 130
			1-Methylnaphthalene	2018/12/10	<0.050		ug/L	
			2-Methylnaphthalene	2018/12/10	<0.050		ug/L	
			Acenaphthene	2018/12/10	<0.010		ug/L	
			Acenaphthylene	2018/12/10	<0.010		ug/L	
			Anthracene	2018/12/10	<0.010		ug/L	
			Benzo(a)anthracene	2018/12/10	<0.010		ug/L	
			Benzo(a)pyrene	2018/12/10	<0.010		ug/L	
			Benzo(b)fluoranthene	2018/12/10	<0.010		ug/L	
			Benzo(g,h,i)perylene	2018/12/10	<0.010		ug/L	
			Benzo(j)fluoranthene	2018/12/10	<0.010		ug/L	
			Benzo(k)fluoranthene	2018/12/10	<0.010		ug/L	
			Chrysene	2018/12/10	<0.010		ug/L	
			Dibenz(a,h)anthracene	2018/12/10	<0.010		ug/L	
			Fluoranthene	2018/12/10	<0.010		ug/L	
			Fluorene	2018/12/10	<0.010		ug/L	
			Indeno(1,2,3-cd)pyrene	2018/12/10	<0.010		ug/L	
			Naphthalene	2018/12/10	<0.20		ug/L	
			Perylene	2018/12/10	<0.010		ug/L	
			Phenanthrene	2018/12/10	<0.010		ug/L	
			Pyrene	2018/12/10	<0.010		ug/L	
5879365	LGE	RPD [IMC062-05]	1-Methylnaphthalene	2018/12/10	NC		%	40
			2-Methylnaphthalene	2018/12/10	NC		%	40
			Acenaphthene	2018/12/10	6.7		%	40
			Acenaphthylene	2018/12/10	NC		%	40
			Anthracene	2018/12/10	NC		%	40
			Benzo(a)anthracene	2018/12/10	NC		%	40
			Benzo(a)pyrene	2018/12/10	NC		%	40
			Benzo(b)fluoranthene	2018/12/10	NC		%	40
			Benzo(g,h,i)perylene	2018/12/10	NC		%	40
			Benzo(j)fluoranthene	2018/12/10	NC		%	40
			Benzo(k)fluoranthene	2018/12/10	NC		%	40
			Chrysene	2018/12/10	NC		%	40
			Dibenz(a,h)anthracene	2018/12/10	NC		%	40
			Fluoranthene	2018/12/10	21		%	40
			Fluorene	2018/12/10	NC		%	40
			Indeno(1,2,3-cd)pyrene	2018/12/10	NC		%	40
			Naphthalene	2018/12/10	NC		%	40
			Perylene	2018/12/10	NC		%	40

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Phenanthrene	2018/12/10	24		%	40
			Pyrene	2018/12/10	20		%	40
5879459	MGN	Matrix Spike	Isobutylbenzene - Extractable	2018/12/11		101	%	70 - 130
			n-Dotriacontane - Extractable	2018/12/11		113	%	70 - 130
			>C10-C16 Hydrocarbons	2018/12/11		116	%	70 - 130
			>C16-C21 Hydrocarbons	2018/12/11		89	%	70 - 130
			>C21-<C32 Hydrocarbons	2018/12/11		98	%	70 - 130
5879459	MGN	Spiked Blank	Isobutylbenzene - Extractable	2018/12/10		92	%	70 - 130
			n-Dotriacontane - Extractable	2018/12/10		103	%	70 - 130
			>C10-C16 Hydrocarbons	2018/12/10		116	%	70 - 130
			>C16-C21 Hydrocarbons	2018/12/10		88	%	70 - 130
			>C21-<C32 Hydrocarbons	2018/12/10		96	%	70 - 130
5879459	MGN	Method Blank	Isobutylbenzene - Extractable	2018/12/10		97	%	70 - 130
			n-Dotriacontane - Extractable	2018/12/10		96	%	70 - 130
			>C10-C16 Hydrocarbons	2018/12/10	<0.050		mg/L	
			>C16-C21 Hydrocarbons	2018/12/10	<0.050		mg/L	
			>C21-<C32 Hydrocarbons	2018/12/10	<0.10		mg/L	
5879459	MGN	RPD	>C10-C16 Hydrocarbons	2018/12/10	NC		%	40
			>C16-C21 Hydrocarbons	2018/12/10	NC		%	40
			>C21-<C32 Hydrocarbons	2018/12/10	NC		%	40
5879996	NRG	Matrix Spike	Total Alkalinity (Total as CaCO3)	2018/12/11		102	%	80 - 120
5879996	NRG	Spiked Blank	Total Alkalinity (Total as CaCO3)	2018/12/11		110	%	80 - 120
5879996	NRG	Method Blank	Total Alkalinity (Total as CaCO3)	2018/12/11	<5.0		mg/L	
5879996	NRG	RPD	Total Alkalinity (Total as CaCO3)	2018/12/11	0.55		%	25
5880001	NRG	Matrix Spike	Dissolved Chloride (Cl-)	2018/12/11		NC	%	80 - 120
5880001	NRG	QC Standard	Dissolved Chloride (Cl-)	2018/12/11		106	%	80 - 120
5880001	NRG	Spiked Blank	Dissolved Chloride (Cl-)	2018/12/11		109	%	80 - 120
5880001	NRG	Method Blank	Dissolved Chloride (Cl-)	2018/12/11	<1.0		mg/L	
5880001	NRG	RPD	Dissolved Chloride (Cl-)	2018/12/11	0.29		%	25
5880004	NRG	Matrix Spike	Dissolved Sulphate (SO4)	2018/12/12		104	%	80 - 120
5880004	NRG	Spiked Blank	Dissolved Sulphate (SO4)	2018/12/12		100	%	80 - 120
5880004	NRG	Method Blank	Dissolved Sulphate (SO4)	2018/12/12	<2.0		mg/L	
5880004	NRG	RPD	Dissolved Sulphate (SO4)	2018/12/12	4.9		%	25
5880005	NRG	Matrix Spike	Reactive Silica (SiO2)	2018/12/11		95	%	80 - 120
5880005	NRG	Spiked Blank	Reactive Silica (SiO2)	2018/12/11		98	%	80 - 120
5880005	NRG	Method Blank	Reactive Silica (SiO2)	2018/12/11	<0.50		mg/L	
5880005	NRG	RPD	Reactive Silica (SiO2)	2018/12/11	0.095		%	25
5880007	NRG	Spiked Blank	Colour	2018/12/11		110	%	80 - 120
5880007	NRG	Method Blank	Colour	2018/12/11	<5.0		TCU	
5880007	NRG	RPD	Colour	2018/12/11	1.0		%	20
5880008	NRG	Matrix Spike	Orthophosphate (P)	2018/12/11		107	%	80 - 120
5880008	NRG	Spiked Blank	Orthophosphate (P)	2018/12/11		100	%	80 - 120
5880008	NRG	Method Blank	Orthophosphate (P)	2018/12/11	<0.010		mg/L	
5880008	NRG	RPD	Orthophosphate (P)	2018/12/11	NC		%	25
5880010	NRG	Matrix Spike	Nitrate + Nitrite (N)	2018/12/12		89	%	80 - 120
5880010	NRG	Spiked Blank	Nitrate + Nitrite (N)	2018/12/12		93	%	80 - 120
5880010	NRG	Method Blank	Nitrate + Nitrite (N)	2018/12/12	<0.050		mg/L	
5880010	NRG	RPD	Nitrate + Nitrite (N)	2018/12/12	NC		%	25
5880013	NRG	Matrix Spike	Nitrite (N)	2018/12/12		96	%	80 - 120
5880013	NRG	Spiked Blank	Nitrite (N)	2018/12/12		102	%	80 - 120
5880013	NRG	Method Blank	Nitrite (N)	2018/12/12	<0.010		mg/L	
5880013	NRG	RPD	Nitrite (N)	2018/12/12	NC		%	20
5880026	NRG	Matrix Spike	Total Alkalinity (Total as CaCO3)	2018/12/11		108	%	80 - 120
5880026	NRG	Spiked Blank	Total Alkalinity (Total as CaCO3)	2018/12/11		107	%	80 - 120

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
5880026	NRG	Method Blank	Total Alkalinity (Total as CaCO3)	2018/12/11	<5.0		mg/L	
5880026	NRG	RPD	Total Alkalinity (Total as CaCO3)	2018/12/11	0.23		%	25
5880094	NRG	Matrix Spike	Dissolved Chloride (Cl-)	2018/12/11		98	%	80 - 120
5880094	NRG	QC Standard	Dissolved Chloride (Cl-)	2018/12/11		107	%	80 - 120
5880094	NRG	Spiked Blank	Dissolved Chloride (Cl-)	2018/12/11		101	%	80 - 120
5880094	NRG	Method Blank	Dissolved Chloride (Cl-)	2018/12/11	<1.0		mg/L	
5880094	NRG	RPD	Dissolved Chloride (Cl-)	2018/12/11	NC		%	25
5880096	NRG	Matrix Spike	Dissolved Sulphate (SO4)	2018/12/12		98	%	80 - 120
5880096	NRG	Spiked Blank	Dissolved Sulphate (SO4)	2018/12/12		100	%	80 - 120
5880096	NRG	Method Blank	Dissolved Sulphate (SO4)	2018/12/12	<2.0		mg/L	
5880096	NRG	RPD	Dissolved Sulphate (SO4)	2018/12/12	20		%	25
5880097	NRG	Matrix Spike	Reactive Silica (SiO2)	2018/12/11		92	%	80 - 120
5880097	NRG	Spiked Blank	Reactive Silica (SiO2)	2018/12/11		96	%	80 - 120
5880097	NRG	Method Blank	Reactive Silica (SiO2)	2018/12/11	<0.50		mg/L	
5880097	NRG	RPD	Reactive Silica (SiO2)	2018/12/11	0.64		%	25
5880099	NRG	Spiked Blank	Colour	2018/12/11		98	%	80 - 120
5880099	NRG	Method Blank	Colour	2018/12/11	<5.0		TCU	
5880099	NRG	RPD	Colour	2018/12/11	NC		%	20
5880100	NRG	Matrix Spike	Orthophosphate (P)	2018/12/11		95	%	80 - 120
5880100	NRG	Spiked Blank	Orthophosphate (P)	2018/12/11		100	%	80 - 120
5880100	NRG	Method Blank	Orthophosphate (P)	2018/12/11	<0.010		mg/L	
5880100	NRG	RPD	Orthophosphate (P)	2018/12/11	NC		%	25
5880101	NRG	Matrix Spike	Nitrate + Nitrite (N)	2018/12/12		92	%	80 - 120
5880101	NRG	Spiked Blank	Nitrate + Nitrite (N)	2018/12/12		91	%	80 - 120
5880101	NRG	Method Blank	Nitrate + Nitrite (N)	2018/12/12	<0.050		mg/L	
5880101	NRG	RPD	Nitrate + Nitrite (N)	2018/12/12	6.4		%	25
5880102	NRG	Matrix Spike	Nitrite (N)	2018/12/11		105	%	80 - 120
5880102	NRG	Spiked Blank	Nitrite (N)	2018/12/12		102	%	80 - 120
5880102	NRG	Method Blank	Nitrite (N)	2018/12/12	<0.010		mg/L	
5880102	NRG	RPD	Nitrite (N)	2018/12/11	NC		%	20
5881271	NHU	QC Standard	pH	2018/12/11		100	%	97 - 103
5881271	NHU	RPD [IMC066-01]	pH	2018/12/11	1.9		%	N/A
5881274	CCR	Matrix Spike [IMC064-04]	Total Mercury (Hg)	2018/12/12		101	%	80 - 120
5881274	CCR	Spiked Blank	Total Mercury (Hg)	2018/12/12		105	%	80 - 120
5881274	CCR	Method Blank	Total Mercury (Hg)	2018/12/12	<0.013		ug/L	
5881274	CCR	RPD [IMC063-04]	Total Mercury (Hg)	2018/12/12	NC		%	20
5881275	NHU	Spiked Blank	Conductivity	2018/12/11		100	%	80 - 120
5881275	NHU	Method Blank	Conductivity	2018/12/11	1.0, RDL=1.0		uS/cm	
5881275	NHU	RPD [IMC066-01]	Conductivity	2018/12/11	1.3		%	25
5881279	NHU	QC Standard	pH	2018/12/11		100	%	97 - 103
5881279	NHU	RPD	pH	2018/12/11	2.1		%	N/A
5881280	NHU	Spiked Blank	Conductivity	2018/12/11		100	%	80 - 120
5881280	NHU	Method Blank	Conductivity	2018/12/11	1.9, RDL=1.0		uS/cm	
5881280	NHU	RPD	Conductivity	2018/12/11	0.00076		%	25
5881436	NHU	QC Standard	Turbidity	2018/12/11		102	%	80 - 120
5881436	NHU	Spiked Blank	Turbidity	2018/12/11		100	%	80 - 120
5881436	NHU	Method Blank	Turbidity	2018/12/11	<0.10		NTU	
5881436	NHU	RPD	Turbidity	2018/12/11	2.8		%	20
5881444	NHU	QC Standard	Turbidity	2018/12/11		97	%	80 - 120
5881444	NHU	Spiked Blank	Turbidity	2018/12/11		99	%	80 - 120
5881444	NHU	Method Blank	Turbidity	2018/12/11	<0.10		NTU	
5881444	NHU	RPD	Turbidity	2018/12/11	3.9		%	20

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QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
5881445	SRM	Matrix Spike	Nitrogen (Ammonia Nitrogen)	2018/12/12		87	%	80 - 120
5881445	SRM	Spiked Blank	Nitrogen (Ammonia Nitrogen)	2018/12/12		93	%	80 - 120
5881445	SRM	Method Blank	Nitrogen (Ammonia Nitrogen)	2018/12/12	<0.050		mg/L	
5881445	SRM	RPD	Nitrogen (Ammonia Nitrogen)	2018/12/12	NC		%	20
5881461	SRM	Matrix Spike	Nitrogen (Ammonia Nitrogen)	2018/12/12		91	%	80 - 120
5881461	SRM	Spiked Blank	Nitrogen (Ammonia Nitrogen)	2018/12/12		95	%	80 - 120
5881461	SRM	Method Blank	Nitrogen (Ammonia Nitrogen)	2018/12/12	<0.050		mg/L	
5881461	SRM	RPD	Nitrogen (Ammonia Nitrogen)	2018/12/12	NC		%	20
5881963	BAN	Matrix Spike	Dissolved Aluminum (Al)	2018/12/12		100	%	80 - 120
			Dissolved Antimony (Sb)	2018/12/12		103	%	80 - 120
			Dissolved Arsenic (As)	2018/12/12		101	%	80 - 120
			Dissolved Barium (Ba)	2018/12/12		99	%	80 - 120
			Dissolved Beryllium (Be)	2018/12/12		102	%	80 - 120
			Dissolved Bismuth (Bi)	2018/12/12		100	%	80 - 120
			Dissolved Boron (B)	2018/12/12		103	%	80 - 120
			Dissolved Cadmium (Cd)	2018/12/12		102	%	80 - 120
			Dissolved Calcium (Ca)	2018/12/12		NC	%	80 - 120
			Dissolved Chromium (Cr)	2018/12/12		99	%	80 - 120
			Dissolved Cobalt (Co)	2018/12/12		98	%	80 - 120
			Dissolved Copper (Cu)	2018/12/12		96	%	80 - 120
			Dissolved Iron (Fe)	2018/12/12		NC	%	80 - 120
			Dissolved Lead (Pb)	2018/12/12		98	%	80 - 120
			Dissolved Magnesium (Mg)	2018/12/12		95	%	80 - 120
			Dissolved Manganese (Mn)	2018/12/12		NC	%	80 - 120
			Dissolved Molybdenum (Mo)	2018/12/12		104	%	80 - 120
			Dissolved Nickel (Ni)	2018/12/12		101	%	80 - 120
			Dissolved Phosphorus (P)	2018/12/12		109	%	80 - 120
			Dissolved Potassium (K)	2018/12/12		107	%	80 - 120
			Dissolved Selenium (Se)	2018/12/12		104	%	80 - 120
			Dissolved Silver (Ag)	2018/12/12		102	%	80 - 120
			Dissolved Sodium (Na)	2018/12/12		NC	%	80 - 120
			Dissolved Strontium (Sr)	2018/12/12		NC	%	80 - 120
			Dissolved Thallium (Tl)	2018/12/12		101	%	80 - 120
			Dissolved Tin (Sn)	2018/12/12		103	%	80 - 120
			Dissolved Titanium (Ti)	2018/12/12		103	%	80 - 120
			Dissolved Uranium (U)	2018/12/12		107	%	80 - 120
			Dissolved Vanadium (V)	2018/12/12		104	%	80 - 120
			Dissolved Zinc (Zn)	2018/12/12		99	%	80 - 120
5881963	BAN	Spiked Blank	Dissolved Aluminum (Al)	2018/12/12		101	%	80 - 120
			Dissolved Antimony (Sb)	2018/12/12		98	%	80 - 120
			Dissolved Arsenic (As)	2018/12/12		101	%	80 - 120
			Dissolved Barium (Ba)	2018/12/12		99	%	80 - 120
			Dissolved Beryllium (Be)	2018/12/12		100	%	80 - 120
			Dissolved Bismuth (Bi)	2018/12/12		102	%	80 - 120
			Dissolved Boron (B)	2018/12/12		101	%	80 - 120
			Dissolved Cadmium (Cd)	2018/12/12		102	%	80 - 120
			Dissolved Calcium (Ca)	2018/12/12		101	%	80 - 120
			Dissolved Chromium (Cr)	2018/12/12		101	%	80 - 120
			Dissolved Cobalt (Co)	2018/12/12		101	%	80 - 120
			Dissolved Copper (Cu)	2018/12/12		99	%	80 - 120
			Dissolved Iron (Fe)	2018/12/12		102	%	80 - 120
			Dissolved Lead (Pb)	2018/12/12		98	%	80 - 120
			Dissolved Magnesium (Mg)	2018/12/12		105	%	80 - 120
			Dissolved Manganese (Mn)	2018/12/12		102	%	80 - 120

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QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Dissolved Molybdenum (Mo)	2018/12/12		101	%	80 - 120
			Dissolved Nickel (Ni)	2018/12/12		102	%	80 - 120
			Dissolved Phosphorus (P)	2018/12/12		107	%	80 - 120
			Dissolved Potassium (K)	2018/12/12		101	%	80 - 120
			Dissolved Selenium (Se)	2018/12/12		103	%	80 - 120
			Dissolved Silver (Ag)	2018/12/12		101	%	80 - 120
			Dissolved Sodium (Na)	2018/12/12		102	%	80 - 120
			Dissolved Strontium (Sr)	2018/12/12		101	%	80 - 120
			Dissolved Thallium (Tl)	2018/12/12		100	%	80 - 120
			Dissolved Tin (Sn)	2018/12/12		112	%	80 - 120
			Dissolved Titanium (Ti)	2018/12/12		107	%	80 - 120
			Dissolved Uranium (U)	2018/12/12		105	%	80 - 120
			Dissolved Vanadium (V)	2018/12/12		105	%	80 - 120
			Dissolved Zinc (Zn)	2018/12/12		103	%	80 - 120
5881963	BAN	Method Blank	Dissolved Aluminum (Al)	2018/12/12	<5.0		ug/L	
			Dissolved Antimony (Sb)	2018/12/12	<1.0		ug/L	
			Dissolved Arsenic (As)	2018/12/12	<1.0		ug/L	
			Dissolved Barium (Ba)	2018/12/12	<1.0		ug/L	
			Dissolved Beryllium (Be)	2018/12/12	<1.0		ug/L	
			Dissolved Bismuth (Bi)	2018/12/12	<2.0		ug/L	
			Dissolved Boron (B)	2018/12/12	<50		ug/L	
			Dissolved Cadmium (Cd)	2018/12/12	<0.010		ug/L	
			Dissolved Calcium (Ca)	2018/12/12	<100		ug/L	
			Dissolved Chromium (Cr)	2018/12/12	<1.0		ug/L	
			Dissolved Cobalt (Co)	2018/12/12	<0.40		ug/L	
			Dissolved Copper (Cu)	2018/12/12	<2.0		ug/L	
			Dissolved Iron (Fe)	2018/12/12	<50		ug/L	
			Dissolved Lead (Pb)	2018/12/12	<0.50		ug/L	
			Dissolved Magnesium (Mg)	2018/12/12	<100		ug/L	
			Dissolved Manganese (Mn)	2018/12/12	<2.0		ug/L	
			Dissolved Molybdenum (Mo)	2018/12/12	<2.0		ug/L	
			Dissolved Nickel (Ni)	2018/12/12	<2.0		ug/L	
			Dissolved Phosphorus (P)	2018/12/12	<100		ug/L	
			Dissolved Potassium (K)	2018/12/12	<100		ug/L	
			Dissolved Selenium (Se)	2018/12/12	<1.0		ug/L	
			Dissolved Silver (Ag)	2018/12/12	<0.10		ug/L	
			Dissolved Sodium (Na)	2018/12/12	<100		ug/L	
			Dissolved Strontium (Sr)	2018/12/12	<2.0		ug/L	
			Dissolved Thallium (Tl)	2018/12/12	<0.10		ug/L	
			Dissolved Tin (Sn)	2018/12/12	<2.0		ug/L	
			Dissolved Titanium (Ti)	2018/12/12	<2.0		ug/L	
			Dissolved Uranium (U)	2018/12/12	<0.10		ug/L	
			Dissolved Vanadium (V)	2018/12/12	<2.0		ug/L	
			Dissolved Zinc (Zn)	2018/12/12	<5.0		ug/L	
5881963	BAN	RPD	Dissolved Aluminum (Al)	2018/12/12	1.3		%	20
			Dissolved Antimony (Sb)	2018/12/12	NC		%	20
			Dissolved Arsenic (As)	2018/12/12	NC		%	20
			Dissolved Barium (Ba)	2018/12/12	0.79		%	20
			Dissolved Beryllium (Be)	2018/12/12	NC		%	20
			Dissolved Bismuth (Bi)	2018/12/12	NC		%	20
			Dissolved Boron (B)	2018/12/12	NC		%	20
			Dissolved Cadmium (Cd)	2018/12/12	19		%	20
			Dissolved Calcium (Ca)	2018/12/12	1.9		%	20
			Dissolved Chromium (Cr)	2018/12/12	NC		%	20

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QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Dissolved Cobalt (Co)	2018/12/12	2.0		%	20
			Dissolved Copper (Cu)	2018/12/12	NC		%	20
			Dissolved Iron (Fe)	2018/12/12	0.14		%	20
			Dissolved Lead (Pb)	2018/12/12	NC		%	20
			Dissolved Magnesium (Mg)	2018/12/12	0.62		%	20
			Dissolved Manganese (Mn)	2018/12/12	0.18		%	20
			Dissolved Molybdenum (Mo)	2018/12/12	NC		%	20
			Dissolved Nickel (Ni)	2018/12/12	2.2		%	20
			Dissolved Phosphorus (P)	2018/12/12	NC		%	20
			Dissolved Potassium (K)	2018/12/12	0.68		%	20
			Dissolved Selenium (Se)	2018/12/12	NC		%	20
			Dissolved Silver (Ag)	2018/12/12	NC		%	20
			Dissolved Sodium (Na)	2018/12/12	0.88		%	20
			Dissolved Strontium (Sr)	2018/12/12	3.0		%	20
			Dissolved Thallium (Tl)	2018/12/12	NC		%	20
			Dissolved Tin (Sn)	2018/12/12	NC		%	20
			Dissolved Titanium (Ti)	2018/12/12	NC		%	20
			Dissolved Uranium (U)	2018/12/12	NC		%	20
			Dissolved Vanadium (V)	2018/12/12	NC		%	20
			Dissolved Zinc (Zn)	2018/12/12	0.97		%	20
5881970	BAN	Matrix Spike [IMC067-02]	Dissolved Aluminum (Al)	2018/12/13		97	%	80 - 120
			Dissolved Antimony (Sb)	2018/12/13		98	%	80 - 120
			Dissolved Arsenic (As)	2018/12/13		102	%	80 - 120
			Dissolved Barium (Ba)	2018/12/13		95	%	80 - 120
			Dissolved Beryllium (Be)	2018/12/13		103	%	80 - 120
			Dissolved Bismuth (Bi)	2018/12/13		87	%	80 - 120
			Dissolved Boron (B)	2018/12/13		104	%	80 - 120
			Dissolved Cadmium (Cd)	2018/12/13		101	%	80 - 120
			Dissolved Calcium (Ca)	2018/12/13		NC	%	80 - 120
			Dissolved Chromium (Cr)	2018/12/13		98	%	80 - 120
			Dissolved Cobalt (Co)	2018/12/13		99	%	80 - 120
			Dissolved Copper (Cu)	2018/12/13		98	%	80 - 120
			Dissolved Iron (Fe)	2018/12/13		99	%	80 - 120
			Dissolved Lead (Pb)	2018/12/13		97	%	80 - 120
			Dissolved Magnesium (Mg)	2018/12/13		103	%	80 - 120
			Dissolved Manganese (Mn)	2018/12/13		NC	%	80 - 120
			Dissolved Molybdenum (Mo)	2018/12/13		105	%	80 - 120
			Dissolved Nickel (Ni)	2018/12/13		101	%	80 - 120
			Dissolved Phosphorus (P)	2018/12/13		105	%	80 - 120
			Dissolved Potassium (K)	2018/12/13		101	%	80 - 120
			Dissolved Selenium (Se)	2018/12/13		95	%	80 - 120
			Dissolved Silver (Ag)	2018/12/13		51 (1)	%	80 - 120
			Dissolved Sodium (Na)	2018/12/13		NC	%	80 - 120
			Dissolved Strontium (Sr)	2018/12/13		NC	%	80 - 120
			Dissolved Thallium (Tl)	2018/12/13		99	%	80 - 120
			Dissolved Tin (Sn)	2018/12/13		102	%	80 - 120
			Dissolved Titanium (Ti)	2018/12/13		102	%	80 - 120
			Dissolved Uranium (U)	2018/12/13		106	%	80 - 120
			Dissolved Vanadium (V)	2018/12/13		102	%	80 - 120
			Dissolved Zinc (Zn)	2018/12/13		108	%	80 - 120
5881970	BAN	Spiked Blank	Dissolved Aluminum (Al)	2018/12/12		99	%	80 - 120
			Dissolved Antimony (Sb)	2018/12/12		99	%	80 - 120
			Dissolved Arsenic (As)	2018/12/12		98	%	80 - 120
			Dissolved Barium (Ba)	2018/12/12		101	%	80 - 120

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QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Dissolved Beryllium (Be)	2018/12/12		103	%	80 - 120
			Dissolved Bismuth (Bi)	2018/12/12		104	%	80 - 120
			Dissolved Boron (B)	2018/12/12		103	%	80 - 120
			Dissolved Cadmium (Cd)	2018/12/12		101	%	80 - 120
			Dissolved Calcium (Ca)	2018/12/12		101	%	80 - 120
			Dissolved Chromium (Cr)	2018/12/12		99	%	80 - 120
			Dissolved Cobalt (Co)	2018/12/12		99	%	80 - 120
			Dissolved Copper (Cu)	2018/12/12		97	%	80 - 120
			Dissolved Iron (Fe)	2018/12/12		99	%	80 - 120
			Dissolved Lead (Pb)	2018/12/12		99	%	80 - 120
			Dissolved Magnesium (Mg)	2018/12/12		102	%	80 - 120
			Dissolved Manganese (Mn)	2018/12/12		99	%	80 - 120
			Dissolved Molybdenum (Mo)	2018/12/12		100	%	80 - 120
			Dissolved Nickel (Ni)	2018/12/12		101	%	80 - 120
			Dissolved Phosphorus (P)	2018/12/12		104	%	80 - 120
			Dissolved Potassium (K)	2018/12/12		100	%	80 - 120
			Dissolved Selenium (Se)	2018/12/12		101	%	80 - 120
			Dissolved Silver (Ag)	2018/12/12		100	%	80 - 120
			Dissolved Sodium (Na)	2018/12/12		99	%	80 - 120
			Dissolved Strontium (Sr)	2018/12/12		101	%	80 - 120
			Dissolved Thallium (Tl)	2018/12/12		101	%	80 - 120
			Dissolved Tin (Sn)	2018/12/12		102	%	80 - 120
			Dissolved Titanium (Ti)	2018/12/12		100	%	80 - 120
			Dissolved Uranium (U)	2018/12/12		106	%	80 - 120
			Dissolved Vanadium (V)	2018/12/12		103	%	80 - 120
			Dissolved Zinc (Zn)	2018/12/12		99	%	80 - 120
5881970	BAN	Method Blank	Dissolved Aluminum (Al)	2018/12/12	<5.0		ug/L	
			Dissolved Antimony (Sb)	2018/12/12	<1.0		ug/L	
			Dissolved Arsenic (As)	2018/12/12	<1.0		ug/L	
			Dissolved Barium (Ba)	2018/12/12	<1.0		ug/L	
			Dissolved Beryllium (Be)	2018/12/12	<1.0		ug/L	
			Dissolved Bismuth (Bi)	2018/12/12	<2.0		ug/L	
			Dissolved Boron (B)	2018/12/12	<50		ug/L	
			Dissolved Cadmium (Cd)	2018/12/12	<0.010		ug/L	
			Dissolved Calcium (Ca)	2018/12/12	<100		ug/L	
			Dissolved Chromium (Cr)	2018/12/12	<1.0		ug/L	
			Dissolved Cobalt (Co)	2018/12/12	<0.40		ug/L	
			Dissolved Copper (Cu)	2018/12/12	<2.0		ug/L	
			Dissolved Iron (Fe)	2018/12/12	<50		ug/L	
			Dissolved Lead (Pb)	2018/12/12	<0.50		ug/L	
			Dissolved Magnesium (Mg)	2018/12/12	<100		ug/L	
			Dissolved Manganese (Mn)	2018/12/12	<2.0		ug/L	
			Dissolved Molybdenum (Mo)	2018/12/12	<2.0		ug/L	
			Dissolved Nickel (Ni)	2018/12/12	<2.0		ug/L	
			Dissolved Phosphorus (P)	2018/12/12	<100		ug/L	
			Dissolved Potassium (K)	2018/12/12	<100		ug/L	
			Dissolved Selenium (Se)	2018/12/12	<1.0		ug/L	
			Dissolved Silver (Ag)	2018/12/12	<0.10		ug/L	
			Dissolved Sodium (Na)	2018/12/12	<100		ug/L	
			Dissolved Strontium (Sr)	2018/12/12	<2.0		ug/L	
			Dissolved Thallium (Tl)	2018/12/12	<0.10		ug/L	
			Dissolved Tin (Sn)	2018/12/12	<2.0		ug/L	
			Dissolved Titanium (Ti)	2018/12/12	<2.0		ug/L	
			Dissolved Uranium (U)	2018/12/12	<0.10		ug/L	

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QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Dissolved Vanadium (V)	2018/12/12	<2.0		ug/L	
			Dissolved Zinc (Zn)	2018/12/12	<5.0		ug/L	
5881970	BAN	RPD [IMC067-02]	Dissolved Aluminum (Al)	2018/12/12	2.8		%	20
			Dissolved Antimony (Sb)	2018/12/12	NC		%	20
			Dissolved Arsenic (As)	2018/12/12	NC		%	20
			Dissolved Barium (Ba)	2018/12/12	0.87		%	20
			Dissolved Beryllium (Be)	2018/12/12	NC		%	20
			Dissolved Bismuth (Bi)	2018/12/12	NC		%	20
			Dissolved Boron (B)	2018/12/12	NC		%	20
			Dissolved Cadmium (Cd)	2018/12/12	NC		%	20
			Dissolved Calcium (Ca)	2018/12/12	0.92		%	20
			Dissolved Chromium (Cr)	2018/12/12	NC		%	20
			Dissolved Cobalt (Co)	2018/12/12	NC		%	20
			Dissolved Copper (Cu)	2018/12/12	NC		%	20
			Dissolved Iron (Fe)	2018/12/12	0.17		%	20
			Dissolved Lead (Pb)	2018/12/12	NC		%	20
			Dissolved Magnesium (Mg)	2018/12/12	0.015		%	20
			Dissolved Manganese (Mn)	2018/12/12	0.33		%	20
			Dissolved Molybdenum (Mo)	2018/12/12	NC		%	20
			Dissolved Nickel (Ni)	2018/12/12	NC		%	20
			Dissolved Phosphorus (P)	2018/12/12	2.6		%	20
			Dissolved Potassium (K)	2018/12/12	0.093		%	20
			Dissolved Selenium (Se)	2018/12/12	NC		%	20
			Dissolved Silver (Ag)	2018/12/12	NC		%	20
			Dissolved Sodium (Na)	2018/12/12	0.26		%	20
			Dissolved Strontium (Sr)	2018/12/12	0.18		%	20
			Dissolved Thallium (Tl)	2018/12/12	NC		%	20
			Dissolved Tin (Sn)	2018/12/12	NC		%	20
			Dissolved Titanium (Ti)	2018/12/12	NC		%	20
			Dissolved Uranium (U)	2018/12/12	NC		%	20
			Dissolved Vanadium (V)	2018/12/12	NC		%	20
			Dissolved Zinc (Zn)	2018/12/12	NC		%	20
5883755	CCR	Matrix Spike [IMC066-04]	Total Mercury (Hg)	2018/12/13		113	%	80 - 120
5883755	CCR	Spiked Blank	Total Mercury (Hg)	2018/12/13		109	%	80 - 120
5883755	CCR	Method Blank	Total Mercury (Hg)	2018/12/13	<0.013		ug/L	
5883755	CCR	RPD [IMC065-04]	Total Mercury (Hg)	2018/12/13	NC		%	20
5886644	HM2	Matrix Spike	Total Organic Carbon (C)	2018/12/15		106	%	85 - 115
5886644	HM2	Spiked Blank	Total Organic Carbon (C)	2018/12/15		101	%	80 - 120
5886644	HM2	Method Blank	Total Organic Carbon (C)	2018/12/15	<0.50		mg/L	
5886644	HM2	RPD	Total Organic Carbon (C)	2018/12/15	1.4		%	15
5888741	KMC	Matrix Spike [IMC065-03]	Total Organic Carbon (C)	2018/12/16		101	%	85 - 115
5888741	KMC	Spiked Blank	Total Organic Carbon (C)	2018/12/15		102	%	80 - 120
5888741	KMC	Method Blank	Total Organic Carbon (C)	2018/12/15	<0.50		mg/L	
5888741	KMC	RPD [IMC065-03]	Total Organic Carbon (C)	2018/12/15	4.0 (2)		%	15
5888773	KMC	Matrix Spike	Total Organic Carbon (C)	2018/12/16		105	%	85 - 115
5888773	KMC	Spiked Blank	Total Organic Carbon (C)	2018/12/16		101	%	80 - 120
5888773	KMC	Method Blank	Total Organic Carbon (C)	2018/12/16	<0.50		mg/L	

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Maxxam Job #: B8W5929
Report Date: 2018/12/17

Dillon Consulting Limited
Client Project #: 14-1360
Site Location: OH PARK / HARBOURSIDE EAST

QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
5888773	KMC	RPD	Total Organic Carbon (C)	2018/12/16	1.4		%	15

N/A = Not Applicable

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

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

QC Standard: A sample of known concentration prepared by an external agency under stringent conditions. Used as an independent check of method accuracy.

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

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

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

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

(1) Low recovery due to sample matrix. Result verified by repeat analysis.

(2) Elevated reporting limit due to sample matrix.

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Maxxam Job #: B8W5929
Report Date: 2018/12/17

Dillon Consulting Limited
Client Project #: 14-1360
Site Location: OH PARK / HARBOURSIDE EAST

VALIDATION SIGNATURE PAGE

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

Mike MacGillivray, Scientific Specialist (Inorganics)

Rosemarie MacDonald, Scientific Specialist (Organics)

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

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Your Project #: 14-1360
Site Location: OH PARK / HARBOURSIDE EAST

Attention: Nadine Wambolt

Dillon Consulting Limited
275 Charlotte St
Sydney, NS
CANADA B1P 1C6

Report Date: 2018/12/18
Report #: R5530619
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B8W8211
Received: 2018/12/07, 16:35

Sample Matrix: Water
Samples Received: 7

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Reference
Carbonate, Bicarbonate and Hydroxide (1)	1	N/A	2018/12/13	N/A	SM 23 4500-CO2 D
Carbonate, Bicarbonate and Hydroxide (1)	4	N/A	2018/12/14	N/A	SM 23 4500-CO2 D
Carbonate, Bicarbonate and Hydroxide (1)	2	N/A	2018/12/17	N/A	SM 23 4500-CO2 D
Alkalinity (1)	5	N/A	2018/12/14	ATL SOP 00013	EPA 310.2 R1974 m
Alkalinity (1)	2	N/A	2018/12/17	ATL SOP 00013	EPA 310.2 R1974 m
Benzo(b/j)fluoranthene Sum (water) (1)	7	N/A	2018/12/14	N/A	Auto Calc.
Chloride (1)	5	N/A	2018/12/14	ATL SOP 00014	SM 23 4500-Cl- E m
Chloride (1)	1	N/A	2018/12/17	ATL SOP 00014	SM 23 4500-Cl- E m
Chloride (1)	1	N/A	2018/12/18	ATL SOP 00014	SM 23 4500-Cl- E m
Colour (1)	5	N/A	2018/12/14	ATL SOP 00020	SM 23 2120C m
Colour (1)	2	N/A	2018/12/17	ATL SOP 00020	SM 23 2120C m
Conductance - water (1)	1	N/A	2018/12/13	ATL SOP 00004	SM 23 2510B m
Conductance - water (1)	4	N/A	2018/12/14	ATL SOP 00004	SM 23 2510B m
Conductance - water (1)	2	N/A	2018/12/17	ATL SOP 00004	SM 23 2510B m
Hardness (calculated as CaCO3) (1)	5	N/A	2018/12/17	ATL SOP 00048	Auto Calc
Hardness (calculated as CaCO3) (1)	2	N/A	2018/12/18	ATL SOP 00048	Auto Calc
Mercury - Total (CVAA,LL) (1)	7	2018/12/14	2018/12/17	ATL SOP 00026	EPA 245.1 R3 m
Metals Water Diss. MS (as rec'd) (1)	5	N/A	2018/12/14	ATL SOP 00058	EPA 6020A R1 m
Metals Water Diss. MS (as rec'd) (1)	2	N/A	2018/12/17	ATL SOP 00058	EPA 6020A R1 m
Ion Balance (% Difference) (1)	7	N/A	2018/12/18	N/A	Auto Calc.
Anion and Cation Sum (1)	1	N/A	2018/12/17	N/A	Auto Calc.
Anion and Cation Sum (1)	6	N/A	2018/12/18	N/A	Auto Calc.
Nitrogen Ammonia - water (1)	1	N/A	2018/12/14	ATL SOP 00015	EPA 350.1 R2 m
Nitrogen Ammonia - water (1)	6	N/A	2018/12/17	ATL SOP 00015	EPA 350.1 R2 m
Nitrogen - Nitrate + Nitrite (1)	5	N/A	2018/12/17	ATL SOP 00016	USGS I-2547-11m
Nitrogen - Nitrate + Nitrite (1)	2	N/A	2018/12/18	ATL SOP 00016	USGS I-2547-11m
Nitrogen - Nitrite (1)	5	N/A	2018/12/14	ATL SOP 00017	SM 23 4500-NO2- B m
Nitrogen - Nitrite (1)	2	N/A	2018/12/17	ATL SOP 00017	SM 23 4500-NO2- B m
Nitrogen - Nitrate (as N) (1)	5	N/A	2018/12/17	ATL SOP 00018	ASTM D3867-16
Nitrogen - Nitrate (as N) (1)	2	N/A	2018/12/18	ATL SOP 00018	ASTM D3867-16
PAH in Water by GC/MS (SIM) (1)	7	2018/12/12	2018/12/13	ATL SOP 00103	EPA 8270D 2014 m
pH (1, 2)	1	N/A	2018/12/13	ATL SOP 00003	SM 23 4500-H+ B m

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Your Project #: 14-1360
Site Location: OH PARK / HARBOURSIDE EAST

Attention: Nadine Wambolt

Dillon Consulting Limited
275 Charlotte St
Sydney, NS
CANADA B1P 1C6

Report Date: 2018/12/18
Report #: R5530619
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B8W8211
Received: 2018/12/07, 16:35

Sample Matrix: Water
Samples Received: 7

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Reference
pH (1, 2)	4	N/A	2018/12/14	ATL SOP 00003	SM 23 4500-H+ B m
pH (1, 2)	2	N/A	2018/12/17	ATL SOP 00003	SM 23 4500-H+ B m
Phosphorus - ortho (1)	5	N/A	2018/12/14	ATL SOP 00021	SM 23 4500-P E m
Phosphorus - ortho (1)	2	N/A	2018/12/17	ATL SOP 00021	SM 23 4500-P E m
Sat. pH and Langelier Index (@ 20C) (1)	7	N/A	2018/12/18	ATL SOP 00049	Auto Calc.
Sat. pH and Langelier Index (@ 4C) (1)	7	N/A	2018/12/18	ATL SOP 00049	Auto Calc.
Reactive Silica (1)	7	N/A	2018/12/17	ATL SOP 00022	EPA 366.0 m
Sulphate (1)	5	N/A	2018/12/17	ATL SOP 00023	ASTM D516-16 m
Sulphate (1)	2	N/A	2018/12/18	ATL SOP 00023	ASTM D516-16 m
Total Dissolved Solids (TDS calc) (1)	7	N/A	2018/12/18	N/A	Auto Calc.
Organic carbon - Total (TOC) (1, 3)	1	N/A	2018/12/17	ATL SOP 00203	SM 23 5310B m
Organic carbon - Total (TOC) (1, 3)	6	N/A	2018/12/18	ATL SOP 00203	SM 23 5310B m
Turbidity (1)	1	N/A	2018/12/14	ATL SOP 00011	EPA 180.1 R2 m
Turbidity (1)	4	N/A	2018/12/17	ATL SOP 00011	EPA 180.1 R2 m
Turbidity (1)	2	N/A	2018/12/18	ATL SOP 00011	EPA 180.1 R2 m

Remarks:

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

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

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

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

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Your Project #: 14-1360
Site Location: OH PARK / HARBOURSIDE EAST

Attention: Nadine Wambolt

Dillon Consulting Limited
275 Charlotte St
Sydney, NS
CANADA B1P 1C6

Report Date: 2018/12/18
Report #: R5530619
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B8W8211
Received: 2018/12/07, 16:35

Results relate to samples tested. When sampling is not conducted by Maxxam, results relate to the supplied samples tested.
This Certificate shall not be reproduced except in full, without the written approval of the laboratory.

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

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

(1) This test was performed by Maxxam Bedford
(2) The APHA Standard Method require pH to be analyzed within 15 minutes of sampling and therefore field analysis is required for compliance. All Laboratory pH analyses in this report are reported past the APHA Standard Method holding time.
(3) TOC / DOC present in the sample should be considered as non-purgeable TOC / DOC.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Natalie MacAskill, Key Account Specialist
Email: NMacAskill@maxxam.ca
Phone# (902)567-1255 Ext:17

==========

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Maxxam Job #: B8W8211
Report Date: 2018/12/18

Dillon Consulting Limited
Client Project #: 14-1360
Site Location: OH PARK / HARBOURSIDE EAST

RESULTS OF ANALYSES OF WATER

Maxxam ID		IMO333		IMO334			IMO335		
Sampling Date		2018/12/07		2018/12/07			2018/12/07		
	UNITS	MCWS-113-MWB	QC Batch	MCWS-306-MWB	RDL	QC Batch	MCWS-307-MWB	RDL	QC Batch
Calculated Parameters									
Anion Sum	me/L	8.30	5877080	6.93	N/A	5877080	14.1	N/A	5877080
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	330	5877076	240	1.0	5877076	330	1.0	5877076
Calculated TDS	mg/L	430	5877085	380	1.0	5877085	770	1.0	5877085
Carb. Alkalinity (calc. as CaCO3)	mg/L	1.2	5877076	<1.0	1.0	5877076	2.2	1.0	5877076
Cation Sum	me/L	7.70	5877080	6.47	N/A	5877080	13.0	N/A	5877080
Hardness (CaCO3)	mg/L	240	5877077	290	1.0	5877077	230	1.0	5877077
Ion Balance (% Difference)	%	3.75	5877079	3.43	N/A	5877079	4.07	N/A	5877079
Langelier Index (@ 20C)	N/A	0.544	5877082	0.444		5877082	0.709		5877082
Langelier Index (@ 4C)	N/A	0.295	5877083	0.196		5877083	0.462		5877083
Nitrate (N)	mg/L	<0.050	5876806	<0.050	0.050	5876806	0.058	0.050	5876806
Saturation pH (@ 20C)	N/A	7.05	5877082	7.12		5877082	7.14		5877082
Saturation pH (@ 4C)	N/A	7.30	5877083	7.37		5877083	7.39		5877083
Inorganics									
Total Alkalinity (Total as CaCO3)	mg/L	330	5886731	240	25	5886731	330	25	5891718
Dissolved Chloride (Cl-)	mg/L	60	5886734	14	1.0	5886734	210	2.0	5891725
Colour	TCU	8.8	5886738	<5.0	5.0	5886738	<5.0	5.0	5891730
Nitrate + Nitrite (N)	mg/L	<0.050	5886751	<0.050	0.050	5886751	0.058	0.050	5891734
Nitrite (N)	mg/L	<0.010	5886755	<0.010	0.010	5886755	<0.010	0.010	5891738
Nitrogen (Ammonia Nitrogen)	mg/L	1.4	5891629	0.063	0.050	5891629	0.083	0.050	5891629
Total Organic Carbon (C)	mg/L	7.5	5891913	1.9	0.50	5891913	1.1	0.50	5891913
Orthophosphate (P)	mg/L	<0.010	5886740	<0.010	0.010	5886740	<0.010	0.010	5891732
pH	pH	7.60	5886010	7.57	N/A	5888420	7.85	N/A	5891528
Reactive Silica (SiO2)	mg/L	10	5886737	13	0.50	5886737	10	0.50	5891729
Dissolved Sulphate (SO4)	mg/L	<2.0	5886735	87	2.0	5886735	82	2.0	5891726
Turbidity	NTU	5.6	5888482	1.3	0.10	5891555	0.67	0.10	5893907
Conductivity	uS/cm	740	5886011	610	1.0	5888424	1400	1.0	5891529

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable

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Maxxam Job #: B8W8211
Report Date: 2018/12/18

Dillon Consulting Limited
Client Project #: 14-1360
Site Location: OH PARK / HARBOURSIDE EAST

RESULTS OF ANALYSES OF WATER

Maxxam ID		IMO336			IMO337		IMO342		
Sampling Date		2018/12/07			2018/12/07		2018/12/07		
	UNITS	MCWS-309-MW	RDL	QC Batch	MCWS-310-MW	RDL	COBC-001-MWA	RDL	QC Batch
Calculated Parameters									
Anion Sum	me/L	5.45	N/A	5877080	0.880	N/A	10.1	N/A	5877080
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	160	1.0	5877076	16	1.0	160	1.0	5877076
Calculated TDS	mg/L	310	1.0	5877085	48	1.0	600	1.0	5877085
Carb. Alkalinity (calc. as CaCO3)	mg/L	<1.0	1.0	5877076	<1.0	1.0	<1.0	1.0	5877076
Cation Sum	me/L	4.74	N/A	5877080	0.720	N/A	9.36	N/A	5877080
Hardness (CaCO3)	mg/L	23	1.0	5877077	16	1.0	360	1.0	5877077
Ion Balance (% Difference)	%	6.97	N/A	5877079	10.0	N/A	3.90	N/A	5877079
Langelier Index (@ 20C)	N/A	-1.13		5877082	-2.70		0.0650		5877082
Langelier Index (@ 4C)	N/A	-1.38		5877083	-2.95		-0.182		5877083
Nitrate (N)	mg/L	0.24	0.050	5876806	0.17	0.050	<0.050	0.050	5876806
Saturation pH (@ 20C)	N/A	8.42		5877082	9.40		7.17		5877082
Saturation pH (@ 4C)	N/A	8.67		5877083	9.65		7.41		5877083
Inorganics									
Total Alkalinity (Total as CaCO3)	mg/L	160	25	5891718	16	5.0	160	25	5886731
Dissolved Chloride (Cl-)	mg/L	40	1.0	5891725	15	1.0	83	1.0	5886734
Colour	TCU	12	5.0	5891730	22	5.0	5.7	5.0	5886738
Nitrate + Nitrite (N)	mg/L	0.30	0.050	5891734	0.17	0.050	<0.050	0.050	5886751
Nitrite (N)	mg/L	0.060	0.010	5891738	<0.010	0.010	0.010	0.010	5886755
Nitrogen (Ammonia Nitrogen)	mg/L	0.43	0.050	5888570	<0.050	0.050	0.78	0.050	5891629
Total Organic Carbon (C)	mg/L	8.7 (1)	5.0	5888831	5.6 (1)	5.0	4.1	0.50	5891913
Orthophosphate (P)	mg/L	0.14	0.010	5891732	0.011	0.010	<0.010	0.010	5886740
pH	pH	7.29	N/A	5891523	6.70	N/A	7.23	N/A	5888426
Reactive Silica (SiO2)	mg/L	5.2	0.50	5891729	1.6	0.50	11	0.50	5886737
Dissolved Sulphate (SO4)	mg/L	51	2.0	5891726	5.9	2.0	220	10	5886735
Turbidity	NTU	240	1.0	5893907	24	0.10	61	0.10	5891551
Conductivity	uS/cm	540	1.0	5891525	93	1.0	920	1.0	5888427

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable
(1) Elevated reporting limit due to turbidity.

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Maxxam Job #: B8W8211
Report Date: 2018/12/18

Dillon Consulting Limited
Client Project #: 14-1360
Site Location: OH PARK / HARBOURSIDE EAST

RESULTS OF ANALYSES OF WATER

Maxxam ID		IMO343		
Sampling Date		2018/12/07		
	UNITS	SCU7-001-MW	RDL	QC Batch
Calculated Parameters				
Anion Sum	me/L	31.0	N/A	5877080
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	180	1.0	5877076
Calculated TDS	mg/L	2000	1.0	5877085
Carb. Alkalinity (calc. as CaCO3)	mg/L	<1.0	1.0	5877076
Cation Sum	me/L	29.6	N/A	5877080
Hardness (CaCO3)	mg/L	1400	1.0	5877077
Ion Balance (% Difference)	%	2.28	N/A	5877079
Langelier Index (@ 20C)	N/A	0.554		5877082
Langelier Index (@ 4C)	N/A	0.311		5877083
Nitrate (N)	mg/L	<0.050	0.050	5876806
Saturation pH (@ 20C)	N/A	6.67		5877082
Saturation pH (@ 4C)	N/A	6.91		5877083
Inorganics				
Total Alkalinity (Total as CaCO3)	mg/L	180	25	5886731
Dissolved Chloride (Cl-)	mg/L	170	1.0	5886734
Colour	TCU	<5.0	5.0	5886738
Nitrate + Nitrite (N)	mg/L	<0.050	0.050	5886751
Nitrite (N)	mg/L	<0.010	0.010	5886755
Nitrogen (Ammonia Nitrogen)	mg/L	0.12	0.050	5891629
Total Organic Carbon (C)	mg/L	1.3	0.50	5891913
Orthophosphate (P)	mg/L	<0.010	0.010	5886740
pH	pH	7.22	N/A	5888420
Reactive Silica (SiO2)	mg/L	15	0.50	5886737
Dissolved Sulphate (SO4)	mg/L	1100	40	5886735
Turbidity	NTU	2.7	0.10	5891555
Conductivity	uS/cm	2300	1.0	5888424

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable

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Maxxam Job #: B8W8211
Report Date: 2018/12/18

Dillon Consulting Limited
Client Project #: 14-1360
Site Location: OH PARK / HARBOURSIDE EAST

MERCURY BY COLD VAPOUR AA (WATER)

Maxxam ID		IMO333	IMO334	IMO335	IMO336	IMO337		
Sampling Date		2018/12/07	2018/12/07	2018/12/07	2018/12/07	2018/12/07		
	UNITS	MCWS-113-MWB	MCWS-306-MWB	MCWS-307-MWB	MCWS-309-MW	MCWS-310-MW	RDL	QC Batch
Metals								
Total Mercury (Hg)	ug/L	<0.013	<0.013	<0.013	<0.013	<0.013	0.013	5888897

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam ID		IMO342	IMO343		
Sampling Date		2018/12/07	2018/12/07		
	UNITS	COBC-001-MWA	SCU7-001-MW	RDL	QC Batch
Metals					
Total Mercury (Hg)	ug/L	<0.013	<0.013	0.013	5888897

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Report Date: 2018/12/18

Dillon Consulting Limited
Client Project #: 14-1360
Site Location: OH PARK / HARBOURSIDE EAST

ELEMENTS BY ICP/MS (WATER)

Maxxam ID		IMO333	IMO334	IMO335	IMO336	IMO337		
Sampling Date		2018/12/07	2018/12/07	2018/12/07	2018/12/07	2018/12/07		
	UNITS	MCWS-113-MWB	MCWS-306-MWB	MCWS-307-MWB	MCWS-309-MW	MCWS-310-MW	RDL	QC Batch
Metals								
Dissolved Aluminum (Al)	ug/L	6.6	7.7	<5.0	72	85	5.0	5888507
Dissolved Antimony (Sb)	ug/L	<1.0	<1.0	<1.0	<1.0	<1.0	1.0	5888507
Dissolved Arsenic (As)	ug/L	<1.0	<1.0	<1.0	3.1	<1.0	1.0	5888507
Dissolved Barium (Ba)	ug/L	210	88	32	11	11	1.0	5888507
Dissolved Beryllium (Be)	ug/L	<1.0	<1.0	<1.0	<1.0	<1.0	1.0	5888507
Dissolved Bismuth (Bi)	ug/L	<2.0	<2.0	<2.0	<2.0	<2.0	2.0	5888507
Dissolved Boron (B)	ug/L	290	60	120	220	<50	50	5888507
Dissolved Cadmium (Cd)	ug/L	0.043	0.27	0.039	0.011	0.037	0.010	5888507
Dissolved Calcium (Ca)	ug/L	76000	89000	73000	6100	4900	100	5888507
Dissolved Chromium (Cr)	ug/L	<1.0	<1.0	<1.0	<1.0	<1.0	1.0	5888507
Dissolved Cobalt (Co)	ug/L	<0.40	0.90	<0.40	0.74	<0.40	0.40	5888507
Dissolved Copper (Cu)	ug/L	<2.0	<2.0	<2.0	<2.0	<2.0	2.0	5888507
Dissolved Iron (Fe)	ug/L	2100	<50	<50	320	<50	50	5888507
Dissolved Lead (Pb)	ug/L	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	5888507
Dissolved Magnesium (Mg)	ug/L	12000	18000	11000	1800	860	100	5888507
Dissolved Manganese (Mn)	ug/L	3600	1700	130	1400	2.9	2.0	5888507
Dissolved Molybdenum (Mo)	ug/L	<2.0	<2.0	<2.0	3.2	<2.0	2.0	5888507
Dissolved Nickel (Ni)	ug/L	<2.0	2.3	<2.0	<2.0	<2.0	2.0	5888507
Dissolved Phosphorus (P)	ug/L	310	<100	<100	230	<100	100	5888507
Dissolved Potassium (K)	ug/L	6700	2500	2000	6300	940	100	5888507
Dissolved Selenium (Se)	ug/L	<1.0	<1.0	<1.0	<1.0	<1.0	1.0	5888507
Dissolved Silver (Ag)	ug/L	<0.10	<0.10	<0.10	<0.10	<0.10	0.10	5888507
Dissolved Sodium (Na)	ug/L	58000	12000	190000	94000	8800	100	5888507
Dissolved Strontium (Sr)	ug/L	350	220	310	21	65	2.0	5888507
Dissolved Thallium (Tl)	ug/L	<0.10	<0.10	<0.10	<0.10	<0.10	0.10	5888507
Dissolved Tin (Sn)	ug/L	<2.0	<2.0	<2.0	<2.0	<2.0	2.0	5888507
Dissolved Titanium (Ti)	ug/L	<2.0	<2.0	<2.0	3.3	<2.0	2.0	5888507
Dissolved Uranium (U)	ug/L	<0.10	1.0	1.1	<0.10	<0.10	0.10	5888507
Dissolved Vanadium (V)	ug/L	<2.0	<2.0	<2.0	<2.0	<2.0	2.0	5888507
Dissolved Zinc (Zn)	ug/L	<5.0	76	8.7	13	130	5.0	5888507

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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ELEMENTS BY ICP/MS (WATER)

Maxxam ID		IMO342		IMO343		
Sampling Date		2018/12/07		2018/12/07		
	UNITS	COBC-001-MWA	RDL	SCU7-001-MW	RDL	QC Batch
Metals						
Dissolved Aluminum (Al)	ug/L	<5.0	5.0	<5.0	5.0	5888507
Dissolved Antimony (Sb)	ug/L	<1.0	1.0	<1.0	1.0	5888507
Dissolved Arsenic (As)	ug/L	2.3	1.0	<1.0	1.0	5888507
Dissolved Barium (Ba)	ug/L	76	1.0	23	1.0	5888507
Dissolved Beryllium (Be)	ug/L	<1.0	1.0	<1.0	1.0	5888507
Dissolved Bismuth (Bi)	ug/L	<2.0	2.0	<2.0	2.0	5888507
Dissolved Boron (B)	ug/L	<50	50	<50	50	5888507
Dissolved Cadmium (Cd)	ug/L	<0.010	0.010	0.091	0.010	5888507
Dissolved Calcium (Ca)	ug/L	130000	100	520000	100	5888507
Dissolved Chromium (Cr)	ug/L	<1.0	1.0	<1.0	1.0	5888507
Dissolved Cobalt (Co)	ug/L	0.47	0.40	<0.40	0.40	5888507
Dissolved Copper (Cu)	ug/L	<2.0	2.0	<2.0	2.0	5888507
Dissolved Iron (Fe)	ug/L	4900	50	65	50	5888507
Dissolved Lead (Pb)	ug/L	<0.50	0.50	<0.50	0.50	5888507
Dissolved Magnesium (Mg)	ug/L	7800	100	15000	100	5888507
Dissolved Manganese (Mn)	ug/L	1400	2.0	2500	2.0	5888507
Dissolved Molybdenum (Mo)	ug/L	<2.0	2.0	<2.0	2.0	5888507
Dissolved Nickel (Ni)	ug/L	<2.0	2.0	2.2	2.0	5888507
Dissolved Phosphorus (P)	ug/L	150	100	<100	100	5888507
Dissolved Potassium (K)	ug/L	2400	100	2300	100	5888507
Dissolved Selenium (Se)	ug/L	<1.0	1.0	<1.0	1.0	5888507
Dissolved Silver (Ag)	ug/L	<0.10	0.10	<0.10	0.10	5888507
Dissolved Sodium (Na)	ug/L	42000	100	51000	100	5888507
Dissolved Strontium (Sr)	ug/L	3700	2.0	12000	20	5888507
Dissolved Thallium (Tl)	ug/L	<0.10	0.10	<0.10	0.10	5888507
Dissolved Tin (Sn)	ug/L	<2.0	2.0	<2.0	2.0	5888507
Dissolved Titanium (Ti)	ug/L	<2.0	2.0	<2.0	2.0	5888507
Dissolved Uranium (U)	ug/L	<0.10	0.10	2.9	0.10	5888507
Dissolved Vanadium (V)	ug/L	<2.0	2.0	<2.0	2.0	5888507
Dissolved Zinc (Zn)	ug/L	29	5.0	<5.0	5.0	5888507

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B8W8211
Report Date: 2018/12/18

Dillon Consulting Limited
Client Project #: 14-1360
Site Location: OH PARK / HARBOURSIDE EAST

SEMI-VOLATILE ORGANICS BY GC-MS (WATER)

Maxxam ID		IMO333	IMO334	IMO335	IMO336	IMO337		
Sampling Date		2018/12/07	2018/12/07	2018/12/07	2018/12/07	2018/12/07		
	UNITS	MCWS-113-MWB	MCWS-306-MWB	MCWS-307-MWB	MCWS-309-MW	MCWS-310-MW	RDL	QC Batch
Polyaromatic Hydrocarbons								
1-Methylnaphthalene	ug/L	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5884745
2-Methylnaphthalene	ug/L	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5884745
Acenaphthene	ug/L	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	5884745
Acenaphthylene	ug/L	0.011	<0.010	<0.010	0.012	<0.010	0.010	5884745
Anthracene	ug/L	<0.010	<0.010	<0.010	0.020	<0.010	0.010	5884745
Benzo(a)anthracene	ug/L	<0.010	<0.010	<0.010	0.045	<0.010	0.010	5884745
Benzo(a)pyrene	ug/L	<0.010	<0.010	<0.010	0.043	<0.010	0.010	5884745
Benzo(b)fluoranthene	ug/L	<0.010	<0.010	<0.010	0.035	<0.010	0.010	5884745
Benzo(b/j)fluoranthene	ug/L	<0.020	<0.020	<0.020	0.057	<0.020	0.020	5876687
Benzo(g,h,i)perylene	ug/L	<0.010	<0.010	<0.010	0.026	<0.010	0.010	5884745
Benzo(j)fluoranthene	ug/L	<0.010	<0.010	<0.010	0.022	<0.010	0.010	5884745
Benzo(k)fluoranthene	ug/L	<0.010	<0.010	<0.010	0.024	<0.010	0.010	5884745
Chrysene	ug/L	<0.010	<0.010	<0.010	0.045	<0.010	0.010	5884745
Dibenz(a,h)anthracene	ug/L	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	5884745
Fluoranthene	ug/L	<0.010	<0.010	<0.010	0.14	<0.010	0.010	5884745
Fluorene	ug/L	0.010	<0.010	<0.010	0.016	<0.010	0.010	5884745
Indeno(1,2,3-cd)pyrene	ug/L	<0.010	<0.010	<0.010	0.024	<0.010	0.010	5884745
Naphthalene	ug/L	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	5884745
Perylene	ug/L	<0.010	<0.010	<0.010	0.013	<0.010	0.010	5884745
Phenanthrene	ug/L	<0.010	<0.010	<0.010	0.059	<0.010	0.010	5884745
Pyrene	ug/L	0.16	<0.010	<0.010	0.11	<0.010	0.010	5884745
Surrogate Recovery (%)								
D10-Anthracene	%	17 (1)	95	94	82	82		5884745
D14-Terphenyl	%	82	92	91	81	72		5884745
D8-Acenaphthylene	%	6.3 (1)	93	95	83	81		5884745

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
(1) PAH surrogate(s) not within acceptance limits. Insufficient sample to repeat.

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Maxxam Job #: B8W8211
Report Date: 2018/12/18

Dillon Consulting Limited
Client Project #: 14-1360
Site Location: OH PARK / HARBOURSIDE EAST

SEMI-VOLATILE ORGANICS BY GC-MS (WATER)

Maxxam ID		IMO342	IMO343		
Sampling Date		2018/12/07	2018/12/07		
	UNITS	COBC-001-MWA	SCU7-001-MW	RDL	QC Batch
Polyaromatic Hydrocarbons					
1-Methylnaphthalene	ug/L	0.75	0.095	0.050	5884745
2-Methylnaphthalene	ug/L	0.47	0.12	0.050	5884745
Acenaphthene	ug/L	10	0.29	0.010	5884745
Acenaphthylene	ug/L	2.4	0.051	0.010	5884745
Anthracene	ug/L	0.043	0.035	0.010	5884745
Benzo(a)anthracene	ug/L	<0.010	<0.010	0.010	5884745
Benzo(a)pyrene	ug/L	<0.010	<0.010	0.010	5884745
Benzo(b)fluoranthene	ug/L	<0.010	<0.010	0.010	5884745
Benzo(b/j)fluoranthene	ug/L	<0.020	<0.020	0.020	5876687
Benzo(g,h,i)perylene	ug/L	<0.010	<0.010	0.010	5884745
Benzo(j)fluoranthene	ug/L	<0.010	<0.010	0.010	5884745
Benzo(k)fluoranthene	ug/L	<0.010	<0.010	0.010	5884745
Chrysene	ug/L	<0.010	<0.010	0.010	5884745
Dibenz(a,h)anthracene	ug/L	<0.010	<0.010	0.010	5884745
Fluoranthene	ug/L	0.097	0.024	0.010	5884745
Fluorene	ug/L	0.53	0.26	0.010	5884745
Indeno(1,2,3-cd)pyrene	ug/L	<0.010	<0.010	0.010	5884745
Naphthalene	ug/L	6.0	<0.20	0.20	5884745
Perylene	ug/L	<0.010	<0.010	0.010	5884745
Phenanthrene	ug/L	0.047	0.22	0.010	5884745
Pyrene	ug/L	0.065	0.017	0.010	5884745
Surrogate Recovery (%)					
D10-Anthracene	%	83	93		5884745
D14-Terphenyl	%	83	84		5884745
D8-Acenaphthylene	%	87	92		5884745

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Client Project #: 14-1360
Site Location: OH PARK / HARBOURSIDE EAST

GENERAL COMMENTS

Sample IMO336 [MCWS-309-MW] : Poor RCAp Ion Balance due to sample matrix. Cation sum does not include contribution from Mn.

Sample IMO337 [MCWS-310-MW] : RCAp Ion Balance acceptable. Anion/cation agreement within 0.2 meq/L.

Results relate only to the items tested.

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QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
5884745	LGE	Matrix Spike [IMO333-05]	D10-Anthracene	2018/12/13		21 (1)	%	50 - 130
			D14-Terphenyl	2018/12/13		85	%	50 - 130
			D8-Acenaphthylene	2018/12/13		7.9 (1)	%	50 - 130
			1-Methylnaphthalene	2018/12/13		3.2 (2)	%	50 - 130
			2-Methylnaphthalene	2018/12/13		3.9 (2)	%	50 - 130
			Acenaphthene	2018/12/13		10 (2)	%	50 - 130
			Acenaphthylene	2018/12/13		4.2 (2)	%	50 - 130
			Anthracene	2018/12/13		9.6 (2)	%	50 - 130
			Benzo(a)anthracene	2018/12/13		29 (2)	%	50 - 130
			Benzo(a)pyrene	2018/12/13		50	%	50 - 130
			Benzo(b)fluoranthene	2018/12/13		57	%	50 - 130
			Benzo(g,h,i)perylene	2018/12/13		43 (2)	%	50 - 130
			Benzo(j)fluoranthene	2018/12/13		52	%	50 - 130
			Benzo(k)fluoranthene	2018/12/13		57	%	50 - 130
			Chrysene	2018/12/13		25 (2)	%	50 - 130
			Dibenz(a,h)anthracene	2018/12/13		33 (2)	%	50 - 130
			Fluoranthene	2018/12/13		42 (2)	%	50 - 130
			Fluorene	2018/12/13		14 (2)	%	50 - 130
			Indeno(1,2,3-cd)pyrene	2018/12/13		44 (2)	%	50 - 130
			Naphthalene	2018/12/13		3.4 (2)	%	50 - 130
			Perylene	2018/12/13		47 (2)	%	50 - 130
			Phenanthrene	2018/12/13		5.9 (2)	%	50 - 130
			Pyrene	2018/12/13		55	%	50 - 130
5884745	LGE	Spiked Blank	D10-Anthracene	2018/12/13		86	%	50 - 130
			D14-Terphenyl	2018/12/13		89	%	50 - 130
			D8-Acenaphthylene	2018/12/13		92	%	50 - 130
			1-Methylnaphthalene	2018/12/13		91	%	50 - 130
			2-Methylnaphthalene	2018/12/13		93	%	50 - 130
			Acenaphthene	2018/12/13		96	%	50 - 130
			Acenaphthylene	2018/12/13		96	%	50 - 130
			Anthracene	2018/12/13		101	%	50 - 130
			Benzo(a)anthracene	2018/12/13		96	%	50 - 130
			Benzo(a)pyrene	2018/12/13		90	%	50 - 130
			Benzo(b)fluoranthene	2018/12/13		103	%	50 - 130
			Benzo(g,h,i)perylene	2018/12/13		81	%	50 - 130
			Benzo(j)fluoranthene	2018/12/13		95	%	50 - 130
			Benzo(k)fluoranthene	2018/12/13		97	%	50 - 130
			Chrysene	2018/12/13		96	%	50 - 130
			Dibenz(a,h)anthracene	2018/12/13		66	%	50 - 130
			Fluoranthene	2018/12/13		101	%	50 - 130
			Fluorene	2018/12/13		98	%	50 - 130
			Indeno(1,2,3-cd)pyrene	2018/12/13		85	%	50 - 130
			Naphthalene	2018/12/13		90	%	50 - 130
			Perylene	2018/12/13		87	%	50 - 130
			Phenanthrene	2018/12/13		104	%	50 - 130
			Pyrene	2018/12/13		100	%	50 - 130
5884745	LGE	Method Blank	D10-Anthracene	2018/12/13		81	%	50 - 130
			D14-Terphenyl	2018/12/13		88	%	50 - 130
			D8-Acenaphthylene	2018/12/13		91	%	50 - 130
			1-Methylnaphthalene	2018/12/13	<0.050		ug/L	
			2-Methylnaphthalene	2018/12/13	<0.050		ug/L	
			Acenaphthene	2018/12/13	<0.010		ug/L	
			Acenaphthylene	2018/12/13	<0.010		ug/L	
			Anthracene	2018/12/13	<0.010		ug/L	

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Benzo(a)anthracene	2018/12/13	<0.010		ug/L	
			Benzo(a)pyrene	2018/12/13	<0.010		ug/L	
			Benzo(b)fluoranthene	2018/12/13	<0.010		ug/L	
			Benzo(g,h,i)perylene	2018/12/13	<0.010		ug/L	
			Benzo(j)fluoranthene	2018/12/13	<0.010		ug/L	
			Benzo(k)fluoranthene	2018/12/13	<0.010		ug/L	
			Chrysene	2018/12/13	<0.010		ug/L	
			Dibenz(a,h)anthracene	2018/12/13	<0.010		ug/L	
			Fluoranthene	2018/12/13	<0.010		ug/L	
			Fluorene	2018/12/13	<0.010		ug/L	
			Indeno(1,2,3-cd)pyrene	2018/12/13	<0.010		ug/L	
			Naphthalene	2018/12/13	<0.20		ug/L	
			Perylene	2018/12/13	<0.010		ug/L	
			Phenanthrene	2018/12/13	<0.010		ug/L	
			Pyrene	2018/12/13	<0.010		ug/L	
5884745	LGE	RPD	1-Methylnaphthalene	2018/12/13	NC		%	40
			2-Methylnaphthalene	2018/12/13	NC		%	40
			Acenaphthene	2018/12/13	NC		%	40
			Acenaphthylene	2018/12/13	NC		%	40
			Anthracene	2018/12/13	NC		%	40
			Benzo(a)anthracene	2018/12/13	NC		%	40
			Benzo(a)pyrene	2018/12/13	NC		%	40
			Benzo(b)fluoranthene	2018/12/13	NC		%	40
			Benzo(g,h,i)perylene	2018/12/13	NC		%	40
			Benzo(j)fluoranthene	2018/12/13	NC		%	40
			Benzo(k)fluoranthene	2018/12/13	NC		%	40
			Chrysene	2018/12/13	NC		%	40
			Dibenz(a,h)anthracene	2018/12/13	NC		%	40
			Fluoranthene	2018/12/13	NC		%	40
			Fluorene	2018/12/13	NC		%	40
			Indeno(1,2,3-cd)pyrene	2018/12/13	NC		%	40
			Naphthalene	2018/12/13	NC		%	40
			Perylene	2018/12/13	NC		%	40
			Phenanthrene	2018/12/13	NC		%	40
			Pyrene	2018/12/13	NC		%	40
5886010	NHU	QC Standard	pH	2018/12/13		101	%	97 - 103
5886010	NHU	RPD	pH	2018/12/13	3.1		%	N/A
5886011	NHU	Spiked Blank	Conductivity	2018/12/13		101	%	80 - 120
5886011	NHU	Method Blank	Conductivity	2018/12/13	1.8, RDL=1.0		uS/cm	
5886011	NHU	RPD	Conductivity	2018/12/13	0		%	25
5886731	NRG	Matrix Spike	Total Alkalinity (Total as CaCO3)	2018/12/14		101	%	80 - 120
5886731	NRG	Spiked Blank	Total Alkalinity (Total as CaCO3)	2018/12/14		104	%	80 - 120
5886731	NRG	Method Blank	Total Alkalinity (Total as CaCO3)	2018/12/14	<5.0		mg/L	
5886731	NRG	RPD	Total Alkalinity (Total as CaCO3)	2018/12/14	1.8		%	25
5886734	NRG	Matrix Spike	Dissolved Chloride (Cl-)	2018/12/14		NC	%	80 - 120
5886734	NRG	QC Standard	Dissolved Chloride (Cl-)	2018/12/14		107	%	80 - 120
5886734	NRG	Spiked Blank	Dissolved Chloride (Cl-)	2018/12/14		98	%	80 - 120
5886734	NRG	Method Blank	Dissolved Chloride (Cl-)	2018/12/14	<1.0		mg/L	
5886734	NRG	RPD	Dissolved Chloride (Cl-)	2018/12/14	0.40		%	25
5886735	NRG	Matrix Spike	Dissolved Sulphate (SO4)	2018/12/17		95	%	80 - 120
5886735	NRG	Spiked Blank	Dissolved Sulphate (SO4)	2018/12/17		101	%	80 - 120
5886735	NRG	Method Blank	Dissolved Sulphate (SO4)	2018/12/17	<2.0		mg/L	
5886735	NRG	RPD	Dissolved Sulphate (SO4)	2018/12/17	0.73		%	25

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
5886737	NRG	Matrix Spike	Reactive Silica (SiO2)	2018/12/17		NC	%	80 - 120
5886737	NRG	Spiked Blank	Reactive Silica (SiO2)	2018/12/17		99	%	80 - 120
5886737	NRG	Method Blank	Reactive Silica (SiO2)	2018/12/17	<0.50		mg/L	
5886737	NRG	RPD	Reactive Silica (SiO2)	2018/12/17	0.28		%	25
5886738	NRG	Spiked Blank	Colour	2018/12/14		111	%	80 - 120
5886738	NRG	Method Blank	Colour	2018/12/14	<5.0		TCU	
5886738	NRG	RPD	Colour	2018/12/14	6.7		%	20
5886740	NRG	Matrix Spike	Orthophosphate (P)	2018/12/14		89	%	80 - 120
5886740	NRG	Spiked Blank	Orthophosphate (P)	2018/12/14		99	%	80 - 120
5886740	NRG	Method Blank	Orthophosphate (P)	2018/12/14	<0.010		mg/L	
5886740	NRG	RPD	Orthophosphate (P)	2018/12/14	NC		%	25
5886751	NRG	Matrix Spike	Nitrate + Nitrite (N)	2018/12/17		95	%	80 - 120
5886751	NRG	Spiked Blank	Nitrate + Nitrite (N)	2018/12/17		97	%	80 - 120
5886751	NRG	Method Blank	Nitrate + Nitrite (N)	2018/12/17	<0.050		mg/L	
5886751	NRG	RPD	Nitrate + Nitrite (N)	2018/12/17	NC		%	25
5886755	NRG	Matrix Spike	Nitrite (N)	2018/12/14		95	%	80 - 120
5886755	NRG	Spiked Blank	Nitrite (N)	2018/12/14		100	%	80 - 120
5886755	NRG	Method Blank	Nitrite (N)	2018/12/14	<0.010		mg/L	
5886755	NRG	RPD	Nitrite (N)	2018/12/14	NC		%	20
5888420	NHU	QC Standard	pH	2018/12/14		100	%	97 - 103
5888420	NHU	RPD	pH	2018/12/14	3.7		%	N/A
5888424	NHU	Spiked Blank	Conductivity	2018/12/14		103	%	80 - 120
5888424	NHU	Method Blank	Conductivity	2018/12/14	1.7, RDL=1.0		uS/cm	
5888424	NHU	RPD	Conductivity	2018/12/14	11		%	25
5888426	NHU	QC Standard	pH	2018/12/14		100	%	97 - 103
5888426	NHU	RPD	pH	2018/12/14	0.15		%	N/A
5888427	NHU	Spiked Blank	Conductivity	2018/12/14		101	%	80 - 120
5888427	NHU	Method Blank	Conductivity	2018/12/14	1.7, RDL=1.0		uS/cm	
5888427	NHU	RPD	Conductivity	2018/12/14	0.50		%	25
5888482	NHU	QC Standard	Turbidity	2018/12/14		96	%	80 - 120
5888482	NHU	Spiked Blank	Turbidity	2018/12/14		97	%	80 - 120
5888482	NHU	Method Blank	Turbidity	2018/12/14	<0.10		NTU	
5888482	NHU	RPD	Turbidity	2018/12/14	3.3		%	20
5888507	MLB	Matrix Spike [IMO336-02]	Dissolved Aluminum (Al)	2018/12/14		93	%	80 - 120
			Dissolved Antimony (Sb)	2018/12/14		99	%	80 - 120
			Dissolved Arsenic (As)	2018/12/14		100	%	80 - 120
			Dissolved Barium (Ba)	2018/12/14		98	%	80 - 120
			Dissolved Beryllium (Be)	2018/12/14		104	%	80 - 120
			Dissolved Bismuth (Bi)	2018/12/14		86	%	80 - 120
			Dissolved Boron (B)	2018/12/14		103	%	80 - 120
			Dissolved Cadmium (Cd)	2018/12/14		101	%	80 - 120
			Dissolved Calcium (Ca)	2018/12/14		97	%	80 - 120
			Dissolved Chromium (Cr)	2018/12/14		99	%	80 - 120
			Dissolved Cobalt (Co)	2018/12/14		99	%	80 - 120
			Dissolved Copper (Cu)	2018/12/14		96	%	80 - 120
			Dissolved Iron (Fe)	2018/12/14		97	%	80 - 120
			Dissolved Lead (Pb)	2018/12/14		95	%	80 - 120
			Dissolved Magnesium (Mg)	2018/12/14		105	%	80 - 120
			Dissolved Manganese (Mn)	2018/12/14		NC	%	80 - 120
			Dissolved Molybdenum (Mo)	2018/12/14		105	%	80 - 120
			Dissolved Nickel (Ni)	2018/12/14		98	%	80 - 120
			Dissolved Phosphorus (P)	2018/12/14		106	%	80 - 120

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Dissolved Potassium (K)	2018/12/14		102	%	80 - 120
			Dissolved Selenium (Se)	2018/12/14		93	%	80 - 120
			Dissolved Silver (Ag)	2018/12/14		75 (3)	%	80 - 120
			Dissolved Sodium (Na)	2018/12/14		NC	%	80 - 120
			Dissolved Strontium (Sr)	2018/12/14		99	%	80 - 120
			Dissolved Thallium (Tl)	2018/12/14		100	%	80 - 120
			Dissolved Tin (Sn)	2018/12/14		103	%	80 - 120
			Dissolved Titanium (Ti)	2018/12/14		102	%	80 - 120
			Dissolved Uranium (U)	2018/12/14		105	%	80 - 120
			Dissolved Vanadium (V)	2018/12/14		103	%	80 - 120
			Dissolved Zinc (Zn)	2018/12/14		99	%	80 - 120
5888507	MLB	Spiked Blank	Dissolved Aluminum (Al)	2018/12/14		97	%	80 - 120
			Dissolved Antimony (Sb)	2018/12/14		95	%	80 - 120
			Dissolved Arsenic (As)	2018/12/14		98	%	80 - 120
			Dissolved Barium (Ba)	2018/12/14		98	%	80 - 120
			Dissolved Beryllium (Be)	2018/12/14		102	%	80 - 120
			Dissolved Bismuth (Bi)	2018/12/14		98	%	80 - 120
			Dissolved Boron (B)	2018/12/14		102	%	80 - 120
			Dissolved Cadmium (Cd)	2018/12/14		101	%	80 - 120
			Dissolved Calcium (Ca)	2018/12/14		100	%	80 - 120
			Dissolved Chromium (Cr)	2018/12/14		98	%	80 - 120
			Dissolved Cobalt (Co)	2018/12/14		100	%	80 - 120
			Dissolved Copper (Cu)	2018/12/14		98	%	80 - 120
			Dissolved Iron (Fe)	2018/12/14		101	%	80 - 120
			Dissolved Lead (Pb)	2018/12/14		96	%	80 - 120
			Dissolved Magnesium (Mg)	2018/12/14		104	%	80 - 120
			Dissolved Manganese (Mn)	2018/12/14		100	%	80 - 120
			Dissolved Molybdenum (Mo)	2018/12/14		102	%	80 - 120
			Dissolved Nickel (Ni)	2018/12/14		100	%	80 - 120
			Dissolved Phosphorus (P)	2018/12/14		106	%	80 - 120
			Dissolved Potassium (K)	2018/12/14		99	%	80 - 120
			Dissolved Selenium (Se)	2018/12/14		100	%	80 - 120
			Dissolved Silver (Ag)	2018/12/14		98	%	80 - 120
			Dissolved Sodium (Na)	2018/12/14		99	%	80 - 120
			Dissolved Strontium (Sr)	2018/12/14		99	%	80 - 120
			Dissolved Thallium (Tl)	2018/12/14		99	%	80 - 120
			Dissolved Tin (Sn)	2018/12/14		98	%	80 - 120
			Dissolved Titanium (Ti)	2018/12/14		100	%	80 - 120
			Dissolved Uranium (U)	2018/12/14		105	%	80 - 120
			Dissolved Vanadium (V)	2018/12/14		102	%	80 - 120
			Dissolved Zinc (Zn)	2018/12/14		99	%	80 - 120
5888507	MLB	Method Blank	Dissolved Aluminum (Al)	2018/12/14	<5.0		ug/L	
			Dissolved Antimony (Sb)	2018/12/14	<1.0		ug/L	
			Dissolved Arsenic (As)	2018/12/14	<1.0		ug/L	
			Dissolved Barium (Ba)	2018/12/14	<1.0		ug/L	
			Dissolved Beryllium (Be)	2018/12/14	<1.0		ug/L	
			Dissolved Bismuth (Bi)	2018/12/14	<2.0		ug/L	
			Dissolved Boron (B)	2018/12/14	<50		ug/L	
			Dissolved Cadmium (Cd)	2018/12/14	<0.010		ug/L	
			Dissolved Calcium (Ca)	2018/12/14	<100		ug/L	
			Dissolved Chromium (Cr)	2018/12/14	<1.0		ug/L	
			Dissolved Cobalt (Co)	2018/12/14	<0.40		ug/L	
			Dissolved Copper (Cu)	2018/12/14	<2.0		ug/L	
			Dissolved Iron (Fe)	2018/12/14	<50		ug/L	

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Dissolved Lead (Pb)	2018/12/14	<0.50		ug/L	
			Dissolved Magnesium (Mg)	2018/12/14	<100		ug/L	
			Dissolved Manganese (Mn)	2018/12/14	<2.0		ug/L	
			Dissolved Molybdenum (Mo)	2018/12/14	<2.0		ug/L	
			Dissolved Nickel (Ni)	2018/12/14	<2.0		ug/L	
			Dissolved Phosphorus (P)	2018/12/14	<100		ug/L	
			Dissolved Potassium (K)	2018/12/14	<100		ug/L	
			Dissolved Selenium (Se)	2018/12/14	<1.0		ug/L	
			Dissolved Silver (Ag)	2018/12/14	<0.10		ug/L	
			Dissolved Sodium (Na)	2018/12/14	<100		ug/L	
			Dissolved Strontium (Sr)	2018/12/14	<2.0		ug/L	
			Dissolved Thallium (Tl)	2018/12/14	<0.10		ug/L	
			Dissolved Tin (Sn)	2018/12/14	<2.0		ug/L	
			Dissolved Titanium (Ti)	2018/12/14	<2.0		ug/L	
			Dissolved Uranium (U)	2018/12/14	<0.10		ug/L	
			Dissolved Vanadium (V)	2018/12/14	<2.0		ug/L	
			Dissolved Zinc (Zn)	2018/12/14	<5.0		ug/L	
5888507	MLB	RPD [IMO336-02]	Dissolved Aluminum (Al)	2018/12/14	8.1		%	20
			Dissolved Antimony (Sb)	2018/12/14	NC		%	20
			Dissolved Arsenic (As)	2018/12/14	1.7		%	20
			Dissolved Barium (Ba)	2018/12/14	4.6		%	20
			Dissolved Beryllium (Be)	2018/12/14	NC		%	20
			Dissolved Bismuth (Bi)	2018/12/14	NC		%	20
			Dissolved Boron (B)	2018/12/14	1.8		%	20
			Dissolved Cadmium (Cd)	2018/12/14	NC		%	20
			Dissolved Calcium (Ca)	2018/12/14	1.9		%	20
			Dissolved Chromium (Cr)	2018/12/14	NC		%	20
			Dissolved Cobalt (Co)	2018/12/14	10		%	20
			Dissolved Copper (Cu)	2018/12/14	NC		%	20
			Dissolved Iron (Fe)	2018/12/14	0.39		%	20
			Dissolved Lead (Pb)	2018/12/14	NC		%	20
			Dissolved Magnesium (Mg)	2018/12/14	0.90		%	20
			Dissolved Manganese (Mn)	2018/12/14	7.1		%	20
			Dissolved Molybdenum (Mo)	2018/12/14	5.3		%	20
			Dissolved Nickel (Ni)	2018/12/14	NC		%	20
			Dissolved Phosphorus (P)	2018/12/14	5.7		%	20
			Dissolved Potassium (K)	2018/12/14	0.64		%	20
			Dissolved Selenium (Se)	2018/12/14	NC		%	20
			Dissolved Silver (Ag)	2018/12/14	NC		%	20
			Dissolved Sodium (Na)	2018/12/14	0.10		%	20
			Dissolved Strontium (Sr)	2018/12/14	1.1		%	20
			Dissolved Thallium (Tl)	2018/12/14	NC		%	20
			Dissolved Tin (Sn)	2018/12/14	NC		%	20
			Dissolved Titanium (Ti)	2018/12/14	7.0		%	20
			Dissolved Uranium (U)	2018/12/14	NC		%	20
			Dissolved Vanadium (V)	2018/12/14	NC		%	20
			Dissolved Zinc (Zn)	2018/12/14	6.0		%	20
5888570	SRM	Matrix Spike	Nitrogen (Ammonia Nitrogen)	2018/12/14		93	%	80 - 120
5888570	SRM	Spiked Blank	Nitrogen (Ammonia Nitrogen)	2018/12/14		99	%	80 - 120
5888570	SRM	Method Blank	Nitrogen (Ammonia Nitrogen)	2018/12/14	<0.050		mg/L	
5888570	SRM	RPD	Nitrogen (Ammonia Nitrogen)	2018/12/14	NC		%	20
5888831	KMC	Matrix Spike	Total Organic Carbon (C)	2018/12/17		105	%	85 - 115
5888831	KMC	Spiked Blank	Total Organic Carbon (C)	2018/12/17		101	%	80 - 120
5888831	KMC	Method Blank	Total Organic Carbon (C)	2018/12/17	<0.50		mg/L	

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
5888831	KMC	RPD	Total Organic Carbon (C)	2018/12/17	3.0		%	15
5888897	CCR	Matrix Spike [IMO334-04]	Total Mercury (Hg)	2018/12/17		92	%	80 - 120
5888897	CCR	Spiked Blank	Total Mercury (Hg)	2018/12/17		98	%	80 - 120
5888897	CCR	Method Blank	Total Mercury (Hg)	2018/12/17	<0.013		ug/L	
5888897	CCR	RPD [IMO333-04]	Total Mercury (Hg)	2018/12/17	NC		%	20
5891523	NHU	QC Standard	pH	2018/12/17		100	%	97 - 103
5891523	NHU	RPD	pH	2018/12/17	0.47		%	N/A
5891525	NHU	Spiked Blank	Conductivity	2018/12/17		102	%	80 - 120
5891525	NHU	Method Blank	Conductivity	2018/12/17	1.7, RDL=1.0		uS/cm	
5891525	NHU	RPD	Conductivity	2018/12/17	0.14		%	25
5891528	NHU	QC Standard	pH	2018/12/17		100	%	97 - 103
5891528	NHU	RPD	pH	2018/12/17	2.3		%	N/A
5891529	NHU	Spiked Blank	Conductivity	2018/12/17		102	%	80 - 120
5891529	NHU	Method Blank	Conductivity	2018/12/17	1.7, RDL=1.0		uS/cm	
5891529	NHU	RPD	Conductivity	2018/12/17	0.24		%	25
5891551	NHU	QC Standard	Turbidity	2018/12/17		96	%	80 - 120
5891551	NHU	Spiked Blank	Turbidity	2018/12/17		99	%	80 - 120
5891551	NHU	Method Blank	Turbidity	2018/12/17	<0.10		NTU	
5891551	NHU	RPD	Turbidity	2018/12/17	2.4		%	20
5891555	NHU	QC Standard	Turbidity	2018/12/17		95	%	80 - 120
5891555	NHU	Spiked Blank	Turbidity	2018/12/17		98	%	80 - 120
5891555	NHU	Method Blank	Turbidity	2018/12/17	<0.10		NTU	
5891555	NHU	RPD	Turbidity	2018/12/17	NC		%	20
5891629	SRM	Matrix Spike	Nitrogen (Ammonia Nitrogen)	2018/12/17		95	%	80 - 120
5891629	SRM	Spiked Blank	Nitrogen (Ammonia Nitrogen)	2018/12/17		95	%	80 - 120
5891629	SRM	Method Blank	Nitrogen (Ammonia Nitrogen)	2018/12/17	<0.050		mg/L	
5891629	SRM	RPD	Nitrogen (Ammonia Nitrogen)	2018/12/17	NC		%	20
5891718	NRG	Matrix Spike	Total Alkalinity (Total as CaCO3)	2018/12/17		99	%	80 - 120
5891718	NRG	Spiked Blank	Total Alkalinity (Total as CaCO3)	2018/12/17		105	%	80 - 120
5891718	NRG	Method Blank	Total Alkalinity (Total as CaCO3)	2018/12/17	<5.0		mg/L	
5891718	NRG	RPD	Total Alkalinity (Total as CaCO3)	2018/12/17	3.8		%	25
5891725	NRG	Matrix Spike	Dissolved Chloride (Cl-)	2018/12/17		NC	%	80 - 120
5891725	NRG	QC Standard	Dissolved Chloride (Cl-)	2018/12/18		106	%	80 - 120
5891725	NRG	Spiked Blank	Dissolved Chloride (Cl-)	2018/12/17		101	%	80 - 120
5891725	NRG	Method Blank	Dissolved Chloride (Cl-)	2018/12/17	<1.0		mg/L	
5891725	NRG	RPD	Dissolved Chloride (Cl-)	2018/12/17	2.1		%	25
5891726	NRG	Matrix Spike	Dissolved Sulphate (SO4)	2018/12/18		100	%	80 - 120
5891726	NRG	Spiked Blank	Dissolved Sulphate (SO4)	2018/12/18		93	%	80 - 120
5891726	NRG	Method Blank	Dissolved Sulphate (SO4)	2018/12/18	<2.0		mg/L	
5891726	NRG	RPD	Dissolved Sulphate (SO4)	2018/12/18	3.6		%	25
5891729	NRG	Matrix Spike	Reactive Silica (SiO2)	2018/12/17		95	%	80 - 120
5891729	NRG	Spiked Blank	Reactive Silica (SiO2)	2018/12/17		100	%	80 - 120
5891729	NRG	Method Blank	Reactive Silica (SiO2)	2018/12/17	<0.50		mg/L	
5891729	NRG	RPD	Reactive Silica (SiO2)	2018/12/17	0.97		%	25
5891730	NRG	Spiked Blank	Colour	2018/12/17		96	%	80 - 120
5891730	NRG	Method Blank	Colour	2018/12/17	<5.0		TCU	
5891730	NRG	RPD	Colour	2018/12/17	8.0		%	20
5891732	NRG	Matrix Spike	Orthophosphate (P)	2018/12/17		91	%	80 - 120
5891732	NRG	Spiked Blank	Orthophosphate (P)	2018/12/17		97	%	80 - 120
5891732	NRG	Method Blank	Orthophosphate (P)	2018/12/17	<0.010		mg/L	
5891732	NRG	RPD	Orthophosphate (P)	2018/12/17	NC		%	25
5891734	NRG	Matrix Spike	Nitrate + Nitrite (N)	2018/12/18		95	%	80 - 120

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Maxxam Job #: B8W8211
Report Date: 2018/12/18

Dillon Consulting Limited
Client Project #: 14-1360
Site Location: OH PARK / HARBOURSIDE EAST

QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
5891734	NRG	Spiked Blank	Nitrate + Nitrite (N)	2018/12/18		98	%	80 - 120
5891734	NRG	Method Blank	Nitrate + Nitrite (N)	2018/12/18	<0.050		mg/L	
5891734	NRG	RPD	Nitrate + Nitrite (N)	2018/12/18	14		%	25
5891738	NRG	Matrix Spike	Nitrite (N)	2018/12/17		99	%	80 - 120
5891738	NRG	Spiked Blank	Nitrite (N)	2018/12/17		102	%	80 - 120
5891738	NRG	Method Blank	Nitrite (N)	2018/12/17	<0.010		mg/L	
5891738	NRG	RPD	Nitrite (N)	2018/12/17	NC		%	20
5891913	HM2	Matrix Spike [IMO342-03]	Total Organic Carbon (C)	2018/12/18		102	%	85 - 115
5891913	HM2	Spiked Blank	Total Organic Carbon (C)	2018/12/18		99	%	80 - 120
5891913	HM2	Method Blank	Total Organic Carbon (C)	2018/12/17	<0.50		mg/L	
5891913	HM2	RPD [IMO342-03]	Total Organic Carbon (C)	2018/12/18	0.80		%	15
5893907	NHU	QC Standard	Turbidity	2018/12/18		97	%	80 - 120
5893907	NHU	Spiked Blank	Turbidity	2018/12/18		100	%	80 - 120
5893907	NHU	Method Blank	Turbidity	2018/12/18	<0.10		NTU	
5893907	NHU	RPD	Turbidity	2018/12/18	1.2		%	20

N/A = Not Applicable

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

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

QC Standard: A sample of known concentration prepared by an external agency under stringent conditions. Used as an independent check of method accuracy.

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

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

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

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

(1) PAH surrogate(s) not within acceptance limits. Insufficient sample to repeat.

(2) Matrix Spike: results are outside acceptance limit. Insufficient sample for repeat analysis.

(3) Recovery is within QC acceptance limits. < 10 % of compounds in multi-component analysis in violation.

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Maxxam Job #: B8W8211
Report Date: 2018/12/18

Dillon Consulting Limited
Client Project #: 14-1360
Site Location: OH PARK / HARBOURSIDE EAST

VALIDATION SIGNATURE PAGE

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

Mike MacGillivray, Scientific Specialist (Inorganics)

Rosemarie MacDonald, Scientific Specialist (Organics)

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

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A Bureau Veritas Group Company

Your Project #: 14-1360
Site Location: OH PARK / HARBOURSIDE EAST

Attention: Nadine Wambolt

Dillon Consulting Limited
275 Charlotte St
Sydney, NS
CANADA B1P 1C6

Report Date: 2018/12/20
Report #: R5533456
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B8W9750
Received: 2018/12/10, 16:18

Sample Matrix: Water
Samples Received: 11

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Reference
Carbonate, Bicarbonate and Hydroxide (1)	1	N/A	2018/12/14	N/A	SM 23 4500-CO2 D
Carbonate, Bicarbonate and Hydroxide (1)	9	N/A	2018/12/17	N/A	SM 23 4500-CO2 D
Alkalinity (1)	1	N/A	2018/12/14	ATL SOP 00013	EPA 310.2 R1974 m
Alkalinity (1)	9	N/A	2018/12/17	ATL SOP 00013	EPA 310.2 R1974 m
Benzo(b/j)fluoranthene Sum (water) (1)	3	N/A	2018/12/17	N/A	Auto Calc.
Benzo(b/j)fluoranthene Sum (water) (1)	8	N/A	2018/12/18	N/A	Auto Calc.
Chloride (1)	1	N/A	2018/12/14	ATL SOP 00014	SM 23 4500-Cl- E m
Chloride (1)	2	N/A	2018/12/17	ATL SOP 00014	SM 23 4500-Cl- E m
Chloride (1)	7	N/A	2018/12/18	ATL SOP 00014	SM 23 4500-Cl- E m
Colour (1)	1	N/A	2018/12/14	ATL SOP 00020	SM 23 2120C m
Colour (1)	9	N/A	2018/12/17	ATL SOP 00020	SM 23 2120C m
Conductance - water (1)	1	N/A	2018/12/14	ATL SOP 00004	SM 23 2510B m
Conductance - water (1)	9	N/A	2018/12/17	ATL SOP 00004	SM 23 2510B m
Hardness (calculated as CaCO3) (1)	5	N/A	2018/12/17	ATL SOP 00048	Auto Calc
Hardness (calculated as CaCO3) (1)	5	N/A	2018/12/18	ATL SOP 00048	Auto Calc
Mercury - Total (CVAA,LL) (1)	10	2018/12/14	2018/12/17	ATL SOP 00026	EPA 245.1 R3 m
Metals Water Diss. MS (as rec'd) (1)	5	N/A	2018/12/14	ATL SOP 00058	EPA 6020A R1 m
Metals Water Diss. MS (as rec'd) (1)	5	N/A	2018/12/17	ATL SOP 00058	EPA 6020A R1 m
Ion Balance (% Difference) (1)	10	N/A	2018/12/18	N/A	Auto Calc.
Anion and Cation Sum (1)	10	N/A	2018/12/18	N/A	Auto Calc.
Nitrogen Ammonia - water (1)	10	N/A	2018/12/17	ATL SOP 00015	EPA 350.1 R2 m
Nitrogen - Nitrate + Nitrite (1)	1	N/A	2018/12/17	ATL SOP 00016	USGS I-2547-11m
Nitrogen - Nitrate + Nitrite (1)	9	N/A	2018/12/18	ATL SOP 00016	USGS I-2547-11m
Nitrogen - Nitrite (1)	1	N/A	2018/12/14	ATL SOP 00017	SM 23 4500-NO2- B m
Nitrogen - Nitrite (1)	9	N/A	2018/12/17	ATL SOP 00017	SM 23 4500-NO2- B m
Nitrogen - Nitrate (as N) (1)	1	N/A	2018/12/17	ATL SOP 00018	ASTM D3867-16
Nitrogen - Nitrate (as N) (1)	9	N/A	2018/12/18	ATL SOP 00018	ASTM D3867-16
PAH in Water by GC/MS (SIM) (1)	3	2018/12/14	2018/12/14	ATL SOP 00103	EPA 8270D 2014 m
PAH in Water by GC/MS (SIM) (1)	8	2018/12/17	2018/12/17	ATL SOP 00103	EPA 8270D 2014 m
pH (1, 2)	1	N/A	2018/12/14	ATL SOP 00003	SM 23 4500-H+ B m
pH (1, 2)	9	N/A	2018/12/17	ATL SOP 00003	SM 23 4500-H+ B m
Phosphorus - ortho (1)	1	N/A	2018/12/14	ATL SOP 00021	SM 23 4500-P E m

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A Bureau Veritas Group Company

Your Project #: 14-1360
Site Location: OH PARK / HARBOURSIDE EAST

Attention: Nadine Wambolt

Dillon Consulting Limited
275 Charlotte St
Sydney, NS
CANADA B1P 1C6

Report Date: 2018/12/20
Report #: R5533456
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B8W9750
Received: 2018/12/10, 16:18

Sample Matrix: Water
Samples Received: 11

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Reference
Phosphorus - ortho (1)	9	N/A	2018/12/17	ATL SOP 00021	SM 23 4500-P E m
Sat. pH and Langelier Index (@ 20C) (1)	10	N/A	2018/12/18	ATL SOP 00049	Auto Calc.
Sat. pH and Langelier Index (@ 4C) (1)	10	N/A	2018/12/18	ATL SOP 00049	Auto Calc.
Reactive Silica (1)	10	N/A	2018/12/17	ATL SOP 00022	EPA 366.0 m
Sulphate (1)	1	N/A	2018/12/17	ATL SOP 00023	ASTM D516-16 m
Sulphate (1)	9	N/A	2018/12/18	ATL SOP 00023	ASTM D516-16 m
Total Dissolved Solids (TDS calc) (1)	10	N/A	2018/12/18	N/A	Auto Calc.
Organic carbon - Total (TOC) (1, 3)	9	N/A	2018/12/19	ATL SOP 00203	SM 23 5310B m
Organic carbon - Total (TOC) (1, 3)	1	N/A	2018/12/20	ATL SOP 00203	SM 23 5310B m
Turbidity (1)	5	N/A	2018/12/17	ATL SOP 00011	EPA 180.1 R2 m
Turbidity (1)	5	N/A	2018/12/18	ATL SOP 00011	EPA 180.1 R2 m

Remarks:

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

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

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

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by Maxxam, results relate to the supplied samples tested.

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
(1) This test was performed by Maxxam Bedford

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Your Project #: 14-1360
Site Location: OH PARK / HARBOURSIDE EAST

Attention: Nadine Wambolt

Dillon Consulting Limited
275 Charlotte St
Sydney, NS
CANADA B1P 1C6

Report Date: 2018/12/20
Report #: R5533456
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B8W9750
Received: 2018/12/10, 16:18

(2) The APHA Standard Method require pH to be analyzed within 15 minutes of sampling and therefore field analysis is required for compliance. All Laboratory pH analyses in this report are reported past the APHA Standard Method holding time.
(3) TOC / DOC present in the sample should be considered as non-purgeable TOC / DOC.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Natalie MacAskill, Key Account Specialist
Email: NMacAskill@maxxam.ca
Phone# (902)567-1255 Ext:17
==========
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Maxxam Job #: B8W9750
Report Date: 2018/12/20

Dillon Consulting Limited
Client Project #: 14-1360
Site Location: OH PARK / HARBOURSIDE EAST

RESULTS OF ANALYSES OF WATER

Maxxam ID		IMY924			IMY925			IMY926		
Sampling Date		2018/12/10			2018/12/10			2018/12/10		
	UNITS	MSES-004-MW	RDL	QC Batch	MSES-006-MW	RDL	QC Batch	MSES-008-MW	RDL	QC Batch
Calculated Parameters										
Anion Sum	me/L	17.4	N/A	5879331	44.3	N/A	5879331	27.5	N/A	5879331
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	130	1.0	5879326	360	1.0	5879326	200	1.0	5879326
Calculated TDS	mg/L	1100	1.0	5879339	2800	1.0	5879339	1700	1.0	5879339
Carb. Alkalinity (calc. as CaCO3)	mg/L	<1.0	1.0	5879326	<1.0	1.0	5879326	<1.0	1.0	5879326
Cation Sum	me/L	16.0	N/A	5879331	44.0	N/A	5879331	25.4	N/A	5879331
Hardness (CaCO3)	mg/L	770	1.0	5879329	1900	1.0	5879329	1000	1.0	5879329
Ion Balance (% Difference)	%	4.07	N/A	5879330	0.290	N/A	5879330	4.01	N/A	5879330
Langelier Index (@ 20C)	N/A	-0.547		5879335	0.527		5879335	0.378		5879335
Langelier Index (@ 4C)	N/A	-0.793		5879337	0.285		5879337	0.135		5879337
Nitrate (N)	mg/L	<0.050	0.050	5879332	<0.050	0.050	5879332	<0.050	0.050	5879332
Saturation pH (@ 20C)	N/A	7.05		5879335	6.49		5879335	6.77		5879335
Saturation pH (@ 4C)	N/A	7.30		5879337	6.73		5879337	7.01		5879337
Inorganics										
Total Alkalinity (Total as CaCO3)	mg/L	130	25	5891718	360	25	5891718	200	25	5888652
Dissolved Chloride (Cl-)	mg/L	17	1.0	5891725	93	1.0	5891725	190	1.0	5888658
Colour	TCU	39	5.0	5891730	35	5.0	5891730	170	25	5888675
Nitrate + Nitrite (N)	mg/L	<0.050	0.050	5891734	<0.050	0.050	5891734	<0.050	0.050	5888678
Nitrite (N)	mg/L	<0.010	0.010	5891738	<0.010	0.010	5891738	<0.010	0.010	5888680
Nitrogen (Ammonia Nitrogen)	mg/L	0.18	0.050	5891933	0.18	0.050	5891936	0.075	0.050	5891936
Total Organic Carbon (C)	mg/L	2.2	0.50	5896210	0.84	0.50	5896210	0.94	0.50	5896210
Orthophosphate (P)	mg/L	<0.010	0.010	5891732	<0.010	0.010	5891732	<0.010	0.010	5888676
pH	pH	6.51	N/A	5891523	7.02	N/A	5891528	7.14	N/A	5888420
Reactive Silica (SiO2)	mg/L	5.0	0.50	5891729	13	0.50	5891729	28	1.0	5888672
Dissolved Sulphate (SO4)	mg/L	680	30	5891726	1700	40	5891726	870	40	5888671
Turbidity	NTU	4.7	0.10	5893903	7.2	0.10	5891562	150	1.0	5893903
Conductivity	uS/cm	1400	1.0	5891525	3400	1.0	5891529	2200	1.0	5888424

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable

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Maxxam Job #: B8W9750
Report Date: 2018/12/20

Dillon Consulting Limited
Client Project #: 14-1360
Site Location: OH PARK / HARBOURSIDE EAST

RESULTS OF ANALYSES OF WATER

Maxxam ID		IMY927			IMY928			IMY929		
Sampling Date		2018/12/10			2018/12/10			2018/12/10		
	UNITS	MSES-012-MWA	RDL	QC Batch	MSES-104-MWA	RDL	QC Batch	MSES-104-MWB	RDL	QC Batch
Calculated Parameters										
Anion Sum	me/L	19.4	N/A	5879331	26.6	N/A	5879331	44.7	N/A	5879331
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	200	1.0	5879326	29	1.0	5879326	340	1.0	5879326
Calculated TDS	mg/L	1200	1.0	5879339	1800	1.0	5879339	2800	1.0	5879339
Carb. Alkalinity (calc. as CaCO3)	mg/L	<1.0	1.0	5879326	<1.0	1.0	5879326	<1.0	1.0	5879326
Cation Sum	me/L	18.0	N/A	5879331	25.9	N/A	5879331	42.0	N/A	5879331
Hardness (CaCO3)	mg/L	660	1.0	5879329	1200	1.0	5879329	1800	1.0	5879329
Ion Balance (% Difference)	%	3.69	N/A	5879330	1.41	N/A	5879330	3.08	N/A	5879330
Langelier Index (@ 20C)	N/A	0.635		5879335	-0.0730		5879335	0.342		5879335
Langelier Index (@ 4C)	N/A	0.390		5879337	-0.317		5879337	0.100		5879337
Nitrate (N)	mg/L	0.78	0.050	5879332	<0.050	0.050	5879332	<0.050	0.050	5879332
Saturation pH (@ 20C)	N/A	6.92		5879335	7.52		5879335	6.57		5879335
Saturation pH (@ 4C)	N/A	7.17		5879337	7.77		5879337	6.81		5879337
Inorganics										
Total Alkalinity (Total as CaCO3)	mg/L	200	25	5891718	29	5.0	5891718	340	25	5891718
Dissolved Chloride (Cl-)	mg/L	140	1.0	5891725	47	1.0	5891725	70	1.0	5891725
Colour	TCU	<5.0	5.0	5891730	<5.0	5.0	5891730	130	25	5891730
Nitrate + Nitrite (N)	mg/L	0.78	0.050	5891734	<0.050	0.050	5891734	<0.050	0.050	5891734
Nitrite (N)	mg/L	<0.010	0.010	5891738	<0.010	0.010	5891738	<0.010	0.010	5891738
Nitrogen (Ammonia Nitrogen)	mg/L	<0.050	0.050	5891933	0.64	0.050	5891933	0.62	0.050	5891933
Total Organic Carbon (C)	mg/L	1.3	0.50	5896212	1.7	0.50	5896210	3.5	0.50	5896212
Orthophosphate (P)	mg/L	<0.010	0.010	5891732	0.012	0.010	5891732	<0.010	0.010	5891732
pH	pH	7.56	N/A	5891523	7.45	N/A	5891528	6.91	N/A	5891528
Reactive Silica (SiO2)	mg/L	42	2.5	5891729	2.5	0.50	5891729	13	0.50	5891729
Dissolved Sulphate (SO4)	mg/L	540	30	5891726	1200	40	5891726	1700	40	5891726
Turbidity	NTU	5.2	0.10	5893903	1.4	0.10	5891562	72	0.10	5891562
Conductivity	uS/cm	1700	1.0	5891525	2100	1.0	5891529	3400	1.0	5891529

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable

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Maxxam Job #: B8W9750
Report Date: 2018/12/20

Dillon Consulting Limited
Client Project #: 14-1360
Site Location: OH PARK / HARBOURSIDE EAST

RESULTS OF ANALYSES OF WATER

Maxxam ID		IMY930			IMZ096			IMZ097		
Sampling Date		2018/12/10			2018/12/10			2018/12/10		
	UNITS	SCU11-001-MWA	RDL	QC Batch	CODT-203-MW	RDL	QC Batch	FD-14	RDL	QC Batch
Calculated Parameters										
Anion Sum	me/L	15.3	N/A	5879331	7.72	N/A	5879331	43.6	N/A	5879331
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	170	1.0	5879326	110	1.0	5879326	340	1.0	5879326
Calculated TDS	mg/L	830	1.0	5879339	460	1.0	5879339	2800	1.0	5879339
Carb. Alkalinity (calc. as CaCO3)	mg/L	<1.0	1.0	5879326	<1.0	1.0	5879326	<1.0	1.0	5879326
Cation Sum	me/L	14.6	N/A	5879331	7.16	N/A	5879331	41.9	N/A	5879331
Hardness (CaCO3)	mg/L	550	1.0	5879329	160	1.0	5879329	1800	1.0	5879329
Ion Balance (% Difference)	%	2.41	N/A	5879330	3.76	N/A	5879330	1.99	N/A	5879330
Langelier Index (@ 20C)	N/A	0.559		5879335	-0.138		5879335	0.463		5879335
Langelier Index (@ 4C)	N/A	0.313		5879337	-0.387		5879337	0.221		5879337
Nitrate (N)	mg/L	0.83	0.050	5879332	<0.050	0.050	5879332	<0.050	0.050	5879332
Saturation pH (@ 20C)	N/A	7.02		5879335	7.66		5879335	6.56		5879335
Saturation pH (@ 4C)	N/A	7.26		5879337	7.91		5879337	6.80		5879337
Inorganics										
Total Alkalinity (Total as CaCO3)	mg/L	170	25	5891745	110	25	5891745	340	25	5891745
Dissolved Chloride (Cl-)	mg/L	410	5.0	5891748	120	1.0	5891748	68	1.0	5891748
Colour	TCU	<5.0	5.0	5891751	<5.0	5.0	5891751	110	25	5891751
Nitrate + Nitrite (N)	mg/L	1.3	0.050	5891754	<0.050	0.050	5891754	<0.050	0.050	5891754
Nitrite (N)	mg/L	0.50	0.010	5891755	<0.010	0.010	5891755	<0.010	0.010	5891755
Nitrogen (Ammonia Nitrogen)	mg/L	2.7	0.25	5891933	0.17	0.050	5891933	0.60	0.050	5891933
Total Organic Carbon (C)	mg/L	3.3	0.50	5896212	2.9	0.50	5896212	3.5	0.50	5896210
Orthophosphate (P)	mg/L	<0.010	0.010	5891753	<0.010	0.010	5891753	<0.010	0.010	5891753
pH	pH	7.57	N/A	5891528	7.52	N/A	5891523	7.02	N/A	5891528
Reactive Silica (SiO2)	mg/L	11	0.50	5891750	14	0.50	5891750	13	0.50	5891750
Dissolved Sulphate (SO4)	mg/L	11	2.0	5891749	110	10	5891749	1700	40	5891749
Turbidity	NTU	8.7	0.10	5893907	0.87	0.10	5893907	68	0.10	5891562
Conductivity	uS/cm	1600	1.0	5891529	810	1.0	5891525	3500	1.0	5891529

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable

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Maxxam Job #: B8W9750
Report Date: 2018/12/20

Dillon Consulting Limited
Client Project #: 14-1360
Site Location: OH PARK / HARBOURSIDE EAST

RESULTS OF ANALYSES OF WATER

Maxxam ID		IMZ098		
Sampling Date		2018/12/10		
	UNITS	EB-04	RDL	QC Batch
Calculated Parameters				
Anion Sum	me/L	0.180	N/A	5879331
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	5.1	1.0	5879326
Calculated TDS	mg/L	7.0	1.0	5879339
Carb. Alkalinity (calc. as CaCO3)	mg/L	<1.0	1.0	5879326
Cation Sum	me/L	0.0200	N/A	5879331
Hardness (CaCO3)	mg/L	<1.0	1.0	5879329
Ion Balance (% Difference)	%	80.0	N/A	5879330
Langelier Index (@ 20C)	N/A	-4.46		5879335
Langelier Index (@ 4C)	N/A	-4.71		5879337
Nitrate (N)	mg/L	0.079	0.050	5879332
Saturation pH (@ 20C)	N/A	11.2		5879335
Saturation pH (@ 4C)	N/A	11.4		5879337
Inorganics				
Total Alkalinity (Total as CaCO3)	mg/L	5.1	5.0	5891745
Dissolved Chloride (Cl-)	mg/L	2.5	1.0	5891748
Colour	TCU	<5.0	5.0	5891751
Nitrate + Nitrite (N)	mg/L	0.079	0.050	5891754
Nitrite (N)	mg/L	<0.010	0.010	5891755
Nitrogen (Ammonia Nitrogen)	mg/L	<0.050	0.050	5891933
Total Organic Carbon (C)	mg/L	1.0	0.50	5896210
Orthophosphate (P)	mg/L	<0.010	0.010	5891753
pH	pH	6.72	N/A	5891528
Reactive Silica (SiO2)	mg/L	0.80	0.50	5891750
Dissolved Sulphate (SO4)	mg/L	<2.0	2.0	5891749
Turbidity	NTU	0.23	0.10	5891562
Conductivity	uS/cm	16	1.0	5891529

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable

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Maxxam Job #: B8W9750
Report Date: 2018/12/20

Dillon Consulting Limited
Client Project #: 14-1360
Site Location: OH PARK / HARBOURSIDE EAST

MERCURY BY COLD VAPOUR AA (WATER)

Maxxam ID		IMY924	IMY925		IMY926	IMY927	IMY928		
Sampling Date		2018/12/10	2018/12/10		2018/12/10	2018/12/10	2018/12/10		
	UNITS	MSES-004-MW	MSES-006-MW	QC Batch	MSES-008-MW	MSES-012-MWA	MSES-104-MWA	RDL	QC Batch
Metals									
Total Mercury (Hg)	ug/L	<0.013	<0.013	5888897	<0.013	<0.013	<0.013	0.013	5888900

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam ID		IMY929	IMY930	IMZ096	IMZ097	IMZ098		
Sampling Date		2018/12/10	2018/12/10	2018/12/10	2018/12/10	2018/12/10		
	UNITS	MSES-104-MWB	SCU11-001-MWA	CODT-203-MW	FD-14	EB-04	RDL	QC Batch
Metals								
Total Mercury (Hg)	ug/L	<0.013	<0.013	<0.013	<0.013	<0.013	0.013	5888900

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B8W9750
Report Date: 2018/12/20

Dillon Consulting Limited
Client Project #: 14-1360
Site Location: OH PARK / HARBOURSIDE EAST

ELEMENTS BY ICP/MS (WATER)

Maxxam ID		IMY924		IMY925		IMY926	IMY927		
Sampling Date		2018/12/10		2018/12/10		2018/12/10	2018/12/10		
	UNITS	MSES-004-MW	RDL	MSES-006-MW	RDL	MSES-008-MW	MSES-012-MWA	RDL	QC Batch
Metals									
Dissolved Aluminum (Al)	ug/L	56	5.0	<5.0	5.0	<5.0	<5.0	5.0	5888507
Dissolved Antimony (Sb)	ug/L	<1.0	1.0	<1.0	1.0	<1.0	<1.0	1.0	5888507
Dissolved Arsenic (As)	ug/L	2.2	1.0	<1.0	1.0	11	<1.0	1.0	5888507
Dissolved Barium (Ba)	ug/L	8.9	1.0	11	1.0	7.9	4.7	1.0	5888507
Dissolved Beryllium (Be)	ug/L	<1.0	1.0	<1.0	1.0	<1.0	<1.0	1.0	5888507
Dissolved Bismuth (Bi)	ug/L	<2.0	2.0	<2.0	2.0	<2.0	<2.0	2.0	5888507
Dissolved Boron (B)	ug/L	82	50	320	50	71	<50	50	5888507
Dissolved Cadmium (Cd)	ug/L	0.032	0.010	0.30	0.010	<0.010	0.026	0.010	5888507
Dissolved Calcium (Ca)	ug/L	240000	100	450000	100	360000	230000	100	5888507
Dissolved Chromium (Cr)	ug/L	<1.0	1.0	<1.0	1.0	<1.0	<1.0	1.0	5888507
Dissolved Cobalt (Co)	ug/L	0.60	0.40	3.3	0.40	<0.40	<0.40	0.40	5888507
Dissolved Copper (Cu)	ug/L	<2.0	2.0	<2.0	2.0	<2.0	3.6	2.0	5888507
Dissolved Iron (Fe)	ug/L	1500	50	1100	50	10000	480	50	5888507
Dissolved Lead (Pb)	ug/L	<0.50	0.50	<0.50	0.50	<0.50	<0.50	0.50	5888507
Dissolved Magnesium (Mg)	ug/L	41000	100	190000	1000	25000	22000	100	5888507
Dissolved Manganese (Mn)	ug/L	1200	2.0	47000	20	920	93	2.0	5888507
Dissolved Molybdenum (Mo)	ug/L	<2.0	2.0	<2.0	2.0	2.7	<2.0	2.0	5888507
Dissolved Nickel (Ni)	ug/L	<2.0	2.0	8.4	2.0	<2.0	<2.0	2.0	5888507
Dissolved Phosphorus (P)	ug/L	<100	100	<100	100	<100	<100	100	5888507
Dissolved Potassium (K)	ug/L	2100	100	12000	100	5000	2400	100	5888507
Dissolved Selenium (Se)	ug/L	<1.0	1.0	<1.0	1.0	<1.0	15	1.0	5888507
Dissolved Silver (Ag)	ug/L	<0.10	0.10	<0.10	0.10	<0.10	<0.10	0.10	5888507
Dissolved Sodium (Na)	ug/L	12000	100	120000	100	110000	110000	100	5888507
Dissolved Strontium (Sr)	ug/L	280	2.0	3400	2.0	520	270	2.0	5888507
Dissolved Thallium (Tl)	ug/L	<0.10	0.10	<0.10	0.10	<0.10	<0.10	0.10	5888507
Dissolved Tin (Sn)	ug/L	<2.0	2.0	<2.0	2.0	<2.0	<2.0	2.0	5888507
Dissolved Titanium (Ti)	ug/L	<2.0	2.0	<2.0	2.0	<2.0	<2.0	2.0	5888507
Dissolved Uranium (U)	ug/L	0.20	0.10	4.4	0.10	0.52	0.33	0.10	5888507
Dissolved Vanadium (V)	ug/L	<2.0	2.0	<2.0	2.0	<2.0	<2.0	2.0	5888507
Dissolved Zinc (Zn)	ug/L	130	5.0	<5.0	5.0	40	47	5.0	5888507

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Maxxam Job #: B8W9750
Report Date: 2018/12/20

Dillon Consulting Limited
Client Project #: 14-1360
Site Location: OH PARK / HARBOURSIDE EAST

ELEMENTS BY ICP/MS (WATER)

Maxxam ID		IMY928		IMY929		IMY930	IMZ096		
Sampling Date		2018/12/10		2018/12/10		2018/12/10	2018/12/10		
	UNITS	MSES-104-MWA	RDL	MSES-104-MWB	RDL	SCU11-001-MWA	CODT-203-MW	RDL	QC Batch
Metals									
Dissolved Aluminum (Al)	ug/L	<5.0	5.0	720	5.0	<5.0	11	5.0	5888507
Dissolved Antimony (Sb)	ug/L	<1.0	1.0	<1.0	1.0	<1.0	<1.0	1.0	5888507
Dissolved Arsenic (As)	ug/L	1.4	1.0	3.6	1.0	7.1	1.7	1.0	5888507
Dissolved Barium (Ba)	ug/L	15	1.0	18	1.0	710	61	1.0	5888507
Dissolved Beryllium (Be)	ug/L	<1.0	1.0	1.3	1.0	<1.0	<1.0	1.0	5888507
Dissolved Bismuth (Bi)	ug/L	<2.0	2.0	<2.0	2.0	<2.0	<2.0	2.0	5888507
Dissolved Boron (B)	ug/L	<50	50	190	50	63	<50	50	5888507
Dissolved Cadmium (Cd)	ug/L	<0.010	0.010	0.13	0.010	0.029	0.094	0.010	5888507
Dissolved Calcium (Ca)	ug/L	440000	100	400000	100	190000	59000	100	5888507
Dissolved Chromium (Cr)	ug/L	<1.0	1.0	<1.0	1.0	<1.0	<1.0	1.0	5888507
Dissolved Cobalt (Co)	ug/L	<0.40	0.40	59	0.40	0.42	<0.40	0.40	5888507
Dissolved Copper (Cu)	ug/L	<2.0	2.0	<2.0	2.0	<2.0	<2.0	2.0	5888507
Dissolved Iron (Fe)	ug/L	120	50	6800	50	640	77	50	5888507
Dissolved Lead (Pb)	ug/L	<0.50	0.50	<0.50	0.50	<0.50	<0.50	0.50	5888507
Dissolved Magnesium (Mg)	ug/L	28000	100	180000	1000	21000	2700	100	5888507
Dissolved Manganese (Mn)	ug/L	64	2.0	84000	20	1200	1600	2.0	5888507
Dissolved Molybdenum (Mo)	ug/L	6.5	2.0	<2.0	2.0	5.4	5.5	2.0	5888507
Dissolved Nickel (Ni)	ug/L	<2.0	2.0	72	2.0	<2.0	<2.0	2.0	5888507
Dissolved Phosphorus (P)	ug/L	<100	100	<100	100	380	<100	100	5888507
Dissolved Potassium (K)	ug/L	8900	100	12000	100	10000	3600	100	5888507
Dissolved Selenium (Se)	ug/L	<1.0	1.0	<1.0	1.0	<1.0	<1.0	1.0	5888507
Dissolved Silver (Ag)	ug/L	<0.10	0.10	<0.10	0.10	<0.10	<0.10	0.10	5888507
Dissolved Sodium (Na)	ug/L	29000	100	140000	100	70000	89000	100	5888507
Dissolved Strontium (Sr)	ug/L	510	2.0	2100	2.0	4200	300	2.0	5888507
Dissolved Thallium (Tl)	ug/L	<0.10	0.10	<0.10	0.10	<0.10	0.16	0.10	5888507
Dissolved Tin (Sn)	ug/L	<2.0	2.0	<2.0	2.0	<2.0	<2.0	2.0	5888507
Dissolved Titanium (Ti)	ug/L	<2.0	2.0	<2.0	2.0	<2.0	<2.0	2.0	5888507
Dissolved Uranium (U)	ug/L	<0.10	0.10	1.5	0.10	2.3	0.39	0.10	5888507
Dissolved Vanadium (V)	ug/L	<2.0	2.0	<2.0	2.0	<2.0	<2.0	2.0	5888507
Dissolved Zinc (Zn)	ug/L	<5.0	5.0	41	5.0	10	21	5.0	5888507

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ELEMENTS BY ICP/MS (WATER)

Maxxam ID		IMZ097		IMZ098		
Sampling Date		2018/12/10		2018/12/10		
	UNITS	FD-14	RDL	EB-04	RDL	QC Batch
Metals						
Dissolved Aluminum (Al)	ug/L	750	5.0	<5.0	5.0	5888507
Dissolved Antimony (Sb)	ug/L	<1.0	1.0	<1.0	1.0	5888507
Dissolved Arsenic (As)	ug/L	3.6	1.0	<1.0	1.0	5888507
Dissolved Barium (Ba)	ug/L	17	1.0	<1.0	1.0	5888507
Dissolved Beryllium (Be)	ug/L	1.3	1.0	<1.0	1.0	5888507
Dissolved Bismuth (Bi)	ug/L	<2.0	2.0	<2.0	2.0	5888507
Dissolved Boron (B)	ug/L	190	50	<50	50	5888507
Dissolved Cadmium (Cd)	ug/L	0.14	0.010	<0.010	0.010	5888507
Dissolved Calcium (Ca)	ug/L	400000	100	230	100	5888507
Dissolved Chromium (Cr)	ug/L	<1.0	1.0	<1.0	1.0	5888507
Dissolved Cobalt (Co)	ug/L	59	0.40	<0.40	0.40	5888507
Dissolved Copper (Cu)	ug/L	<2.0	2.0	<2.0	2.0	5888507
Dissolved Iron (Fe)	ug/L	6900	50	<50	50	5888507
Dissolved Lead (Pb)	ug/L	<0.50	0.50	<0.50	0.50	5888507
Dissolved Magnesium (Mg)	ug/L	180000	1000	<100	100	5888507
Dissolved Manganese (Mn)	ug/L	84000	20	7.8	2.0	5888507
Dissolved Molybdenum (Mo)	ug/L	<2.0	2.0	<2.0	2.0	5888507
Dissolved Nickel (Ni)	ug/L	73	2.0	<2.0	2.0	5888507
Dissolved Phosphorus (P)	ug/L	<100	100	<100	100	5888507
Dissolved Potassium (K)	ug/L	12000	100	<100	100	5888507
Dissolved Selenium (Se)	ug/L	<1.0	1.0	<1.0	1.0	5888507
Dissolved Silver (Ag)	ug/L	<0.10	0.10	<0.10	0.10	5888507
Dissolved Sodium (Na)	ug/L	140000	100	270	100	5888507
Dissolved Strontium (Sr)	ug/L	2100	2.0	<2.0	2.0	5888507
Dissolved Thallium (Tl)	ug/L	<0.10	0.10	<0.10	0.10	5888507
Dissolved Tin (Sn)	ug/L	<2.0	2.0	<2.0	2.0	5888507
Dissolved Titanium (Ti)	ug/L	<2.0	2.0	<2.0	2.0	5888507
Dissolved Uranium (U)	ug/L	1.4	0.10	<0.10	0.10	5888507
Dissolved Vanadium (V)	ug/L	<2.0	2.0	<2.0	2.0	5888507
Dissolved Zinc (Zn)	ug/L	42	5.0	<5.0	5.0	5888507

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SEMI-VOLATILE ORGANICS BY GC-MS (WATER)

Maxxam ID		IMY924	IMY925	IMY926		IMY927	IMY928		
Sampling Date		2018/12/10	2018/12/10	2018/12/10		2018/12/10	2018/12/10		
	UNITS	MSES-004-MW	MSES-006-MW	MSES-008-MW	QC Batch	MSES-012-MWA	MSES-104-MWA	RDL	QC Batch
Polyaromatic Hydrocarbons									
1-Methylnaphthalene	ug/L	0.47	0.54	0.58	5888560	0.35	1.5	0.050	5891769
2-Methylnaphthalene	ug/L	0.31	<0.050	0.24	5888560	0.26	0.48	0.050	5891769
Acenaphthene	ug/L	0.18	0.93	1.7	5888560	0.15	6.7	0.010	5891769
Acenaphthylene	ug/L	0.039	1.2	2.3	5888560	0.021	6.5	0.010	5891769
Anthracene	ug/L	<0.010	0.011	0.16	5888560	0.010	0.50	0.010	5891769
Benzo(a)anthracene	ug/L	<0.010	<0.010	0.065	5888560	<0.010	0.18	0.010	5891769
Benzo(a)pyrene	ug/L	<0.010	<0.010	<0.010	5888560	<0.010	0.021	0.010	5891769
Benzo(b)fluoranthene	ug/L	<0.010	<0.010	<0.010	5888560	<0.010	0.020	0.010	5891769
Benzo(b/j)fluoranthene	ug/L	<0.020	<0.020	<0.020	5879419	<0.020	0.036	0.020	5879419
Benzo(g,h,i)perylene	ug/L	<0.010	<0.010	<0.010	5888560	<0.010	<0.010	0.010	5891769
Benzo(j)fluoranthene	ug/L	<0.010	<0.010	<0.010	5888560	<0.010	0.016	0.010	5891769
Benzo(k)fluoranthene	ug/L	<0.010	<0.010	<0.010	5888560	<0.010	0.013	0.010	5891769
Chrysene	ug/L	<0.010	<0.010	0.053	5888560	0.010	0.15	0.010	5891769
Dibenz(a,h)anthracene	ug/L	<0.010	<0.010	<0.010	5888560	<0.010	<0.010	0.010	5891769
Fluoranthene	ug/L	0.014	0.039	1.3	5888560	0.029	3.1	0.010	5891769
Fluorene	ug/L	0.074	0.23	3.6	5888560	0.080	2.1	0.010	5891769
Indeno(1,2,3-cd)pyrene	ug/L	<0.010	<0.010	<0.010	5888560	<0.010	<0.010	0.010	5891769
Naphthalene	ug/L	3.2	<0.20	2.1	5888560	2.2	8.7	0.20	5891769
Perylene	ug/L	<0.010	<0.010	<0.010	5888560	<0.010	<0.010	0.010	5891769
Phenanthrene	ug/L	0.035	0.015	0.58	5888560	0.037	0.68	0.010	5891769
Pyrene	ug/L	0.013	0.023	0.99	5888560	0.018	1.8	0.010	5891769
Surrogate Recovery (%)									
D10-Anthracene	%	92	95	89	5888560	98	98		5891769
D14-Terphenyl	%	95	93	94	5888560	103	104		5891769
D8-Acenaphthylene	%	90	91	93	5888560	100	105		5891769

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SEMI-VOLATILE ORGANICS BY GC-MS (WATER)

Maxxam ID		IMY929	IMY930	IMZ096	IMZ097	IMZ098	IMZ107		
Sampling Date		2018/12/10	2018/12/10	2018/12/10	2018/12/10	2018/12/10	2018/12/10		
	UNITS	MSES-104-MWB	SCU11-001-MWA	CODT-203-MW	FD-14	EB-04	FB-04	RDL	QC Batch
Polyaromatic Hydrocarbons									
1-Methylnaphthalene	ug/L	33	<0.050	0.28	33	<0.050	<0.050	0.050	5891769
2-Methylnaphthalene	ug/L	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5891769
Acenaphthene	ug/L	13	0.010	0.66	13	0.028	<0.010	0.010	5891769
Acenaphthylene	ug/L	24	<0.010	0.031	24	<0.010	<0.010	0.010	5891769
Anthracene	ug/L	1.0	<0.010	0.27	0.98	0.069	<0.010	0.010	5891769
Benzo(a)anthracene	ug/L	0.029	<0.010	0.40	0.028	0.057	<0.010	0.010	5891769
Benzo(a)pyrene	ug/L	<0.010	<0.010	0.27	<0.010	0.024	<0.010	0.010	5891769
Benzo(b)fluoranthene	ug/L	<0.010	<0.010	0.22	<0.010	0.025	<0.010	0.010	5891769
Benzo(b/j)fluoranthene	ug/L	<0.020	<0.020	0.35	<0.020	0.040	<0.020	0.020	5879419
Benzo(g,h,i)perylene	ug/L	<0.010	<0.010	0.11	<0.010	<0.010	<0.010	0.010	5891769
Benzo(j)fluoranthene	ug/L	<0.010	<0.010	0.13	<0.010	0.015	<0.010	0.010	5891769
Benzo(k)fluoranthene	ug/L	<0.010	<0.010	0.14	<0.010	0.015	<0.010	0.010	5891769
Chrysene	ug/L	0.020	<0.010	0.40	0.019	0.052	<0.010	0.010	5891769
Dibenz(a,h)anthracene	ug/L	<0.010	<0.010	0.033	<0.010	<0.010	<0.010	0.010	5891769
Fluoranthene	ug/L	0.64	<0.010	1.0	0.65	0.22	<0.010	0.010	5891769
Fluorene	ug/L	11	0.010	0.26	11	0.049	<0.010	0.010	5891769
Indeno(1,2,3-cd)pyrene	ug/L	<0.010	<0.010	0.11	<0.010	<0.010	<0.010	0.010	5891769
Naphthalene	ug/L	4.5	<0.20	1.6	4.4	<0.20	<0.20	0.20	5891769
Perylene	ug/L	<0.010	<0.010	0.054	<0.010	<0.010	<0.010	0.010	5891769
Phenanthrene	ug/L	7.4	0.024	0.79	7.4	0.30	<0.010	0.010	5891769
Pyrene	ug/L	0.38	<0.010	0.74	0.36	0.14	<0.010	0.010	5891769
Surrogate Recovery (%)									
D10-Anthracene	%	96	95	101	97	101	100		5891769
D14-Terphenyl	%	105	99	105	104	105	103		5891769
D8-Acenaphthylene	%	105	92	101	105	98	100		5891769

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B8W9750
Report Date: 2018/12/20

Dillon Consulting Limited
Client Project #: 14-1360
Site Location: OH PARK / HARBOURSIDE EAST

GENERAL COMMENTS

Sample IMZ098 [EB-04] : RCAp Ion Balance acceptable. Anion/cation agreement within 0.2 meq/L.

Results relate only to the items tested.

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Maxxam Job #: B8W9750
Report Date: 2018/12/20

Dillon Consulting Limited
Client Project #: 14-1360
Site Location: OH PARK / HARBOURSIDE EAST

QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
5888420	NHU	QC Standard	pH	2018/12/14		100	%	97 - 103
5888420	NHU	RPD	pH	2018/12/14	3.7		%	N/A
5888424	NHU	Spiked Blank	Conductivity	2018/12/14		103	%	80 - 120
5888424	NHU	Method Blank	Conductivity	2018/12/14	1.7, RDL=1.0		uS/cm	
5888424	NHU	RPD	Conductivity	2018/12/14	11		%	25
5888507	MLB	Matrix Spike	Dissolved Aluminum (Al)	2018/12/14		93	%	80 - 120
			Dissolved Antimony (Sb)	2018/12/14		99	%	80 - 120
			Dissolved Arsenic (As)	2018/12/14		100	%	80 - 120
			Dissolved Barium (Ba)	2018/12/14		98	%	80 - 120
			Dissolved Beryllium (Be)	2018/12/14		104	%	80 - 120
			Dissolved Bismuth (Bi)	2018/12/14		86	%	80 - 120
			Dissolved Boron (B)	2018/12/14		103	%	80 - 120
			Dissolved Cadmium (Cd)	2018/12/14		101	%	80 - 120
			Dissolved Calcium (Ca)	2018/12/14		97	%	80 - 120
			Dissolved Chromium (Cr)	2018/12/14		99	%	80 - 120
			Dissolved Cobalt (Co)	2018/12/14		99	%	80 - 120
			Dissolved Copper (Cu)	2018/12/14		96	%	80 - 120
			Dissolved Iron (Fe)	2018/12/14		97	%	80 - 120
			Dissolved Lead (Pb)	2018/12/14		95	%	80 - 120
			Dissolved Magnesium (Mg)	2018/12/14		105	%	80 - 120
			Dissolved Manganese (Mn)	2018/12/14		NC	%	80 - 120
			Dissolved Molybdenum (Mo)	2018/12/14		105	%	80 - 120
			Dissolved Nickel (Ni)	2018/12/14		98	%	80 - 120
			Dissolved Phosphorus (P)	2018/12/14		106	%	80 - 120
			Dissolved Potassium (K)	2018/12/14		102	%	80 - 120
			Dissolved Selenium (Se)	2018/12/14		93	%	80 - 120
			Dissolved Silver (Ag)	2018/12/14		75 (1)	%	80 - 120
			Dissolved Sodium (Na)	2018/12/14		NC	%	80 - 120
			Dissolved Strontium (Sr)	2018/12/14		99	%	80 - 120
			Dissolved Thallium (Tl)	2018/12/14		100	%	80 - 120
			Dissolved Tin (Sn)	2018/12/14		103	%	80 - 120
			Dissolved Titanium (Ti)	2018/12/14		102	%	80 - 120
			Dissolved Uranium (U)	2018/12/14		105	%	80 - 120
			Dissolved Vanadium (V)	2018/12/14		103	%	80 - 120
			Dissolved Zinc (Zn)	2018/12/14		99	%	80 - 120
5888507	MLB	Spiked Blank	Dissolved Aluminum (Al)	2018/12/14		97	%	80 - 120
			Dissolved Antimony (Sb)	2018/12/14		95	%	80 - 120
			Dissolved Arsenic (As)	2018/12/14		98	%	80 - 120
			Dissolved Barium (Ba)	2018/12/14		98	%	80 - 120
			Dissolved Beryllium (Be)	2018/12/14		102	%	80 - 120
			Dissolved Bismuth (Bi)	2018/12/14		98	%	80 - 120
			Dissolved Boron (B)	2018/12/14		102	%	80 - 120
			Dissolved Cadmium (Cd)	2018/12/14		101	%	80 - 120
			Dissolved Calcium (Ca)	2018/12/14		100	%	80 - 120
			Dissolved Chromium (Cr)	2018/12/14		98	%	80 - 120
			Dissolved Cobalt (Co)	2018/12/14		100	%	80 - 120
			Dissolved Copper (Cu)	2018/12/14		98	%	80 - 120
			Dissolved Iron (Fe)	2018/12/14		101	%	80 - 120
			Dissolved Lead (Pb)	2018/12/14		96	%	80 - 120
			Dissolved Magnesium (Mg)	2018/12/14		104	%	80 - 120
			Dissolved Manganese (Mn)	2018/12/14		100	%	80 - 120
			Dissolved Molybdenum (Mo)	2018/12/14		102	%	80 - 120
			Dissolved Nickel (Ni)	2018/12/14		100	%	80 - 120

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Dissolved Phosphorus (P)	2018/12/14		106	%	80 - 120
			Dissolved Potassium (K)	2018/12/14		99	%	80 - 120
			Dissolved Selenium (Se)	2018/12/14		100	%	80 - 120
			Dissolved Silver (Ag)	2018/12/14		98	%	80 - 120
			Dissolved Sodium (Na)	2018/12/14		99	%	80 - 120
			Dissolved Strontium (Sr)	2018/12/14		99	%	80 - 120
			Dissolved Thallium (Tl)	2018/12/14		99	%	80 - 120
			Dissolved Tin (Sn)	2018/12/14		98	%	80 - 120
			Dissolved Titanium (Ti)	2018/12/14		100	%	80 - 120
			Dissolved Uranium (U)	2018/12/14		105	%	80 - 120
			Dissolved Vanadium (V)	2018/12/14		102	%	80 - 120
			Dissolved Zinc (Zn)	2018/12/14		99	%	80 - 120
5888507	MLB	Method Blank	Dissolved Aluminum (Al)	2018/12/14	<5.0		ug/L	
			Dissolved Antimony (Sb)	2018/12/14	<1.0		ug/L	
			Dissolved Arsenic (As)	2018/12/14	<1.0		ug/L	
			Dissolved Barium (Ba)	2018/12/14	<1.0		ug/L	
			Dissolved Beryllium (Be)	2018/12/14	<1.0		ug/L	
			Dissolved Bismuth (Bi)	2018/12/14	<2.0		ug/L	
			Dissolved Boron (B)	2018/12/14	<50		ug/L	
			Dissolved Cadmium (Cd)	2018/12/14	<0.010		ug/L	
			Dissolved Calcium (Ca)	2018/12/14	<100		ug/L	
			Dissolved Chromium (Cr)	2018/12/14	<1.0		ug/L	
			Dissolved Cobalt (Co)	2018/12/14	<0.40		ug/L	
			Dissolved Copper (Cu)	2018/12/14	<2.0		ug/L	
			Dissolved Iron (Fe)	2018/12/14	<50		ug/L	
			Dissolved Lead (Pb)	2018/12/14	<0.50		ug/L	
			Dissolved Magnesium (Mg)	2018/12/14	<100		ug/L	
			Dissolved Manganese (Mn)	2018/12/14	<2.0		ug/L	
			Dissolved Molybdenum (Mo)	2018/12/14	<2.0		ug/L	
			Dissolved Nickel (Ni)	2018/12/14	<2.0		ug/L	
			Dissolved Phosphorus (P)	2018/12/14	<100		ug/L	
			Dissolved Potassium (K)	2018/12/14	<100		ug/L	
			Dissolved Selenium (Se)	2018/12/14	<1.0		ug/L	
			Dissolved Silver (Ag)	2018/12/14	<0.10		ug/L	
			Dissolved Sodium (Na)	2018/12/14	<100		ug/L	
			Dissolved Strontium (Sr)	2018/12/14	<2.0		ug/L	
			Dissolved Thallium (Tl)	2018/12/14	<0.10		ug/L	
			Dissolved Tin (Sn)	2018/12/14	<2.0		ug/L	
			Dissolved Titanium (Ti)	2018/12/14	<2.0		ug/L	
			Dissolved Uranium (U)	2018/12/14	<0.10		ug/L	
			Dissolved Vanadium (V)	2018/12/14	<2.0		ug/L	
			Dissolved Zinc (Zn)	2018/12/14	<5.0		ug/L	
5888507	MLB	RPD	Dissolved Aluminum (Al)	2018/12/14	8.1		%	20
			Dissolved Antimony (Sb)	2018/12/14	NC		%	20
			Dissolved Arsenic (As)	2018/12/14	1.7		%	20
			Dissolved Barium (Ba)	2018/12/14	4.6		%	20
			Dissolved Beryllium (Be)	2018/12/14	NC		%	20
			Dissolved Bismuth (Bi)	2018/12/14	NC		%	20
			Dissolved Boron (B)	2018/12/14	1.8		%	20
			Dissolved Cadmium (Cd)	2018/12/14	NC		%	20
			Dissolved Calcium (Ca)	2018/12/14	1.9		%	20
			Dissolved Chromium (Cr)	2018/12/14	NC		%	20
			Dissolved Cobalt (Co)	2018/12/14	10		%	20
			Dissolved Copper (Cu)	2018/12/14	NC		%	20

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Dissolved Iron (Fe)	2018/12/14	0.39		%	20
			Dissolved Lead (Pb)	2018/12/14	NC		%	20
			Dissolved Magnesium (Mg)	2018/12/14	0.90		%	20
			Dissolved Manganese (Mn)	2018/12/14	7.1		%	20
			Dissolved Molybdenum (Mo)	2018/12/14	5.3		%	20
			Dissolved Nickel (Ni)	2018/12/14	NC		%	20
			Dissolved Phosphorus (P)	2018/12/14	5.7		%	20
			Dissolved Potassium (K)	2018/12/14	0.64		%	20
			Dissolved Selenium (Se)	2018/12/14	NC		%	20
			Dissolved Silver (Ag)	2018/12/14	NC		%	20
			Dissolved Sodium (Na)	2018/12/14	0.10		%	20
			Dissolved Strontium (Sr)	2018/12/14	1.1		%	20
			Dissolved Thallium (Tl)	2018/12/14	NC		%	20
			Dissolved Tin (Sn)	2018/12/14	NC		%	20
			Dissolved Titanium (Ti)	2018/12/14	7.0		%	20
			Dissolved Uranium (U)	2018/12/14	NC		%	20
			Dissolved Vanadium (V)	2018/12/14	NC		%	20
			Dissolved Zinc (Zn)	2018/12/14	6.0		%	20
5888560	LGE	Matrix Spike [IMY925-05]	D10-Anthracene	2018/12/14		93	%	50 - 130
			D14-Terphenyl	2018/12/14		91	%	50 - 130
			D8-Acenaphthylene	2018/12/14		90	%	50 - 130
			1-Methylnaphthalene	2018/12/14		94	%	50 - 130
			2-Methylnaphthalene	2018/12/14		95	%	50 - 130
			Acenaphthene	2018/12/14		99	%	50 - 130
			Acenaphthylene	2018/12/14		NC	%	50 - 130
			Anthracene	2018/12/14		94	%	50 - 130
			Benzo(a)anthracene	2018/12/14		97	%	50 - 130
			Benzo(a)pyrene	2018/12/14		90	%	50 - 130
			Benzo(b)fluoranthene	2018/12/14		98	%	50 - 130
			Benzo(g,h,i)perylene	2018/12/14		93	%	50 - 130
			Benzo(j)fluoranthene	2018/12/14		92	%	50 - 130
			Benzo(k)fluoranthene	2018/12/14		102	%	50 - 130
			Chrysene	2018/12/14		98	%	50 - 130
			Dibenz(a,h)anthracene	2018/12/14		73	%	50 - 130
			Fluoranthene	2018/12/14		97	%	50 - 130
			Fluorene	2018/12/14		99	%	50 - 130
			Indeno(1,2,3-cd)pyrene	2018/12/14		92	%	50 - 130
			Naphthalene	2018/12/14		88	%	50 - 130
			Perylene	2018/12/14		91	%	50 - 130
			Phenanthrene	2018/12/14		95	%	50 - 130
			Pyrene	2018/12/14		94	%	50 - 130
5888560	LGE	Spiked Blank	D10-Anthracene	2018/12/14		98	%	50 - 130
			D14-Terphenyl	2018/12/14		97	%	50 - 130
			D8-Acenaphthylene	2018/12/14		93	%	50 - 130
			1-Methylnaphthalene	2018/12/14		91	%	50 - 130
			2-Methylnaphthalene	2018/12/14		96	%	50 - 130
			Acenaphthene	2018/12/14		92	%	50 - 130
			Acenaphthylene	2018/12/14		95	%	50 - 130
			Anthracene	2018/12/14		98	%	50 - 130
			Benzo(a)anthracene	2018/12/14		97	%	50 - 130
			Benzo(a)pyrene	2018/12/14		90	%	50 - 130
			Benzo(b)fluoranthene	2018/12/14		102	%	50 - 130
			Benzo(g,h,i)perylene	2018/12/14		99	%	50 - 130
			Benzo(j)fluoranthene	2018/12/14		95	%	50 - 130

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Benzo(k)fluoranthene	2018/12/14		104	%	50 - 130
			Chrysene	2018/12/14		101	%	50 - 130
			Dibenz(a,h)anthracene	2018/12/14		89	%	50 - 130
			Fluoranthene	2018/12/14		99	%	50 - 130
			Fluorene	2018/12/14		98	%	50 - 130
			Indeno(1,2,3-cd)pyrene	2018/12/14		98	%	50 - 130
			Naphthalene	2018/12/14		89	%	50 - 130
			Perylene	2018/12/14		94	%	50 - 130
			Phenanthrene	2018/12/14		100	%	50 - 130
			Pyrene	2018/12/14		97	%	50 - 130
5888560	LGE	Method Blank	D10-Anthracene	2018/12/14		95	%	50 - 130
			D14-Terphenyl	2018/12/14		95	%	50 - 130
			D8-Acenaphthylene	2018/12/14		86	%	50 - 130
			1-Methylnaphthalene	2018/12/14	<0.050		ug/L	
			2-Methylnaphthalene	2018/12/14	<0.050		ug/L	
			Acenaphthene	2018/12/14	<0.010		ug/L	
			Acenaphthylene	2018/12/14	<0.010		ug/L	
			Anthracene	2018/12/14	<0.010		ug/L	
			Benzo(a)anthracene	2018/12/14	<0.010		ug/L	
			Benzo(a)pyrene	2018/12/14	<0.010		ug/L	
			Benzo(b)fluoranthene	2018/12/14	<0.010		ug/L	
			Benzo(g,h,i)perylene	2018/12/14	<0.010		ug/L	
			Benzo(j)fluoranthene	2018/12/14	<0.010		ug/L	
			Benzo(k)fluoranthene	2018/12/14	<0.010		ug/L	
			Chrysene	2018/12/14	<0.010		ug/L	
			Dibenz(a,h)anthracene	2018/12/14	<0.010		ug/L	
			Fluoranthene	2018/12/14	<0.010		ug/L	
			Fluorene	2018/12/14	<0.010		ug/L	
			Indeno(1,2,3-cd)pyrene	2018/12/14	<0.010		ug/L	
			Naphthalene	2018/12/14	<0.20		ug/L	
			Perylene	2018/12/14	<0.010		ug/L	
			Phenanthrene	2018/12/14	<0.010		ug/L	
			Pyrene	2018/12/14	<0.010		ug/L	
5888560	LGE	RPD [IMY924-05]	1-Methylnaphthalene	2018/12/14	3.3		%	40
			2-Methylnaphthalene	2018/12/14	2.2		%	40
			Acenaphthene	2018/12/14	0.055		%	40
			Acenaphthylene	2018/12/14	2.6		%	40
			Anthracene	2018/12/14	NC		%	40
			Benzo(a)anthracene	2018/12/14	NC		%	40
			Benzo(a)pyrene	2018/12/14	NC		%	40
			Benzo(b)fluoranthene	2018/12/14	NC		%	40
			Benzo(g,h,i)perylene	2018/12/14	NC		%	40
			Benzo(j)fluoranthene	2018/12/14	NC		%	40
			Benzo(k)fluoranthene	2018/12/14	NC		%	40
			Chrysene	2018/12/14	NC		%	40
			Dibenz(a,h)anthracene	2018/12/14	NC		%	40
			Fluoranthene	2018/12/14	18		%	40
			Fluorene	2018/12/14	2.0		%	40
			Indeno(1,2,3-cd)pyrene	2018/12/14	NC		%	40
			Naphthalene	2018/12/14	2.8		%	40
			Perylene	2018/12/14	NC		%	40
			Phenanthrene	2018/12/14	7.1		%	40
			Pyrene	2018/12/14	18		%	40
5888652	NRG	Matrix Spike	Total Alkalinity (Total as CaCO3)	2018/12/14		101	%	80 - 120

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
5888652	NRG	Spiked Blank	Total Alkalinity (Total as CaCO3)	2018/12/14		109	%	80 - 120
5888652	NRG	Method Blank	Total Alkalinity (Total as CaCO3)	2018/12/14	<5.0		mg/L	
5888652	NRG	RPD	Total Alkalinity (Total as CaCO3)	2018/12/14	NC		%	25
5888658	NRG	Matrix Spike	Dissolved Chloride (Cl-)	2018/12/14		97	%	80 - 120
5888658	NRG	QC Standard	Dissolved Chloride (Cl-)	2018/12/14		102	%	80 - 120
5888658	NRG	Spiked Blank	Dissolved Chloride (Cl-)	2018/12/14		98	%	80 - 120
5888658	NRG	Method Blank	Dissolved Chloride (Cl-)	2018/12/14	<1.0		mg/L	
5888658	NRG	RPD	Dissolved Chloride (Cl-)	2018/12/14	10		%	25
5888671	NRG	Matrix Spike	Dissolved Sulphate (SO4)	2018/12/17		99	%	80 - 120
5888671	NRG	Spiked Blank	Dissolved Sulphate (SO4)	2018/12/17		101	%	80 - 120
5888671	NRG	Method Blank	Dissolved Sulphate (SO4)	2018/12/17	<2.0		mg/L	
5888671	NRG	RPD	Dissolved Sulphate (SO4)	2018/12/17	0.60		%	25
5888672	NRG	Matrix Spike	Reactive Silica (SiO2)	2018/12/17		102	%	80 - 120
5888672	NRG	Spiked Blank	Reactive Silica (SiO2)	2018/12/17		103	%	80 - 120
5888672	NRG	Method Blank	Reactive Silica (SiO2)	2018/12/17	<0.50		mg/L	
5888672	NRG	RPD	Reactive Silica (SiO2)	2018/12/17	1.8		%	25
5888675	NRG	Spiked Blank	Colour	2018/12/14		103	%	80 - 120
5888675	NRG	Method Blank	Colour	2018/12/14	<5.0		TCU	
5888675	NRG	RPD	Colour	2018/12/14	NC		%	20
5888676	NRG	Matrix Spike	Orthophosphate (P)	2018/12/14		92	%	80 - 120
5888676	NRG	Spiked Blank	Orthophosphate (P)	2018/12/14		102	%	80 - 120
5888676	NRG	Method Blank	Orthophosphate (P)	2018/12/14	<0.010		mg/L	
5888676	NRG	RPD	Orthophosphate (P)	2018/12/14	NC		%	25
5888678	NRG	Matrix Spike	Nitrate + Nitrite (N)	2018/12/17		81	%	80 - 120
5888678	NRG	Spiked Blank	Nitrate + Nitrite (N)	2018/12/17		100	%	80 - 120
5888678	NRG	Method Blank	Nitrate + Nitrite (N)	2018/12/17	<0.050		mg/L	
5888678	NRG	RPD	Nitrate + Nitrite (N)	2018/12/17	NC		%	25
5888680	NRG	Matrix Spike	Nitrite (N)	2018/12/14		96	%	80 - 120
5888680	NRG	Spiked Blank	Nitrite (N)	2018/12/14		105	%	80 - 120
5888680	NRG	Method Blank	Nitrite (N)	2018/12/14	<0.010		mg/L	
5888680	NRG	RPD	Nitrite (N)	2018/12/14	NC		%	20
5888897	CCR	Matrix Spike	Total Mercury (Hg)	2018/12/17		92	%	80 - 120
5888897	CCR	Spiked Blank	Total Mercury (Hg)	2018/12/17		98	%	80 - 120
5888897	CCR	Method Blank	Total Mercury (Hg)	2018/12/17	<0.013		ug/L	
5888897	CCR	RPD	Total Mercury (Hg)	2018/12/17	NC		%	20
5888900	CCR	Matrix Spike [IMY927-04]	Total Mercury (Hg)	2018/12/17		90	%	80 - 120
5888900	CCR	Spiked Blank	Total Mercury (Hg)	2018/12/17		100	%	80 - 120
5888900	CCR	Method Blank	Total Mercury (Hg)	2018/12/17	<0.013		ug/L	
5888900	CCR	RPD [IMY926-04]	Total Mercury (Hg)	2018/12/17	NC		%	20
5891523	NHU	QC Standard	pH	2018/12/17		100	%	97 - 103
5891523	NHU	RPD	pH	2018/12/17	0.47		%	N/A
5891525	NHU	Spiked Blank	Conductivity	2018/12/17		102	%	80 - 120
5891525	NHU	Method Blank	Conductivity	2018/12/17	1.7, RDL=1.0		uS/cm	
5891525	NHU	RPD	Conductivity	2018/12/17	0.14		%	25
5891528	NHU	QC Standard	pH	2018/12/17		100	%	97 - 103
5891528	NHU	RPD	pH	2018/12/17	2.3		%	N/A
5891529	NHU	Spiked Blank	Conductivity	2018/12/17		102	%	80 - 120
5891529	NHU	Method Blank	Conductivity	2018/12/17	1.7, RDL=1.0		uS/cm	
5891529	NHU	RPD	Conductivity	2018/12/17	0.24		%	25
5891562	NHU	QC Standard	Turbidity	2018/12/17		97	%	80 - 120
5891562	NHU	Spiked Blank	Turbidity	2018/12/17		100	%	80 - 120
5891562	NHU	Method Blank	Turbidity	2018/12/17	<0.10		NTU	

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
5891562	NHU	RPD	Turbidity	2018/12/17	5.6		%	20
5891718	NRG	Matrix Spike	Total Alkalinity (Total as CaCO3)	2018/12/17		99	%	80 - 120
5891718	NRG	Spiked Blank	Total Alkalinity (Total as CaCO3)	2018/12/17		105	%	80 - 120
5891718	NRG	Method Blank	Total Alkalinity (Total as CaCO3)	2018/12/17	<5.0		mg/L	
5891718	NRG	RPD	Total Alkalinity (Total as CaCO3)	2018/12/17	3.8		%	25
5891725	NRG	Matrix Spike	Dissolved Chloride (Cl-)	2018/12/17		NC	%	80 - 120
5891725	NRG	QC Standard	Dissolved Chloride (Cl-)	2018/12/18		106	%	80 - 120
5891725	NRG	Spiked Blank	Dissolved Chloride (Cl-)	2018/12/17		101	%	80 - 120
5891725	NRG	Method Blank	Dissolved Chloride (Cl-)	2018/12/17	<1.0		mg/L	
5891725	NRG	RPD	Dissolved Chloride (Cl-)	2018/12/17	2.1		%	25
5891726	NRG	Matrix Spike	Dissolved Sulphate (SO4)	2018/12/18		100	%	80 - 120
5891726	NRG	Spiked Blank	Dissolved Sulphate (SO4)	2018/12/18		93	%	80 - 120
5891726	NRG	Method Blank	Dissolved Sulphate (SO4)	2018/12/18	<2.0		mg/L	
5891726	NRG	RPD	Dissolved Sulphate (SO4)	2018/12/18	3.6		%	25
5891729	NRG	Matrix Spike	Reactive Silica (SiO2)	2018/12/17		95	%	80 - 120
5891729	NRG	Spiked Blank	Reactive Silica (SiO2)	2018/12/17		100	%	80 - 120
5891729	NRG	Method Blank	Reactive Silica (SiO2)	2018/12/17	<0.50		mg/L	
5891729	NRG	RPD	Reactive Silica (SiO2)	2018/12/17	0.97		%	25
5891730	NRG	Spiked Blank	Colour	2018/12/17		96	%	80 - 120
5891730	NRG	Method Blank	Colour	2018/12/17	<5.0		TCU	
5891730	NRG	RPD	Colour	2018/12/17	8.0		%	20
5891732	NRG	Matrix Spike	Orthophosphate (P)	2018/12/17		91	%	80 - 120
5891732	NRG	Spiked Blank	Orthophosphate (P)	2018/12/17		97	%	80 - 120
5891732	NRG	Method Blank	Orthophosphate (P)	2018/12/17	<0.010		mg/L	
5891732	NRG	RPD	Orthophosphate (P)	2018/12/17	NC		%	25
5891734	NRG	Matrix Spike	Nitrate + Nitrite (N)	2018/12/18		95	%	80 - 120
5891734	NRG	Spiked Blank	Nitrate + Nitrite (N)	2018/12/18		98	%	80 - 120
5891734	NRG	Method Blank	Nitrate + Nitrite (N)	2018/12/18	<0.050		mg/L	
5891734	NRG	RPD	Nitrate + Nitrite (N)	2018/12/18	14		%	25
5891738	NRG	Matrix Spike	Nitrite (N)	2018/12/17		99	%	80 - 120
5891738	NRG	Spiked Blank	Nitrite (N)	2018/12/17		102	%	80 - 120
5891738	NRG	Method Blank	Nitrite (N)	2018/12/17	<0.010		mg/L	
5891738	NRG	RPD	Nitrite (N)	2018/12/17	NC		%	20
5891745	NRG	Matrix Spike	Total Alkalinity (Total as CaCO3)	2018/12/17		NC	%	80 - 120
5891745	NRG	Spiked Blank	Total Alkalinity (Total as CaCO3)	2018/12/17		106	%	80 - 120
5891745	NRG	Method Blank	Total Alkalinity (Total as CaCO3)	2018/12/17	<5.0		mg/L	
5891745	NRG	RPD	Total Alkalinity (Total as CaCO3)	2018/12/17	0.63		%	25
5891748	NRG	Matrix Spike	Dissolved Chloride (Cl-)	2018/12/18		NC	%	80 - 120
5891748	NRG	QC Standard	Dissolved Chloride (Cl-)	2018/12/18		108	%	80 - 120
5891748	NRG	Spiked Blank	Dissolved Chloride (Cl-)	2018/12/17		101	%	80 - 120
5891748	NRG	Method Blank	Dissolved Chloride (Cl-)	2018/12/17	<1.0		mg/L	
5891748	NRG	RPD	Dissolved Chloride (Cl-)	2018/12/18	1.3		%	25
5891749	NRG	Matrix Spike	Dissolved Sulphate (SO4)	2018/12/18		NC	%	80 - 120
5891749	NRG	Spiked Blank	Dissolved Sulphate (SO4)	2018/12/18		100	%	80 - 120
5891749	NRG	Method Blank	Dissolved Sulphate (SO4)	2018/12/18	<2.0		mg/L	
5891749	NRG	RPD	Dissolved Sulphate (SO4)	2018/12/18	0.043		%	25
5891750	NRG	Matrix Spike	Reactive Silica (SiO2)	2018/12/17		NC	%	80 - 120
5891750	NRG	Spiked Blank	Reactive Silica (SiO2)	2018/12/17		98	%	80 - 120
5891750	NRG	Method Blank	Reactive Silica (SiO2)	2018/12/17	<0.50		mg/L	
5891750	NRG	RPD	Reactive Silica (SiO2)	2018/12/17	0.85		%	25
5891751	NRG	Spiked Blank	Colour	2018/12/17		96	%	80 - 120
5891751	NRG	Method Blank	Colour	2018/12/17	<5.0		TCU	
5891751	NRG	RPD	Colour	2018/12/17	1.8		%	20
5891753	NRG	Matrix Spike	Orthophosphate (P)	2018/12/17		95	%	80 - 120

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
5891753	NRG	Spiked Blank	Orthophosphate (P)	2018/12/17		97	%	80 - 120
5891753	NRG	Method Blank	Orthophosphate (P)	2018/12/17	<0.010		mg/L	
5891753	NRG	RPD	Orthophosphate (P)	2018/12/17	1.4		%	25
5891754	NRG	Matrix Spike	Nitrate + Nitrite (N)	2018/12/18		100	%	80 - 120
5891754	NRG	Spiked Blank	Nitrate + Nitrite (N)	2018/12/18		93	%	80 - 120
5891754	NRG	Method Blank	Nitrate + Nitrite (N)	2018/12/18	<0.050		mg/L	
5891754	NRG	RPD	Nitrate + Nitrite (N)	2018/12/18	1.3		%	25
5891755	NRG	Matrix Spike	Nitrite (N)	2018/12/17		102	%	80 - 120
5891755	NRG	Spiked Blank	Nitrite (N)	2018/12/17		103	%	80 - 120
5891755	NRG	Method Blank	Nitrite (N)	2018/12/17	<0.010		mg/L	
5891755	NRG	RPD	Nitrite (N)	2018/12/17	1.6		%	20
5891769	LGE	Matrix Spike [IMY928-05]	D10-Anthracene	2018/12/17		99	%	50 - 130
			D14-Terphenyl	2018/12/17		104	%	50 - 130
			D8-Acenaphthylene	2018/12/17		104	%	50 - 130
			1-Methylnaphthalene	2018/12/17		NC	%	50 - 130
			2-Methylnaphthalene	2018/12/17		99	%	50 - 130
			Acenaphthene	2018/12/17		NC	%	50 - 130
			Acenaphthylene	2018/12/17		NC	%	50 - 130
			Anthracene	2018/12/17		109	%	50 - 130
			Benzo(a)anthracene	2018/12/17		116	%	50 - 130
			Benzo(a)pyrene	2018/12/17		101	%	50 - 130
			Benzo(b)fluoranthene	2018/12/17		113	%	50 - 130
			Benzo(g,h,i)perylene	2018/12/17		106	%	50 - 130
			Benzo(j)fluoranthene	2018/12/17		106	%	50 - 130
			Benzo(k)fluoranthene	2018/12/17		117	%	50 - 130
			Chrysene	2018/12/17		118	%	50 - 130
			Dibenz(a,h)anthracene	2018/12/17		100	%	50 - 130
			Fluoranthene	2018/12/17		NC	%	50 - 130
			Fluorene	2018/12/17		NC	%	50 - 130
			Indeno(1,2,3-cd)pyrene	2018/12/17		107	%	50 - 130
			Naphthalene	2018/12/17		NC	%	50 - 130
			Perylene	2018/12/17		105	%	50 - 130
			Phenanthrene	2018/12/17		110	%	50 - 130
			Pyrene	2018/12/17		NC	%	50 - 130
5891769	LGE	Spiked Blank	D10-Anthracene	2018/12/17		99	%	50 - 130
			D14-Terphenyl	2018/12/17		102	%	50 - 130
			D8-Acenaphthylene	2018/12/17		100	%	50 - 130
			1-Methylnaphthalene	2018/12/17		94	%	50 - 130
			2-Methylnaphthalene	2018/12/17		99	%	50 - 130
			Acenaphthene	2018/12/17		101	%	50 - 130
			Acenaphthylene	2018/12/17		103	%	50 - 130
			Anthracene	2018/12/17		109	%	50 - 130
			Benzo(a)anthracene	2018/12/17		110	%	50 - 130
			Benzo(a)pyrene	2018/12/17		98	%	50 - 130
			Benzo(b)fluoranthene	2018/12/17		111	%	50 - 130
			Benzo(g,h,i)perylene	2018/12/17		99	%	50 - 130
			Benzo(j)fluoranthene	2018/12/17		105	%	50 - 130
			Benzo(k)fluoranthene	2018/12/17		115	%	50 - 130
			Chrysene	2018/12/17		114	%	50 - 130
			Dibenz(a,h)anthracene	2018/12/17		81	%	50 - 130
			Fluoranthene	2018/12/17		112	%	50 - 130
			Fluorene	2018/12/17		107	%	50 - 130
			Indeno(1,2,3-cd)pyrene	2018/12/17		98	%	50 - 130
			Naphthalene	2018/12/17		89	%	50 - 130

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Perylene	2018/12/17		101	%	50 - 130
			Phenanthrene	2018/12/17		113	%	50 - 130
			Pyrene	2018/12/17		109	%	50 - 130
5891769	LGE	Method Blank	D10-Anthracene	2018/12/17		94	%	50 - 130
			D14-Terphenyl	2018/12/17		98	%	50 - 130
			D8-Acenaphthylene	2018/12/17		98	%	50 - 130
			1-Methylnaphthalene	2018/12/17	<0.050		ug/L	
			2-Methylnaphthalene	2018/12/17	<0.050		ug/L	
			Acenaphthene	2018/12/17	<0.010		ug/L	
			Acenaphthylene	2018/12/17	<0.010		ug/L	
			Anthracene	2018/12/17	<0.010		ug/L	
			Benzo(a)anthracene	2018/12/17	<0.010		ug/L	
			Benzo(a)pyrene	2018/12/17	<0.010		ug/L	
			Benzo(b)fluoranthene	2018/12/17	<0.010		ug/L	
			Benzo(g,h,i)perylene	2018/12/17	<0.010		ug/L	
			Benzo(j)fluoranthene	2018/12/17	<0.010		ug/L	
			Benzo(k)fluoranthene	2018/12/17	<0.010		ug/L	
			Chrysene	2018/12/17	<0.010		ug/L	
			Dibenz(a,h)anthracene	2018/12/17	<0.010		ug/L	
			Fluoranthene	2018/12/17	<0.010		ug/L	
			Fluorene	2018/12/17	<0.010		ug/L	
			Indeno(1,2,3-cd)pyrene	2018/12/17	<0.010		ug/L	
			Naphthalene	2018/12/17	<0.20		ug/L	
			Perylene	2018/12/17	<0.010		ug/L	
			Phenanthrene	2018/12/17	<0.010		ug/L	
			Pyrene	2018/12/17	<0.010		ug/L	
5891769	LGE	RPD [IMY927-05]	1-Methylnaphthalene	2018/12/17	3.9		%	40
			2-Methylnaphthalene	2018/12/17	9.0		%	40
			Acenaphthene	2018/12/17	2.5		%	40
			Acenaphthylene	2018/12/17	30		%	40
			Anthracene	2018/12/17	137 (2)		%	40
			Benzo(a)anthracene	2018/12/17	151 (2)		%	40
			Benzo(a)pyrene	2018/12/17	121 (2)		%	40
			Benzo(b)fluoranthene	2018/12/17	106 (2)		%	40
			Benzo(g,h,i)perylene	2018/12/17	31		%	40
			Benzo(j)fluoranthene	2018/12/17	NC		%	40
			Benzo(k)fluoranthene	2018/12/17	NC		%	40
			Chrysene	2018/12/17	149 (2)		%	40
			Dibenz(a,h)anthracene	2018/12/17	NC		%	40
			Fluoranthene	2018/12/17	142 (2)		%	40
			Fluorene	2018/12/17	20		%	40
			Indeno(1,2,3-cd)pyrene	2018/12/17	36		%	40
			Naphthalene	2018/12/17	1.0		%	40
			Perylene	2018/12/17	NC		%	40
			Phenanthrene	2018/12/17	112 (2)		%	40
			Pyrene	2018/12/17	147 (2)		%	40
5891933	SRM	Matrix Spike	Nitrogen (Ammonia Nitrogen)	2018/12/17		89	%	80 - 120
5891933	SRM	Spiked Blank	Nitrogen (Ammonia Nitrogen)	2018/12/17		104	%	80 - 120
5891933	SRM	Method Blank	Nitrogen (Ammonia Nitrogen)	2018/12/17	<0.050		mg/L	
5891933	SRM	RPD	Nitrogen (Ammonia Nitrogen)	2018/12/17	NC		%	20
5891936	SRM	Matrix Spike	Nitrogen (Ammonia Nitrogen)	2018/12/17		92	%	80 - 120
5891936	SRM	Spiked Blank	Nitrogen (Ammonia Nitrogen)	2018/12/17		93	%	80 - 120
5891936	SRM	Method Blank	Nitrogen (Ammonia Nitrogen)	2018/12/17	<0.050		mg/L	
5891936	SRM	RPD	Nitrogen (Ammonia Nitrogen)	2018/12/17	7.7		%	20

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Maxxam Job #: B8W9750
Report Date: 2018/12/20

Dillon Consulting Limited
Client Project #: 14-1360
Site Location: OH PARK / HARBOURSIDE EAST

QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
5893903	NHU	QC Standard	Turbidity	2018/12/18		97	%	80 - 120
5893903	NHU	Spiked Blank	Turbidity	2018/12/18		100	%	80 - 120
5893903	NHU	Method Blank	Turbidity	2018/12/18	<0.10		NTU	
5893903	NHU	RPD	Turbidity	2018/12/18	1.2		%	20
5893907	NHU	QC Standard	Turbidity	2018/12/18		97	%	80 - 120
5893907	NHU	Spiked Blank	Turbidity	2018/12/18		100	%	80 - 120
5893907	NHU	Method Blank	Turbidity	2018/12/18	<0.10		NTU	
5893907	NHU	RPD	Turbidity	2018/12/18	1.2		%	20
5896210	HM2	Matrix Spike	Total Organic Carbon (C)	2018/12/19		102	%	85 - 115
5896210	HM2	Spiked Blank	Total Organic Carbon (C)	2018/12/19		101	%	80 - 120
5896210	HM2	Method Blank	Total Organic Carbon (C)	2018/12/19	<0.50		mg/L	
5896210	HM2	RPD	Total Organic Carbon (C)	2018/12/19	4.2		%	15
5896212	HM2	Matrix Spike	Total Organic Carbon (C)	2018/12/19		102	%	85 - 115
5896212	HM2	Spiked Blank	Total Organic Carbon (C)	2018/12/19		101	%	80 - 120
5896212	HM2	Method Blank	Total Organic Carbon (C)	2018/12/19	<0.50		mg/L	
5896212	HM2	RPD	Total Organic Carbon (C)	2018/12/19	NC (3)		%	15

N/A = Not Applicable

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

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

QC Standard: A sample of known concentration prepared by an external agency under stringent conditions. Used as an independent check of method accuracy.

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

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

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

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

(1) Recovery is within QC acceptance limits. < 10 % of compounds in multi-component analysis in violation.

(2) Duplicate: results are outside acceptance limit. Insufficient sample for repeat analysis.

(3) Elevated reporting limit due to turbidity.

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Maxxam Job #: B8W9750
Report Date: 2018/12/20

Dillon Consulting Limited
Client Project #: 14-1360
Site Location: OH PARK / HARBOURSIDE EAST

VALIDATION SIGNATURE PAGE

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

Eric Dearman, Scientific Specialist

Mike MacGillivray, Scientific Specialist (Inorganics)

Rosemarie MacDonald, Scientific Specialist (Organics)

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

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Maxxam
A Bureau Veritas Group Company

Your Project #: 14-1360
Site#: OH Park / Harbourside East
Your C.O.C. #: 692000

Attention: Nadine Wambolt

Dillon Consulting Limited
275 Charlotte St
Sydney, NS
CANADA B1P 1C6

Report Date: 2018/12/20
Report #: R5533459
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B8X0448
Received: 2018/12/11, 10:30

Sample Matrix: Water
Samples Received: 1

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Reference
Carbonate, Bicarbonate and Hydroxide (1)	1	N/A	2018/12/17	N/A	SM 23 4500-CO2 D
Alkalinity (1)	1	N/A	2018/12/17	ATL SOP 00013	EPA 310.2 R1974 m
Benzo(b/j)fluoranthene Sum (water) (1)	1	N/A	2018/12/18	N/A	Auto Calc.
Chloride (1)	1	N/A	2018/12/18	ATL SOP 00014	SM 23 4500-Cl- E m
Colour (1)	1	N/A	2018/12/17	ATL SOP 00020	SM 23 2120C m
Conductance - water (1)	1	N/A	2018/12/17	ATL SOP 00004	SM 23 2510B m
Hardness (calculated as CaCO3) (1)	1	N/A	2018/12/17	ATL SOP 00048	Auto Calc
Mercury - Total (CVAA,LL) (1)	1	2018/12/14	2018/12/17	ATL SOP 00026	EPA 245.1 R3 m
Metals Water Diss. MS (as rec'd) (1)	1	N/A	2018/12/14	ATL SOP 00058	EPA 6020A R1 m
Ion Balance (% Difference) (1)	1	N/A	2018/12/18	N/A	Auto Calc.
Anion and Cation Sum (1)	1	N/A	2018/12/18	N/A	Auto Calc.
Nitrogen Ammonia - water (1)	1	N/A	2018/12/17	ATL SOP 00015	EPA 350.1 R2 m
Nitrogen - Nitrate + Nitrite (1)	1	N/A	2018/12/18	ATL SOP 00016	USGS I-2547-11m
Nitrogen - Nitrite (1)	1	N/A	2018/12/17	ATL SOP 00017	SM 23 4500-NO2- B m
Nitrogen - Nitrate (as N) (1)	1	N/A	2018/12/18	ATL SOP 00018	ASTM D3867-16
PAH in Water by GC/MS (SIM) (1)	1	2018/12/17	2018/12/17	ATL SOP 00103	EPA 8270D 2014 m
pH (1, 2)	1	N/A	2018/12/17	ATL SOP 00003	SM 23 4500-H+ B m
Phosphorus - ortho (1)	1	N/A	2018/12/17	ATL SOP 00021	SM 23 4500-P E m
Sat. pH and Langelier Index (@ 20C) (1)	1	N/A	2018/12/18	ATL SOP 00049	Auto Calc.
Sat. pH and Langelier Index (@ 4C) (1)	1	N/A	2018/12/18	ATL SOP 00049	Auto Calc.
Reactive Silica (1)	1	N/A	2018/12/17	ATL SOP 00022	EPA 366.0 m
Sulphate (1)	1	N/A	2018/12/18	ATL SOP 00023	ASTM D516-16 m
Total Dissolved Solids (TDS calc) (1)	1	N/A	2018/12/18	N/A	Auto Calc.
Organic carbon - Total (TOC) (1, 3)	1	N/A	2018/12/19	ATL SOP 00203	SM 23 5310B m
Turbidity (1)	1	N/A	2018/12/18	ATL SOP 00011	EPA 180.1 R2 m

Remarks:

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

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Maxxam's profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Maxxam in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless

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Your Project #: 14-1360
Site#: OH Park / Harbourside East
Your C.O.C. #: 692000

Attention: Nadine Wambolt

Dillon Consulting Limited
275 Charlotte St
Sydney, NS
CANADA B1P 1C6

Report Date: 2018/12/20
Report #: R5533459
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B8X0448
Received: 2018/12/11, 10:30

indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

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

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by Maxxam, results relate to the supplied samples tested.

Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
(1) This test was performed by Maxxam Bedford
(2) The APHA Standard Method require pH to be analyzed within 15 minutes of sampling and therefore field analysis is required for compliance. All Laboratory pH analyses in this report are reported past the APHA Standard Method holding time.
(3) TOC / DOC present in the sample should be considered as non-purgeable TOC / DOC.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Natalie MacAskill, Key Account Specialist
Email: NMacAskill@maxxam.ca
Phone# (902)567-1255 Ext:17
==========
This report has been generated and distributed using a secure automated process.
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Maxxam Job #: B8X0448
Report Date: 2018/12/20

Dillon Consulting Limited
Client Project #: 14-1360

RESULTS OF ANALYSES OF WATER

Maxxam ID		IND398		
Sampling Date		2018/12/11		
COC Number		692000		
	UNITS	SCU7-003-MW	RDL	QC Batch
Calculated Parameters				
Anion Sum	me/L	11.7	N/A	5881380
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	150	1.0	5881376
Calculated TDS	mg/L	670	1.0	5881389
Carb. Alkalinity (calc. as CaCO3)	mg/L	<1.0	1.0	5881376
Cation Sum	me/L	11.0	N/A	5881380
Hardness (CaCO3)	mg/L	340	1.0	5881377
Ion Balance (% Difference)	%	3.31	N/A	5881378
Langelier Index (@ 20C)	N/A	-0.228		5881387
Langelier Index (@ 4C)	N/A	-0.475		5881388
Nitrate (N)	mg/L	0.33	0.050	5881382
Saturation pH (@ 20C)	N/A	7.25		5881387
Saturation pH (@ 4C)	N/A	7.50		5881388
Inorganics				
Total Alkalinity (Total as CaCO3)	mg/L	150	25	5891745
Dissolved Chloride (Cl-)	mg/L	220	2.0	5891748
Colour	TCU	<5.0	5.0	5891751
Nitrate + Nitrite (N)	mg/L	0.33	0.050	5891754
Nitrite (N)	mg/L	<0.010	0.010	5891755
Nitrogen (Ammonia Nitrogen)	mg/L	0.79	0.050	5891933
Total Organic Carbon (C)	mg/L	1.3	0.50	5896212
Orthophosphate (P)	mg/L	<0.010	0.010	5891753
pH	pH	7.02	N/A	5891528
Reactive Silica (SiO2)	mg/L	9.8	0.50	5891750
Dissolved Sulphate (SO4)	mg/L	120	10	5891749
Turbidity	NTU	0.22	0.10	5893909
Conductivity	uS/cm	1200	1.0	5891529

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable

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Maxxam Job #: B8X0448
Report Date: 2018/12/20

Dillon Consulting Limited
Client Project #: 14-1360

MERCURY BY COLD VAPOUR AA (WATER)

Maxxam ID		IND398		
Sampling Date		2018/12/11		
COC Number		692000		
	UNITS	SCU7-003-MW	RDL	QC Batch
Metals				
Total Mercury (Hg)	ug/L	<0.013	0.013	5888900

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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ELEMENTS BY ICP/MS (WATER)

Maxxam ID		IND398		
Sampling Date		2018/12/11		
COC Number		692000		
	UNITS	SCU7-003-MW	RDL	QC Batch
Metals				
Dissolved Aluminum (Al)	ug/L	<5.0	5.0	5888507
Dissolved Antimony (Sb)	ug/L	<1.0	1.0	5888507
Dissolved Arsenic (As)	ug/L	<1.0	1.0	5888507
Dissolved Barium (Ba)	ug/L	22	1.0	5888507
Dissolved Beryllium (Be)	ug/L	<1.0	1.0	5888507
Dissolved Bismuth (Bi)	ug/L	<2.0	2.0	5888507
Dissolved Boron (B)	ug/L	91	50	5888507
Dissolved Cadmium (Cd)	ug/L	0.39	0.010	5888507
Dissolved Calcium (Ca)	ug/L	120000	100	5888507
Dissolved Chromium (Cr)	ug/L	<1.0	1.0	5888507
Dissolved Cobalt (Co)	ug/L	0.80	0.40	5888507
Dissolved Copper (Cu)	ug/L	<2.0	2.0	5888507
Dissolved Iron (Fe)	ug/L	260	50	5888507
Dissolved Lead (Pb)	ug/L	<0.50	0.50	5888507
Dissolved Magnesium (Mg)	ug/L	12000	100	5888507
Dissolved Manganese (Mn)	ug/L	2300	2.0	5888507
Dissolved Molybdenum (Mo)	ug/L	<2.0	2.0	5888507
Dissolved Nickel (Ni)	ug/L	<2.0	2.0	5888507
Dissolved Phosphorus (P)	ug/L	<100	100	5888507
Dissolved Potassium (K)	ug/L	5700	100	5888507
Dissolved Selenium (Se)	ug/L	<1.0	1.0	5888507
Dissolved Silver (Ag)	ug/L	<0.10	0.10	5888507
Dissolved Sodium (Na)	ug/L	91000	100	5888507
Dissolved Strontium (Sr)	ug/L	520	2.0	5888507
Dissolved Thallium (Tl)	ug/L	<0.10	0.10	5888507
Dissolved Tin (Sn)	ug/L	<2.0	2.0	5888507
Dissolved Titanium (Ti)	ug/L	<2.0	2.0	5888507
Dissolved Uranium (U)	ug/L	0.18	0.10	5888507
Dissolved Vanadium (V)	ug/L	<2.0	2.0	5888507
Dissolved Zinc (Zn)	ug/L	8.3	5.0	5888507

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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SEMI-VOLATILE ORGANICS BY GC-MS (WATER)

Maxxam ID		IND398		
Sampling Date		2018/12/11		
COC Number		692000		
	UNITS	SCU7-003-MW	RDL	QC Batch
Polyaromatic Hydrocarbons				
1-Methylnaphthalene	ug/L	<0.050	0.050	5891769
2-Methylnaphthalene	ug/L	<0.050	0.050	5891769
Acenaphthene	ug/L	<0.010	0.010	5891769
Acenaphthylene	ug/L	<0.010	0.010	5891769
Anthracene	ug/L	<0.010	0.010	5891769
Benzo(a)anthracene	ug/L	<0.010	0.010	5891769
Benzo(a)pyrene	ug/L	<0.010	0.010	5891769
Benzo(b)fluoranthene	ug/L	<0.010	0.010	5891769
Benzo(b/j)fluoranthene	ug/L	<0.020	0.020	5881368
Benzo(g,h,i)perylene	ug/L	<0.010	0.010	5891769
Benzo(j)fluoranthene	ug/L	<0.010	0.010	5891769
Benzo(k)fluoranthene	ug/L	<0.010	0.010	5891769
Chrysene	ug/L	<0.010	0.010	5891769
Dibenz(a,h)anthracene	ug/L	<0.010	0.010	5891769
Fluoranthene	ug/L	0.022	0.010	5891769
Fluorene	ug/L	<0.010	0.010	5891769
Indeno(1,2,3-cd)pyrene	ug/L	<0.010	0.010	5891769
Naphthalene	ug/L	<0.20	0.20	5891769
Perylene	ug/L	<0.010	0.010	5891769
Phenanthrene	ug/L	0.034	0.010	5891769
Pyrene	ug/L	0.016	0.010	5891769
Surrogate Recovery (%)				
D10-Anthracene	%	95		5891769
D14-Terphenyl	%	100 (1)		5891769
D8-Acenaphthylene	%	95		5891769

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
(1) PAH sample contained sediment.

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GENERAL COMMENTS

Results relate only to the items tested.

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QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
5888507	MLB	Matrix Spike	Dissolved Aluminum (Al)	2018/12/14		93	%	80 - 120
			Dissolved Antimony (Sb)	2018/12/14		99	%	80 - 120
			Dissolved Arsenic (As)	2018/12/14		100	%	80 - 120
			Dissolved Barium (Ba)	2018/12/14		98	%	80 - 120
			Dissolved Beryllium (Be)	2018/12/14		104	%	80 - 120
			Dissolved Bismuth (Bi)	2018/12/14		86	%	80 - 120
			Dissolved Boron (B)	2018/12/14		103	%	80 - 120
			Dissolved Cadmium (Cd)	2018/12/14		101	%	80 - 120
			Dissolved Calcium (Ca)	2018/12/14		97	%	80 - 120
			Dissolved Chromium (Cr)	2018/12/14		99	%	80 - 120
			Dissolved Cobalt (Co)	2018/12/14		99	%	80 - 120
			Dissolved Copper (Cu)	2018/12/14		96	%	80 - 120
			Dissolved Iron (Fe)	2018/12/14		97	%	80 - 120
			Dissolved Lead (Pb)	2018/12/14		95	%	80 - 120
			Dissolved Magnesium (Mg)	2018/12/14		105	%	80 - 120
			Dissolved Manganese (Mn)	2018/12/14		NC	%	80 - 120
			Dissolved Molybdenum (Mo)	2018/12/14		105	%	80 - 120
			Dissolved Nickel (Ni)	2018/12/14		98	%	80 - 120
			Dissolved Phosphorus (P)	2018/12/14		106	%	80 - 120
			Dissolved Potassium (K)	2018/12/14		102	%	80 - 120
			Dissolved Selenium (Se)	2018/12/14		93	%	80 - 120
			Dissolved Silver (Ag)	2018/12/14		75 (1)	%	80 - 120
			Dissolved Sodium (Na)	2018/12/14		NC	%	80 - 120
			Dissolved Strontium (Sr)	2018/12/14		99	%	80 - 120
			Dissolved Thallium (Tl)	2018/12/14		100	%	80 - 120
			Dissolved Tin (Sn)	2018/12/14		103	%	80 - 120
			Dissolved Titanium (Ti)	2018/12/14		102	%	80 - 120
			Dissolved Uranium (U)	2018/12/14		105	%	80 - 120
			Dissolved Vanadium (V)	2018/12/14		103	%	80 - 120
			Dissolved Zinc (Zn)	2018/12/14		99	%	80 - 120
5888507	MLB	Spiked Blank	Dissolved Aluminum (Al)	2018/12/14		97	%	80 - 120
			Dissolved Antimony (Sb)	2018/12/14		95	%	80 - 120
			Dissolved Arsenic (As)	2018/12/14		98	%	80 - 120
			Dissolved Barium (Ba)	2018/12/14		98	%	80 - 120
			Dissolved Beryllium (Be)	2018/12/14		102	%	80 - 120
			Dissolved Bismuth (Bi)	2018/12/14		98	%	80 - 120
			Dissolved Boron (B)	2018/12/14		102	%	80 - 120
			Dissolved Cadmium (Cd)	2018/12/14		101	%	80 - 120
			Dissolved Calcium (Ca)	2018/12/14		100	%	80 - 120
			Dissolved Chromium (Cr)	2018/12/14		98	%	80 - 120
			Dissolved Cobalt (Co)	2018/12/14		100	%	80 - 120
			Dissolved Copper (Cu)	2018/12/14		98	%	80 - 120
			Dissolved Iron (Fe)	2018/12/14		101	%	80 - 120
			Dissolved Lead (Pb)	2018/12/14		96	%	80 - 120
			Dissolved Magnesium (Mg)	2018/12/14		104	%	80 - 120
			Dissolved Manganese (Mn)	2018/12/14		100	%	80 - 120
			Dissolved Molybdenum (Mo)	2018/12/14		102	%	80 - 120
			Dissolved Nickel (Ni)	2018/12/14		100	%	80 - 120
			Dissolved Phosphorus (P)	2018/12/14		106	%	80 - 120
			Dissolved Potassium (K)	2018/12/14		99	%	80 - 120
			Dissolved Selenium (Se)	2018/12/14		100	%	80 - 120
			Dissolved Silver (Ag)	2018/12/14		98	%	80 - 120
			Dissolved Sodium (Na)	2018/12/14		99	%	80 - 120
			Dissolved Strontium (Sr)	2018/12/14		99	%	80 - 120
			Dissolved Thallium (Tl)	2018/12/14		99	%	80 - 120

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Dissolved Tin (Sn)	2018/12/14		98	%	80 - 120
			Dissolved Titanium (Ti)	2018/12/14		100	%	80 - 120
			Dissolved Uranium (U)	2018/12/14		105	%	80 - 120
			Dissolved Vanadium (V)	2018/12/14		102	%	80 - 120
			Dissolved Zinc (Zn)	2018/12/14		99	%	80 - 120
5888507	MLB	Method Blank	Dissolved Aluminum (Al)	2018/12/14	<5.0		ug/L	
			Dissolved Antimony (Sb)	2018/12/14	<1.0		ug/L	
			Dissolved Arsenic (As)	2018/12/14	<1.0		ug/L	
			Dissolved Barium (Ba)	2018/12/14	<1.0		ug/L	
			Dissolved Beryllium (Be)	2018/12/14	<1.0		ug/L	
			Dissolved Bismuth (Bi)	2018/12/14	<2.0		ug/L	
			Dissolved Boron (B)	2018/12/14	<50		ug/L	
			Dissolved Cadmium (Cd)	2018/12/14	<0.010		ug/L	
			Dissolved Calcium (Ca)	2018/12/14	<100		ug/L	
			Dissolved Chromium (Cr)	2018/12/14	<1.0		ug/L	
			Dissolved Cobalt (Co)	2018/12/14	<0.40		ug/L	
			Dissolved Copper (Cu)	2018/12/14	<2.0		ug/L	
			Dissolved Iron (Fe)	2018/12/14	<50		ug/L	
			Dissolved Lead (Pb)	2018/12/14	<0.50		ug/L	
			Dissolved Magnesium (Mg)	2018/12/14	<100		ug/L	
			Dissolved Manganese (Mn)	2018/12/14	<2.0		ug/L	
			Dissolved Molybdenum (Mo)	2018/12/14	<2.0		ug/L	
			Dissolved Nickel (Ni)	2018/12/14	<2.0		ug/L	
			Dissolved Phosphorus (P)	2018/12/14	<100		ug/L	
			Dissolved Potassium (K)	2018/12/14	<100		ug/L	
			Dissolved Selenium (Se)	2018/12/14	<1.0		ug/L	
			Dissolved Silver (Ag)	2018/12/14	<0.10		ug/L	
			Dissolved Sodium (Na)	2018/12/14	<100		ug/L	
			Dissolved Strontium (Sr)	2018/12/14	<2.0		ug/L	
			Dissolved Thallium (Tl)	2018/12/14	<0.10		ug/L	
			Dissolved Tin (Sn)	2018/12/14	<2.0		ug/L	
			Dissolved Titanium (Ti)	2018/12/14	<2.0		ug/L	
			Dissolved Uranium (U)	2018/12/14	<0.10		ug/L	
			Dissolved Vanadium (V)	2018/12/14	<2.0		ug/L	
			Dissolved Zinc (Zn)	2018/12/14	<5.0		ug/L	
5888507	MLB	RPD	Dissolved Aluminum (Al)	2018/12/14	8.1		%	20
			Dissolved Antimony (Sb)	2018/12/14	NC		%	20
			Dissolved Arsenic (As)	2018/12/14	1.7		%	20
			Dissolved Barium (Ba)	2018/12/14	4.6		%	20
			Dissolved Beryllium (Be)	2018/12/14	NC		%	20
			Dissolved Bismuth (Bi)	2018/12/14	NC		%	20
			Dissolved Boron (B)	2018/12/14	1.8		%	20
			Dissolved Cadmium (Cd)	2018/12/14	NC		%	20
			Dissolved Calcium (Ca)	2018/12/14	1.9		%	20
			Dissolved Chromium (Cr)	2018/12/14	NC		%	20
			Dissolved Cobalt (Co)	2018/12/14	10		%	20
			Dissolved Copper (Cu)	2018/12/14	NC		%	20
			Dissolved Iron (Fe)	2018/12/14	0.39		%	20
			Dissolved Lead (Pb)	2018/12/14	NC		%	20
			Dissolved Magnesium (Mg)	2018/12/14	0.90		%	20
			Dissolved Manganese (Mn)	2018/12/14	7.1		%	20
			Dissolved Molybdenum (Mo)	2018/12/14	5.3		%	20
			Dissolved Nickel (Ni)	2018/12/14	NC		%	20
			Dissolved Phosphorus (P)	2018/12/14	5.7		%	20
			Dissolved Potassium (K)	2018/12/14	0.64		%	20

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Dissolved Selenium (Se)	2018/12/14	NC		%	20
			Dissolved Silver (Ag)	2018/12/14	NC		%	20
			Dissolved Sodium (Na)	2018/12/14	0.10		%	20
			Dissolved Strontium (Sr)	2018/12/14	1.1		%	20
			Dissolved Thallium (Tl)	2018/12/14	NC		%	20
			Dissolved Tin (Sn)	2018/12/14	NC		%	20
			Dissolved Titanium (Ti)	2018/12/14	7.0		%	20
			Dissolved Uranium (U)	2018/12/14	NC		%	20
			Dissolved Vanadium (V)	2018/12/14	NC		%	20
			Dissolved Zinc (Zn)	2018/12/14	6.0		%	20
5888900	CCR	Matrix Spike	Total Mercury (Hg)	2018/12/17		90	%	80 - 120
5888900	CCR	Spiked Blank	Total Mercury (Hg)	2018/12/17		100	%	80 - 120
5888900	CCR	Method Blank	Total Mercury (Hg)	2018/12/17	<0.013		ug/L	
5888900	CCR	RPD	Total Mercury (Hg)	2018/12/17	NC		%	20
5891528	NHU	QC Standard	pH	2018/12/17		100	%	97 - 103
5891528	NHU	RPD	pH	2018/12/17	2.3		%	N/A
5891529	NHU	Spiked Blank	Conductivity	2018/12/17		102	%	80 - 120
5891529	NHU	Method Blank	Conductivity	2018/12/17	1.7, RDL=1.0		uS/cm	
5891529	NHU	RPD	Conductivity	2018/12/17	0.24		%	25
5891745	NRG	Matrix Spike	Total Alkalinity (Total as CaCO3)	2018/12/17		NC	%	80 - 120
5891745	NRG	Spiked Blank	Total Alkalinity (Total as CaCO3)	2018/12/17		106	%	80 - 120
5891745	NRG	Method Blank	Total Alkalinity (Total as CaCO3)	2018/12/17	<5.0		mg/L	
5891745	NRG	RPD	Total Alkalinity (Total as CaCO3)	2018/12/17	0.63		%	25
5891748	NRG	Matrix Spike	Dissolved Chloride (Cl-)	2018/12/18		NC	%	80 - 120
5891748	NRG	QC Standard	Dissolved Chloride (Cl-)	2018/12/18		108	%	80 - 120
5891748	NRG	Spiked Blank	Dissolved Chloride (Cl-)	2018/12/17		101	%	80 - 120
5891748	NRG	Method Blank	Dissolved Chloride (Cl-)	2018/12/17	<1.0		mg/L	
5891748	NRG	RPD	Dissolved Chloride (Cl-)	2018/12/18	1.3		%	25
5891749	NRG	Matrix Spike	Dissolved Sulphate (SO4)	2018/12/18		NC	%	80 - 120
5891749	NRG	Spiked Blank	Dissolved Sulphate (SO4)	2018/12/18		100	%	80 - 120
5891749	NRG	Method Blank	Dissolved Sulphate (SO4)	2018/12/18	<2.0		mg/L	
5891749	NRG	RPD	Dissolved Sulphate (SO4)	2018/12/18	0.043		%	25
5891750	NRG	Matrix Spike	Reactive Silica (SiO2)	2018/12/17		NC	%	80 - 120
5891750	NRG	Spiked Blank	Reactive Silica (SiO2)	2018/12/17		98	%	80 - 120
5891750	NRG	Method Blank	Reactive Silica (SiO2)	2018/12/17	<0.50		mg/L	
5891750	NRG	RPD	Reactive Silica (SiO2)	2018/12/17	0.85		%	25
5891751	NRG	Spiked Blank	Colour	2018/12/17		96	%	80 - 120
5891751	NRG	Method Blank	Colour	2018/12/17	<5.0		TCU	
5891751	NRG	RPD	Colour	2018/12/17	1.8		%	20
5891753	NRG	Matrix Spike	Orthophosphate (P)	2018/12/17		95	%	80 - 120
5891753	NRG	Spiked Blank	Orthophosphate (P)	2018/12/17		97	%	80 - 120
5891753	NRG	Method Blank	Orthophosphate (P)	2018/12/17	<0.010		mg/L	
5891753	NRG	RPD	Orthophosphate (P)	2018/12/17	1.4		%	25
5891754	NRG	Matrix Spike	Nitrate + Nitrite (N)	2018/12/18		100	%	80 - 120
5891754	NRG	Spiked Blank	Nitrate + Nitrite (N)	2018/12/18		93	%	80 - 120
5891754	NRG	Method Blank	Nitrate + Nitrite (N)	2018/12/18	<0.050		mg/L	
5891754	NRG	RPD	Nitrate + Nitrite (N)	2018/12/18	1.3		%	25
5891755	NRG	Matrix Spike	Nitrite (N)	2018/12/17		102	%	80 - 120
5891755	NRG	Spiked Blank	Nitrite (N)	2018/12/17		103	%	80 - 120
5891755	NRG	Method Blank	Nitrite (N)	2018/12/17	<0.010		mg/L	
5891755	NRG	RPD	Nitrite (N)	2018/12/17	1.6		%	20
5891769	LGE	Matrix Spike	D10-Anthracene	2018/12/17		99	%	50 - 130
			D14-Terphenyl	2018/12/17		104	%	50 - 130
			D8-Acenaphthylene	2018/12/17		104	%	50 - 130

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			1-Methylnaphthalene	2018/12/17		NC	%	50 - 130
			2-Methylnaphthalene	2018/12/17		99	%	50 - 130
			Acenaphthene	2018/12/17		NC	%	50 - 130
			Acenaphthylene	2018/12/17		NC	%	50 - 130
			Anthracene	2018/12/17		109	%	50 - 130
			Benzo(a)anthracene	2018/12/17		116	%	50 - 130
			Benzo(a)pyrene	2018/12/17		101	%	50 - 130
			Benzo(b)fluoranthene	2018/12/17		113	%	50 - 130
			Benzo(g,h,i)perylene	2018/12/17		106	%	50 - 130
			Benzo(j)fluoranthene	2018/12/17		106	%	50 - 130
			Benzo(k)fluoranthene	2018/12/17		117	%	50 - 130
			Chrysene	2018/12/17		118	%	50 - 130
			Dibenz(a,h)anthracene	2018/12/17		100	%	50 - 130
			Fluoranthene	2018/12/17		NC	%	50 - 130
			Fluorene	2018/12/17		NC	%	50 - 130
			Indeno(1,2,3-cd)pyrene	2018/12/17		107	%	50 - 130
			Naphthalene	2018/12/17		NC	%	50 - 130
			Perylene	2018/12/17		105	%	50 - 130
			Phenanthrene	2018/12/17		110	%	50 - 130
			Pyrene	2018/12/17		NC	%	50 - 130
5891769	LGE	Spiked Blank	D10-Anthracene	2018/12/17		99	%	50 - 130
			D14-Terphenyl	2018/12/17		102	%	50 - 130
			D8-Acenaphthylene	2018/12/17		100	%	50 - 130
			1-Methylnaphthalene	2018/12/17		94	%	50 - 130
			2-Methylnaphthalene	2018/12/17		99	%	50 - 130
			Acenaphthene	2018/12/17		101	%	50 - 130
			Acenaphthylene	2018/12/17		103	%	50 - 130
			Anthracene	2018/12/17		109	%	50 - 130
			Benzo(a)anthracene	2018/12/17		110	%	50 - 130
			Benzo(a)pyrene	2018/12/17		98	%	50 - 130
			Benzo(b)fluoranthene	2018/12/17		111	%	50 - 130
			Benzo(g,h,i)perylene	2018/12/17		99	%	50 - 130
			Benzo(j)fluoranthene	2018/12/17		105	%	50 - 130
			Benzo(k)fluoranthene	2018/12/17		115	%	50 - 130
			Chrysene	2018/12/17		114	%	50 - 130
			Dibenz(a,h)anthracene	2018/12/17		81	%	50 - 130
			Fluoranthene	2018/12/17		112	%	50 - 130
			Fluorene	2018/12/17		107	%	50 - 130
			Indeno(1,2,3-cd)pyrene	2018/12/17		98	%	50 - 130
			Naphthalene	2018/12/17		89	%	50 - 130
			Perylene	2018/12/17		101	%	50 - 130
			Phenanthrene	2018/12/17		113	%	50 - 130
			Pyrene	2018/12/17		109	%	50 - 130
5891769	LGE	Method Blank	D10-Anthracene	2018/12/17		94	%	50 - 130
			D14-Terphenyl	2018/12/17		98	%	50 - 130
			D8-Acenaphthylene	2018/12/17		98	%	50 - 130
			1-Methylnaphthalene	2018/12/17	<0.050		ug/L	
			2-Methylnaphthalene	2018/12/17	<0.050		ug/L	
			Acenaphthene	2018/12/17	<0.010		ug/L	
			Acenaphthylene	2018/12/17	<0.010		ug/L	
			Anthracene	2018/12/17	<0.010		ug/L	
			Benzo(a)anthracene	2018/12/17	<0.010		ug/L	
			Benzo(a)pyrene	2018/12/17	<0.010		ug/L	
			Benzo(b)fluoranthene	2018/12/17	<0.010		ug/L	
			Benzo(g,h,i)perylene	2018/12/17	<0.010		ug/L	

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Benzo(j)fluoranthene	2018/12/17	<0.010		ug/L	
			Benzo(k)fluoranthene	2018/12/17	<0.010		ug/L	
			Chrysene	2018/12/17	<0.010		ug/L	
			Dibenz(a,h)anthracene	2018/12/17	<0.010		ug/L	
			Fluoranthene	2018/12/17	<0.010		ug/L	
			Fluorene	2018/12/17	<0.010		ug/L	
			Indeno(1,2,3-cd)pyrene	2018/12/17	<0.010		ug/L	
			Naphthalene	2018/12/17	<0.20		ug/L	
			Perylene	2018/12/17	<0.010		ug/L	
			Phenanthrene	2018/12/17	<0.010		ug/L	
			Pyrene	2018/12/17	<0.010		ug/L	
5891769	LGE	RPD	1-Methylnaphthalene	2018/12/17	3.9		%	40
			2-Methylnaphthalene	2018/12/17	9.0		%	40
			Acenaphthene	2018/12/17	2.5		%	40
			Acenaphthylene	2018/12/17	30		%	40
			Anthracene	2018/12/17	137 (2)		%	40
			Benzo(a)anthracene	2018/12/17	151 (2)		%	40
			Benzo(a)pyrene	2018/12/17	121 (2)		%	40
			Benzo(b)fluoranthene	2018/12/17	106 (2)		%	40
			Benzo(g,h,i)perylene	2018/12/17	31		%	40
			Benzo(j)fluoranthene	2018/12/17	NC		%	40
			Benzo(k)fluoranthene	2018/12/17	NC		%	40
			Chrysene	2018/12/17	149 (2)		%	40
			Dibenz(a,h)anthracene	2018/12/17	NC		%	40
			Fluoranthene	2018/12/17	142 (2)		%	40
			Fluorene	2018/12/17	20		%	40
			Indeno(1,2,3-cd)pyrene	2018/12/17	36		%	40
			Naphthalene	2018/12/17	1.0		%	40
			Perylene	2018/12/17	NC		%	40
			Phenanthrene	2018/12/17	112 (2)		%	40
			Pyrene	2018/12/17	147 (2)		%	40
5891933	SRM	Matrix Spike	Nitrogen (Ammonia Nitrogen)	2018/12/17		89	%	80 - 120
5891933	SRM	Spiked Blank	Nitrogen (Ammonia Nitrogen)	2018/12/17		104	%	80 - 120
5891933	SRM	Method Blank	Nitrogen (Ammonia Nitrogen)	2018/12/17	<0.050		mg/L	
5891933	SRM	RPD	Nitrogen (Ammonia Nitrogen)	2018/12/17	NC		%	20
5893909	NHU	QC Standard	Turbidity	2018/12/18		97	%	80 - 120
5893909	NHU	Spiked Blank	Turbidity	2018/12/18		100	%	80 - 120
5893909	NHU	Method Blank	Turbidity	2018/12/18	<0.10		NTU	
5893909	NHU	RPD	Turbidity	2018/12/18	NC		%	20
5896212	HM2	Matrix Spike	Total Organic Carbon (C)	2018/12/19		102	%	85 - 115
5896212	HM2	Spiked Blank	Total Organic Carbon (C)	2018/12/19		101	%	80 - 120
5896212	HM2	Method Blank	Total Organic Carbon (C)	2018/12/19	<0.50		mg/L	

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
5896212	HM2	RPD	Total Organic Carbon (C)	2018/12/19	NC (3)		%	15

N/A = Not Applicable

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

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

QC Standard: A sample of known concentration prepared by an external agency under stringent conditions. Used as an independent check of method accuracy.

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

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

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

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

(1) Recovery is within QC acceptance limits. < 10 % of compounds in multi-component analysis in violation.

(2) Duplicate: results are outside acceptance limit. Insufficient sample for repeat analysis.

(3) Elevated reporting limit due to turbidity.

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VALIDATION SIGNATURE PAGE

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

Mike MacGillivray, Scientific Specialist (Inorganics)

Rosemarie MacDonald, Scientific Specialist (Organics)

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

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Appendix D

Mann-Kendall Tables

MANN-KENDALL PLUME STABILITY ANALYSIS

OHP & HE

Nova Scotia Lands

141360 - LTMM GROUNDWATER MONITORING EVENT NOVEMBER AND DECEMBER 2018

MANN-KENDALL ANALYSIS OF PLUME				MONITORING WELL NO:	CODT-008-MWB					
	Event 1	Event 2	Event 3	Event 4	Event 5	Event 6	Event 7	Event 8	Event 9	Event 10	Sum Rows
Anthracene	0.011	0.002	0.00013	0.043	0.00019	0.00015					
	23-Oct-13	15-Dec-14	10-Dec-15	30-Nov-16	7-Dec-17	5-Dec-18					
Row 1: Compare to Event 1:		-1	-1	1	-1	-1	0	0	0	0	-3
Row 2: Compare to Event 2:			-1	1	-1	-1	0	0	0	0	-2
Row 3: Compare to Event 3:				1	1	1	0	0	0	0	3
Row 4: Compare to Event 4:					-1	-1	0	0	0	0	-2
Row 5: Compare to Event 5:						-1	0	0	0	0	-1
Row 6: Compare to Event 6:							0	0	0	0	0
Row 7: Compare to Event 7:								0	0	0	0
Row 8: Compare to Event 8:									0	0	0
Row 9: Compare to Event 9:										0	0

1/2 detection limit used for nd, historical data assumed EQL of 0.00001 mg/L

Mann-Kendall (S) Statistic = **-5**

Confidence Level Chart

S	Total No. of Sampling Events						
Value	4	5	6	7	8	9	10
0							
± 1							
± 2							
± 3							
± 4							
± 5			X				
± 6							
± 7							
±8							
± 9							
± 10							
± 11							
± 12							
± 13							
± 14							
± 15							
± 16							
± 17							
± 18							
± 19							
± 20							
± 21							
± 22							
± 23							
± 24	Not Physically possible						
± 25							
± 26							
± 27							
± 28							
± 29							
± 30							
± 31							
± 32							
± 33							
± 34							
± 35							
± 36							
± 37							
± 38							
± 39							
± 40							
± 41							
± 42							
± 43							
± 44							
± 45							

Unshaded area indicates generally stable trend (if CV<1)

Shaded area indicates
Expanding trend if S>0
Declining trend if S<0

Stability Evaulation Results

X	No Trend Indicated, Plume Not Dimishing or Expanding (Plume is Stable if CV<1)
	Trend Is Present (≥90% Confidence)
	S < 0 Diminishing Plume
	S > 0 Expanding Plume

MANN-KENDALL PLUME STABILITY ANALYSIS

OHP & HE

Nova Scotia Lands

141360 - LTMM GROUNDWATER MONITORING EVENT NOVEMBER AND DECEMBER 2018

MANN-KENDALL ANALYSIS OF PLUME	MONITORING WELL NO:	CODT-008-MWB								
	Event 1	Event 2	Event 3	Event 4	Event 5	Event 6	Event 7	Event 8	Event 9	Event 10	Sum Rows
Benzo(a)pyrene	0.0026	0.000032	0.0012	0.0025	0.00022	0.00011					
	23-Oct-13	15-Dec-14	10-Dec-15	30-Nov-16	7-Dec-17	5-Dec-18					
Row 1: Compare to Event 1:		-1	-1	-1	-1	-1	0	0	0	0	-5
Row 2: Compare to Event 2:			1	1	1	1	0	0	0	0	4
Row 3: Compare to Event 3:				1	-1	-1	0	0	0	0	-1
Row 4: Compare to Event 4:					-1	-1	0	0	0	0	-2
Row 5: Compare to Event 5:						-1	0	0	0	0	-1
Row 6: Compare to Event 6:							0	0	0	0	0
Row 7: Compare to Event 7:								0	0	0	0
Row 8: Compare to Event 8:									0	0	0
Row 9: Compare to Event 9:										0	0

1/2 detection limit used for nd, historical data assumed EQL of 0.00001 mg/L

Mann-Kendall (S) Statistic = **-5**

Confidence Level Chart

S	Total No. of Sampling Events						
Value	4	5	6	7	8	9	10
0							
± 1							
± 2							
± 3							
± 4							
± 5			X				
± 6							
± 7							
±8							
± 9							
± 10							
± 11							
± 12							
± 13							
± 14							
± 15							
± 16							
± 17							
± 18							
± 19							
± 20							
± 21							
± 22							
± 23							
± 24	Not Physically possible						
± 25							
± 26							
± 27							
± 28							
± 29							
± 30							
± 31							
± 32							
± 33							
± 34							
± 35							
± 36							
± 37							
± 38							
± 39							
± 40							
± 41							
± 42							
± 43							
± 44							
± 45							

Unshaded area indicates generally stable trend (if CV<1)

Shaded area indicates
Expanding trend if S>0
Declining trend if S<0

Stability Evaulation Results

X	No Trend Indicated, Plume Not Dimishing or Expanding (Plume is Stable if CV<1)
	Trend Is Present (≥90% Confidence)
	S < 0 Diminishing Plume
	S > 0 Expanding Plume

MANN-KENDALL PLUME STABILITY ANALYSIS

OHP & HE

Nova Scotia Lands

141360 - LTMM GROUNDWATER MONITORING EVENT NOVEMBER AND DECEMBER 2018

MANN-KENDALL ANALYSIS OF PLUME	MONITORING WELL NO: CODT-008-MWB										
	Event 1	Event 2	Event 3	Event 4	Event 5	Event 6	Event 7	Event 8	Event 9	Event 10	Sum Rows
Chrysene	0.0046	0.000058	0.00096	0.006	0.00029	0.00017					
	23-Oct-13	15-Dec-14	10-Dec-15	30-Nov-16	7-Dec-17	5-Dec-18					
Row 1: Compare to Event 1:		-1	-1	1	-1	-1	0	0	0	0	-3
Row 2: Compare to Event 2:			1	1	1	1	0	0	0	0	4
Row 3: Compare to Event 3:				1	-1	-1	0	0	0	0	-1
Row 4: Compare to Event 4:					-1	-1	0	0	0	0	-2
Row 5: Compare to Event 5:						-1	0	0	0	0	-1
Row 6: Compare to Event 6:							0	0	0	0	0
Row 7: Compare to Event 7:								0	0	0	0
Row 8: Compare to Event 8:									0	0	0
Row 9: Compare to Event 9:										0	0

1/2 detection limit used for nd, historical data assumed EQL of 0.00001 mg/L

Mann-Kendall (S) Statistic = **-3**

Confidence Level Chart

S	Total No. of Sampling Events						
Value	4	5	6	7	8	9	10
0							
± 1							
± 2							
± 3			X				
± 4							
± 5							
± 6							
± 7							
±8							
± 9							
± 10							
± 11							
± 12							
± 13							
± 14							
± 15							
± 16							
± 17							
± 18							
± 19							
± 20							
± 21							
± 22							
± 23							
± 24	Not Physically possible						
± 25							
± 26							
± 27							
± 28							
± 29							
± 30							
± 31							
± 32							
± 33							
± 34							
± 35							
± 36							
± 37							
± 38							
± 39							
± 40							
± 41							
± 42							
± 43							
± 44							
± 45							

Unshaded area indicates generally stable trend (if CV<1)

Shaded area indicates
Expanding trend if S>0
Declining trend if S<0

Stability Evaulation Results

X	No Trend Indicated, Plume Not Dimishing or Expanding (Plume is Stable if CV<1)
	Trend Is Present (≥90% Confidence)
	S < 0 Diminishing Plume
	S > 0 Expanding Plume

MANN-KENDALL PLUME STABILITY ANALYSIS

OHP & HE

Nova Scotia Lands

141360 - LTMM GROUNDWATER MONITORING EVENT NOVEMBER AND DECEMBER 2018

MANN-KENDALL ANALYSIS OF PLUME	MONITORING WELL NO: CODT-008-MWB										
	Event 1	Event 2	Event 3	Event 4	Event 5	Event 6	Event 7	Event 8	Event 9	Event 10	Sum Rows
Indeno(1,2,3-cd)pyrene	0.00064	0.000018	0.00031	0.0025	0.0001	0.000056					
	23-Oct-13	15-Dec-14	10-Dec-15	30-Nov-16	7-Dec-17	5-Dec-18					
Row 1: Compare to Event 1:		-1	-1	1	-1	-1	0	0	0	0	-3
Row 2: Compare to Event 2:			1	1	1	1	0	0	0	0	4
Row 3: Compare to Event 3:				1	-1	-1	0	0	0	0	-1
Row 4: Compare to Event 4:					-1	-1	0	0	0	0	-2
Row 5: Compare to Event 5:						-1	0	0	0	0	-1
Row 6: Compare to Event 6:							0	0	0	0	0
Row 7: Compare to Event 7:								0	0	0	0
Row 8: Compare to Event 8:									0	0	0
Row 9: Compare to Event 9:										0	0

1/2 detection limit used for nd, historical data assumed EQL of 0.00001 mg/L

Mann-Kendall (S) Statistic = **-3**

Confidence Level Chart

S Value	Total No. of Sampling Events						
	4	5	6	7	8	9	10
0							
± 1							
± 2							
± 3			X				
± 4							
± 5							
± 6							
± 7							
±8							
± 9							
± 10							
± 11							
± 12							
± 13							
± 14							
± 15							
± 16							
± 17							
± 18							
± 19							
± 20							
± 21							
± 22							
± 23							
± 24	Not Physically possible						
± 25							
± 26							
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± 39							
± 40							
± 41							
± 42							
± 43							
± 44							
± 45							

Unshaded area indicates generally stable trend (if CV<1)

Shaded area indicates
Expanding trend if S>0
Declining trend if S<0

Stability Evaulation Results

X	No Trend Indicated, Plume Not Dimishing or Expanding (Plume is Stable if CV<1)
	Trend Is Present (≥90% Confidence)
	S < 0 Diminishing Plume
	S > 0 Expanding Plume

MANN-KENDALL PLUME STABILITY ANALYSIS

OHP & HE

Nova Scotia Lands

141360 - LTMM GROUNDWATER MONITORING EVENT NOVEMBER AND DECEMBER 2018

MANN-KENDALL ANALYSIS OF PLUME	MONITORING WELL NO:	CODT-008-MWB								
	Event 1	Event 2	Event 3	Event 4	Event 5	Event 6	Event 7	Event 8	Event 9	Event 10	Sum Rows
Naphthalene	0.0028	0.0001	0.0001	4.1	0.0001	0.00069					
	23-Oct-13	15-Dec-14	10-Dec-15	30-Nov-16	7-Dec-17	5-Dec-18					
Row 1: Compare to Event 1:		-1	-1	1	-1	-1	0	0	0	0	-3
Row 2: Compare to Event 2:			0	1	0	1	0	0	0	0	2
Row 3: Compare to Event 3:				1	0	1	0	0	0	0	2
Row 4: Compare to Event 4:					-1	-1	0	0	0	0	-2
Row 5: Compare to Event 5:						1	0	0	0	0	1
Row 6: Compare to Event 6:							0	0	0	0	0
Row 7: Compare to Event 7:								0	0	0	0
Row 8: Compare to Event 8:									0	0	0
Row 9: Compare to Event 9:										0	0

1/2 detection limit used for nd, historical data assumed EQL of 0.0.00020 mg/L

Mann-Kendall (S) Statistic = **0**

Confidence Level Chart							
S	Total No. of Sampling Events						
Value	4	5	6	7	8	9	10
0			X				
± 1							
± 2							
± 3							
± 4							
± 5							
± 6							
± 7							
±8							
± 9							
± 10							
± 11							
± 12							
± 13							
± 14							
± 15							
± 16							
± 17							
± 18							
± 19							
± 20							
± 21							
± 22							
± 23							
± 24	Not Physically possible						
± 25							
± 26							
± 27							
± 28							
± 29							
± 30							
± 31							
± 32							
± 33							
± 34							
± 35							
± 36							
± 37							
± 38							
± 39							
± 40							
± 41							
± 42							
± 43							
± 44							
± 45							

Unshaded area indicates generally stable trend (if CV<1)

Shaded area indicates
Expanding trend if S>0
Declining trend if S<0

Stability Evaulation Results	
X	No Trend Indicated, Plume Not Dimishing or Expanding (Plume is Stable if CV<1)
	Trend Is Present (≥90% Confidence)
	S < 0 Diminishing Plume
	S > 0 Expanding Plume

MANN-KENDALL PLUME STABILITY ANALYSIS

OHP & HE

Nova Scotia Lands

141360 - LTMM GROUNDWATER MONITORING EVENT NOVEMBER AND DECEMBER 2018

MANN-KENDALL ANALYSIS OF PLUME	MONITORING WELL NO: CODT-201-MWA										
	Event 1	Event 2	Event 3	Event 4	Event 5	Event 6	Event 7	Event 8	Event 9	Event 10	Sum Rows
Anthracene	0.0017	0.0025	0.0023	0.00085	0.0037	0.00049					
	23-Oct-13	15-Dec-14	9-Dec-15	28-Nov-16	5-Dec-17	5-Dec-18					
Row 1: Compare to Event 1:		1	1	-1	1	-1	0	0	0	0	1
Row 2: Compare to Event 2:			-1	-1	1	-1	0	0	0	0	-2
Row 3: Compare to Event 3:				-1	1	-1	0	0	0	0	-1
Row 4: Compare to Event 4:					1	-1	0	0	0	0	0
Row 5: Compare to Event 5:						-1	0	0	0	0	-1
Row 6: Compare to Event 6:							0	0	0	0	0
Row 7: Compare to Event 7:								0	0	0	0
Row 8: Compare to Event 8:									0	0	0
Row 9: Compare to Event 9:										0	0

1/2 detection limit used for nd, historical data assumed EQL of 0.00001 mg/L

Mann-Kendall (S) Statistic = **-3**

Confidence Level Chart

S Value	Total No. of Sampling Events						
	4	5	6	7	8	9	10
0							
± 1							
± 2							
± 3			X				
± 4							
± 5							
± 6							
± 7							
±8							
± 9							
± 10							
± 11							
± 12							
± 13							
± 14							
± 15							
± 16							
± 17							
± 18							
± 19							
± 20							
± 21							
± 22							
± 23							
± 24	Not Physically possible						
± 25							
± 26							
± 27							
± 28							
± 29							
± 30							
± 31							
± 32							
± 33							
± 34							
± 35							
± 36							
± 37							
± 38							
± 39							
± 40							
± 41							
± 42							
± 43							
± 44							
± 45							

Unshaded area indicates generally stable trend (if CV<1)

Shaded area indicates
Expanding trend if S>0
Declining trend if S<0

Stability Evaulation Results

X	No Trend Indicated, Plume Not Dimishing or Expanding (Plume is Stable if CV<1)
	Trend Is Present (≥90% Confidence)
	S < 0 Diminishing Plume
	S > 0 Expanding Plume

MANN-KENDALL PLUME STABILITY ANALYSIS

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Nova Scotia Lands

141360 - LTMM GROUNDWATER MONITORING EVENT NOVEMBER AND DECEMBER 2018

MANN-KENDALL ANALYSIS OF PLUME	MONITORING WELL NO: CODT-201-MWA										
	Event 1	Event 2	Event 3	Event 4	Event 5	Event 6	Event 7	Event 8	Event 9	Event 10	Sum Rows
Benzo(a)pyrene	0.0025	0.0037	0.0047	0.0018	0.0069	0.00099					
	23-Oct-13	15-Dec-14	9-Dec-15	28-Nov-16	5-Dec-17	5-Dec-18					
Row 1: Compare to Event 1:		1	1	-1	1	-1	0	0	0	0	1
Row 2: Compare to Event 2:			1	-1	1	-1	0	0	0	0	0
Row 3: Compare to Event 3:				-1	1	-1	0	0	0	0	-1
Row 4: Compare to Event 4:					1	-1	0	0	0	0	0
Row 5: Compare to Event 5:						-1	0	0	0	0	-1
Row 6: Compare to Event 6:							0	0	0	0	0
Row 7: Compare to Event 7:								0	0	0	0
Row 8: Compare to Event 8:									0	0	0
Row 9: Compare to Event 9:										0	0

1/2 detection limit used for nd, historical data assumed EQL of 0.00001 mg/L

Mann-Kendall (S) Statistic = **-1**

Confidence Level Chart

S Value	Total No. of Sampling Events						
	4	5	6	7	8	9	10
0							
± 1			X				
± 2							
± 3							
± 4							
± 5							
± 6							
± 7							
±8							
± 9							
± 10							
± 11							
± 12							
± 13							
± 14							
± 15							
± 16							
± 17							
± 18							
± 19							
± 20							
± 21							
± 22							
± 23							
± 24	Not Physically possible						
± 25							
± 26							
± 27							
± 28							
± 29							
± 30							
± 31							
± 32							
± 33							
± 34							
± 35							
± 36							
± 37							
± 38							
± 39							
± 40							
± 41							
± 42							
± 43							
± 44							
± 45							

Unshaded area indicates generally stable trend (if CV<1)

Shaded area indicates
Expanding trend if S>0
Declining trend if S<0

Stability Evaulation Results

X	No Trend Indicated, Plume Not Dimishing or Expanding (Plume is Stable if CV<1)
	Trend Is Present (≥90% Confidence)
	S < 0 Diminishing Plume
	S > 0 Expanding Plume

MANN-KENDALL PLUME STABILITY ANALYSIS

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141360 - LTMM GROUNDWATER MONITORING EVENT NOVEMBER AND DECEMBER 2018

MANN-KENDALL ANALYSIS OF PLUME	MONITORING WELL NO:	CODT-201-MWA									
	Event 1	Event 2	Event 3	Event 4	Event 5	Event 6	Event 7	Event 8	Event 9	Event 10	Sum Rows
Chrysene	0.0029	0.0045	0.0051	0.0021	0.0086	0.0014					
	23-Oct-13	15-Dec-14	9-Dec-15	28-Nov-16	5-Dec-17	5-Dec-18					
Row 1: Compare to Event 1:		1	1	-1	1	-1	0	0	0	0	1
Row 2: Compare to Event 2:			1	-1	1	-1	0	0	0	0	0
Row 3: Compare to Event 3:				-1	1	-1	0	0	0	0	-1
Row 4: Compare to Event 4:					1	-1	0	0	0	0	0
Row 5: Compare to Event 5:						-1	0	0	0	0	-1
Row 6: Compare to Event 6:							0	0	0	0	0
Row 7: Compare to Event 7:								0	0	0	0
Row 8: Compare to Event 8:									0	0	0
Row 9: Compare to Event 9:										0	0

1/2 detection limit used for nd, historical data assumed EQL of 0.00001 mg/L

Mann-Kendall (S) Statistic = **-1**

Confidence Level Chart

S Value	Total No. of Sampling Events						
	4	5	6	7	8	9	10
0							
± 1			X				
± 2							
± 3							
± 4							
± 5							
± 6							
± 7							
±8							
± 9							
± 10							
± 11							
± 12							
± 13							
± 14							
± 15							
± 16							
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± 18							
± 19							
± 20							
± 21							
± 22							
± 23							
± 24	Not Physically possible						
± 25							
± 26							
± 27							
± 28							
± 29							
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± 31							
± 32							
± 33							
± 34							
± 35							
± 36							
± 37							
± 38							
± 39							
± 40							
± 41							
± 42							
± 43							
± 44							
± 45							

Unshaded area indicates generally stable trend (if CV<1)

Shaded area indicates
Expanding trend if S>0
Declining trend if S<0

Stability Evaulation Results

X	No Trend Indicated, Plume Not Dimishing or Expanding (Plume is Stable if CV<1)
	Trend Is Present (≥90% Confidence)
	S < 0 Diminishing Plume
	S > 0 Expanding Plume

MANN-KENDALL PLUME STABILITY ANALYSIS

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141360 - LTMM GROUNDWATER MONITORING EVENT NOVEMBER AND DECEMBER 2018

MANN-KENDALL ANALYSIS OF PLUME	MONITORING WELL NO: CODT-201-MWA										
	Event 1	Event 2	Event 3	Event 4	Event 5	Event 6	Event 7	Event 8	Event 9	Event 10	Sum Rows
Indeno(1,2,3-cd)pyrene	0.0011	0.0015	0.0019	0.00078	0.0029	0.00049					
	23-Oct-13	15-Dec-14	9-Dec-15	28-Nov-16	5-Dec-17	5-Dec-18					
Row 1: Compare to Event 1:		1	1	-1	1	-1	0	0	0	0	1
Row 2: Compare to Event 2:			1	-1	1	-1	0	0	0	0	0
Row 3: Compare to Event 3:				-1	1	-1	0	0	0	0	-1
Row 4: Compare to Event 4:					1	-1	0	0	0	0	0
Row 5: Compare to Event 5:						-1	0	0	0	0	-1
Row 6: Compare to Event 6:							0	0	0	0	0
Row 7: Compare to Event 7:								0	0	0	0
Row 8: Compare to Event 8:									0	0	0
Row 9: Compare to Event 9:										0	0

1/2 detection limit used for nd, historical data assumed EQL of 0.00001 mg/L

Mann-Kendall (S) Statistic = **-1**

Confidence Level Chart

S Value	Total No. of Sampling Events						
	4	5	6	7	8	9	10
0							
± 1			X				
± 2							
± 3							
± 4							
± 5							
± 6							
± 7							
±8							
± 9							
± 10							
± 11							
± 12							
± 13							
± 14							
± 15							
± 16							
± 17							
± 18							
± 19							
± 20							
± 21							
± 22							
± 23							
± 24	Not Physically possible						
± 25							
± 26							
± 27							
± 28							
± 29							
± 30							
± 31							
± 32							
± 33							
± 34							
± 35							
± 36							
± 37							
± 38							
± 39							
± 40							
± 41							
± 42							
± 43							
± 44							
± 45							

Unshaded area indicates generally stable trend (if CV<1)

Shaded area indicates
Expanding trend if S>0
Declining trend if S<0

Stability Evaulation Results

X	No Trend Indicated, Plume Not Dimishing or Expanding (Plume is Stable if CV<1)
	Trend Is Present (≥90% Confidence)
	S < 0 Diminishing Plume
	S > 0 Expanding Plume

MANN-KENDALL PLUME STABILITY ANALYSIS

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141360 - LTMM GROUNDWATER MONITORING EVENT NOVEMBER AND DECEMBER 2018

MANN-KENDALL ANALYSIS OF PLUME	MONITORING WELL NO:	CODT-201-MWC								
	Event 1	Event 2	Event 3	Event 4	Event 5	Event 6	Event 7	Event 8	Event 9	Event 10	Sum Rows
Anthracene	0.0033	0.0059	0.005	0.0033	0.0045	0.0042					
	23-Oct-13	15-Dec-14	9-Dec-15	28-Nov-16	5-Dec-17	5-Dec-18					
Row 1: Compare to Event 1:		1	1	0	1	1	0	0	0	0	4
Row 2: Compare to Event 2:			-1	-1	-1	-1	0	0	0	0	-4
Row 3: Compare to Event 3:				-1	-1	-1	0	0	0	0	-3
Row 4: Compare to Event 4:					1	1	0	0	0	0	2
Row 5: Compare to Event 5:						-1	0	0	0	0	-1
Row 6: Compare to Event 6:							0	0	0	0	0
Row 7: Compare to Event 7:								0	0	0	0
Row 8: Compare to Event 8:									0	0	0
Row 9: Compare to Event 9:										0	0

1/2 detection limit used for nd, historical data assumed EQL of 0.00001 mg/L

Mann-Kendall (S) Statistic = **-2**

Confidence Level Chart

S	Total No. of Sampling Events						
Value	4	5	6	7	8	9	10
0							
± 1							
± 2			X				
± 3							
± 4							
± 5							
± 6							
± 7							
±8							
± 9							
± 10							
± 11							
± 12							
± 13							
± 14							
± 15							
± 16							
± 17							
± 18							
± 19							
± 20							
± 21							
± 22							
± 23							
± 24	Not Physically possible						
± 25							
± 26							
± 27							
± 28							
± 29							
± 30							
± 31							
± 32							
± 33							
± 34							
± 35							
± 36							
± 37							
± 38							
± 39							
± 40							
± 41							
± 42							
± 43							
± 44							
± 45							

Unshaded area indicates generally stable trend (if CV<1)

Shaded area indicates
Expanding trend if S>0
Declining trend if S<0

Stability Evaulation Results

X	No Trend Indicated, Plume Not Dimishing or Expanding (Plume is Stable if CV<1)
	Trend Is Present (≥90% Confidence)
	S < 0 Diminishing Plume
	S > 0 Expanding Plume

MANN-KENDALL PLUME STABILITY ANALYSIS

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141360 - LTMM GROUNDWATER MONITORING EVENT NOVEMBER AND DECEMBER 2018

MANN-KENDALL ANALYSIS OF PLUME	MONITORING WELL NO:	CODT-201-MWC								
	Event 1	Event 2	Event 3	Event 4	Event 5	Event 6	Event 7	Event 8	Event 9	Event 10	Sum Rows
Chrysene	0.000032	0.000048	0.005	0.000036	0.000042	0.000056					
	23-Oct-13	15-Dec-14	9-Dec-15	28-Nov-16	5-Dec-17	5-Dec-18					
Row 1: Compare to Event 1:		1	1	1	1	1	0	0	0	0	5
Row 2: Compare to Event 2:			1	-1	-1	1	0	0	0	0	0
Row 3: Compare to Event 3:				-1	-1	-1	0	0	0	0	-3
Row 4: Compare to Event 4:					1	1	0	0	0	0	2
Row 5: Compare to Event 5:						1	0	0	0	0	1
Row 6: Compare to Event 6:							0	0	0	0	0
Row 7: Compare to Event 7:								0	0	0	0
Row 8: Compare to Event 8:									0	0	0
Row 9: Compare to Event 9:										0	0

1/2 detection limit used for nd, historical data assumed EQL of 0.00001 mg/L

Mann-Kendall (S) Statistic = **5**

Confidence Level Chart

S	Total No. of Sampling Events						
Value	4	5	6	7	8	9	10
0							
± 1							
± 2							
± 3							
± 4							
± 5			X				
± 6							
± 7							
±8							
± 9							
± 10							
± 11							
± 12							
± 13							
± 14							
± 15							
± 16							
± 17							
± 18							
± 19							
± 20							
± 21							
± 22							
± 23							
± 24	Not Physically possible						
± 25							
± 26							
± 27							
± 28							
± 29							
± 30							
± 31							
± 32							
± 33							
± 34							
± 35							
± 36							
± 37							
± 38							
± 39							
± 40							
± 41							
± 42							
± 43							
± 44							
± 45							

Unshaded area indicates generally stable trend (if CV<1)

Shaded area indicates
Expanding trend if S>0
Declining trend if S<0

Stability Evaulation Results

X	No Trend Indicated, Plume Not Dimishing or Expanding (Plume is Stable if CV<1)
	Trend Is Present (≥90% Confidence)
	S < 0 Diminishing Plume
	S > 0 Expanding Plume

MANN-KENDALL PLUME STABILITY ANALYSIS

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141360 - LTMM GROUNDWATER MONITORING EVENT NOVEMBER AND DECEMBER 2018

MANN-KENDALL ANALYSIS OF PLUME	MONITORING WELL NO: CODT-201-MWC										
	Event 1	Event 2	Event 3	Event 4	Event 5	Event 6	Event 7	Event 8	Event 9	Event 10	Sum Rows
Naphthalene	6.3	7.2	9.5	7.5	6.2	7.8					
	23-Oct-13	15-Dec-14	9-Dec-15	28-Nov-16	5-Dec-17	5-Dec-18					
Row 1: Compare to Event 1:		1	1	1	-1	1	0	0	0	0	3
Row 2: Compare to Event 2:			1	1	-1	1	0	0	0	0	2
Row 3: Compare to Event 3:				-1	-1	-1	0	0	0	0	-3
Row 4: Compare to Event 4:					-1	1	0	0	0	0	0
Row 5: Compare to Event 5:						1	0	0	0	0	1
Row 6: Compare to Event 6:							0	0	0	0	0
Row 7: Compare to Event 7:								0	0	0	0
Row 8: Compare to Event 8:									0	0	0
Row 9: Compare to Event 9:										0	0

1/2 detection limit used for nd, historical data assumed EQL of 0.00001 mg/L

Mann-Kendall (S) Statistic = **3**

Confidence Level Chart

S Value	Total No. of Sampling Events						
	4	5	6	7	8	9	10
0							
± 1							
± 2							
± 3			X				
± 4							
± 5							
± 6							
± 7							
±8							
± 9							
± 10							
± 11							
± 12							
± 13							
± 14							
± 15							
± 16							
± 17							
± 18							
± 19							
± 20							
± 21							
± 22							
± 23							
± 24	Not Physically possible						
± 25							
± 26							
± 27							
± 28							
± 29							
± 30							
± 31							
± 32							
± 33							
± 34							
± 35							
± 36							
± 37							
± 38							
± 39							
± 40							
± 41							
± 42							
± 43							
± 44							
± 45							

Unshaded area indicates generally stable trend (if CV<1)

Shaded area indicates
Expanding trend if S>0
Declining trend if S<0

Stability Evaulation Results

X	No Trend Indicated, Plume Not Dimishing or Expanding (Plume is Stable if CV<1)
	Trend Is Present (≥90% Confidence)
	S < 0 Diminishing Plume
	S > 0 Expanding Plume

MANN-KENDALL PLUME STABILITY ANALYSIS

OHP & HE

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141360 - LTMM GROUNDWATER MONITORING EVENT NOVEMBER AND DECEMBER 2018

MANN-KENDALL ANALYSIS OF PLUME				MONITORING WELL NO:	CODT-203-MW					
	Event 1	Event 2	Event 3	Event 4	Event 5	Event 6	Event 7	Event 8	Event 9	Event 10	Sum Rows
Anthracene	0.0025	0.00055	0.00046	0.00079	0.00027	0.00027					
	23-Oct-13	12-Dec-14	8-Dec-15	23-Nov-16	7-Dec-17	5-Dec-18					
Row 1: Compare to Event 1:		-1	-1	-1	-1	-1	0	0	0	0	-5
Row 2: Compare to Event 2:			-1	1	-1	-1	0	0	0	0	-2
Row 3: Compare to Event 3:				1	-1	-1	0	0	0	0	-1
Row 4: Compare to Event 4:					-1	-1	0	0	0	0	-2
Row 5: Compare to Event 5:						0	0	0	0	0	0
Row 6: Compare to Event 6:							0	0	0	0	0
Row 7: Compare to Event 7:								0	0	0	0
Row 8: Compare to Event 8:									0	0	0
Row 9: Compare to Event 9:										0	0

1/2 detection limit used for nd, historical data assumed EQL of 0.00001 mg/L

Mann-Kendall (S) Statistic = **-10**

Confidence Level Chart

S Value	Total No. of Sampling Events						
	4	5	6	7	8	9	10
0							
± 1							
± 2							
± 3							
± 4							
± 5							
± 6							
± 7							
±8							
± 9							
± 10			X				
± 11							
± 12							
± 13							
± 14							
± 15							
± 16							
± 17							
± 18							
± 19							
± 20							
± 21							
± 22							
± 23							
± 24	Not Physically possible						
± 25							
± 26							
± 27							
± 28							
± 29							
± 30							
± 31							
± 32							
± 33							
± 34							
± 35							
± 36							
± 37							
± 38							
± 39							
± 40							
± 41							
± 42							
± 43							
± 44							
± 45							

Unshaded area indicates generally stable trend (if CV<1)

Shaded area indicates
Expanding trend if S>0
Declining trend if S<0

Stability Evaulation Results

	No Trend Indicated, Plume Not Dimishing or Expanding (Plume is Stable if CV<1)
X	Trend Is Present (≥90% Confidence)
X	S < 0 Diminishing Plume
	S > 0 Expanding Plume

MANN-KENDALL PLUME STABILITY ANALYSIS

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141360 - LTMM GROUNDWATER MONITORING EVENT NOVEMBER AND DECEMBER 2018

MANN-KENDALL ANALYSIS OF PLUME	MONITORING WELL NO: CODT-203-MW										
	Event 1	Event 2	Event 3	Event 4	Event 5	Event 6	Event 7	Event 8	Event 9	Event 10	Sum Rows
Benzo(a)pyrene	0.0011	0.00069	0.00061	0.0015	0.00024	0.00027					
	23-Oct-13	12-Dec-14	8-Dec-15	23-Nov-16	7-Dec-17	5-Dec-18					
Row 1: Compare to Event 1:		-1	-1	1	-1	-1	0	0	0	0	-3
Row 2: Compare to Event 2:			-1	1	-1	-1	0	0	0	0	-2
Row 3: Compare to Event 3:				1	-1	-1	0	0	0	0	-1
Row 4: Compare to Event 4:					-1	-1	0	0	0	0	-2
Row 5: Compare to Event 5:						1	0	0	0	0	1
Row 6: Compare to Event 6:							0	0	0	0	0
Row 7: Compare to Event 7:								0	0	0	0
Row 8: Compare to Event 8:									0	0	0
Row 9: Compare to Event 9:										0	0

1/2 detection limit used for nd, historical data assumed EQL of 0.00001 mg/L

Mann-Kendall (S) Statistic = **-7**

Confidence Level Chart

S Value	Total No. of Sampling Events						
	4	5	6	7	8	9	10
0							
± 1							
± 2							
± 3							
± 4							
± 5							
± 6							
± 7			X				
±8							
± 9							
± 10							
± 11							
± 12							
± 13							
± 14							
± 15							
± 16							
± 17							
± 18							
± 19							
± 20							
± 21							
± 22							
± 23							
± 24	Not Physically possible						
± 25							
± 26							
± 27							
± 28							
± 29							
± 30							
± 31							
± 32							
± 33							
± 34							
± 35							
± 36							
± 37							
± 38							
± 39							
± 40							
± 41							
± 42							
± 43							
± 44							
± 45							

Unshaded area indicates generally stable trend (if CV<1)

Shaded area indicates
Expanding trend if S>0
Declining trend if S<0

Stability Evaulation Results

X	No Trend Indicated, Plume Not Dimishing or Expanding (Plume is Stable if CV<1)
	Trend Is Present (≥90% Confidence)
	S < 0 Diminishing Plume
	S > 0 Expanding Plume

MANN-KENDALL PLUME STABILITY ANALYSIS

OHP & HE

Nova Scotia Lands

141360 - LTMM GROUNDWATER MONITORING EVENT NOVEMBER AND DECEMBER 2018

MANN-KENDALL ANALYSIS OF PLUME	MONITORING WELL NO:	CODT-203-MW								
	Event 1	Event 2	Event 3	Event 4	Event 5	Event 6	Event 7	Event 8	Event 9	Event 10	Sum Rows
Chrysene	0.0012	0.00083	0.00073	0.0016	0.00035	0.0004					
	23-Oct-13	12-Dec-14	8-Dec-15	23-Nov-16	7-Dec-17	5-Dec-18					
Row 1: Compare to Event 1:		-1	-1	1	-1	-1	0	0	0	0	-3
Row 2: Compare to Event 2:			-1	1	-1	-1	0	0	0	0	-2
Row 3: Compare to Event 3:				1	-1	-1	0	0	0	0	-1
Row 4: Compare to Event 4:					-1	-1	0	0	0	0	-2
Row 5: Compare to Event 5:						1	0	0	0	0	1
Row 6: Compare to Event 6:							0	0	0	0	0
Row 7: Compare to Event 7:								0	0	0	0
Row 8: Compare to Event 8:									0	0	0
Row 9: Compare to Event 9:										0	0

1/2 detection limit used for nd, historical data assumed EQL of 0.00001 mg/L

Mann-Kendall (S) Statistic = **-7**

Confidence Level Chart

S Value	Total No. of Sampling Events						
	4	5	6	7	8	9	10
0							
± 1							
± 2							
± 3							
± 4							
± 5							
± 6							
± 7			X				
±8							
± 9							
± 10							
± 11							
± 12							
± 13							
± 14							
± 15							
± 16							
± 17							
± 18							
± 19							
± 20							
± 21							
± 22							
± 23							
± 24	Not Physically possible						
± 25							
± 26							
± 27							
± 28							
± 29							
± 30							
± 31							
± 32							
± 33							
± 34							
± 35							
± 36							
± 37							
± 38							
± 39							
± 40							
± 41							
± 42							
± 43							
± 44							
± 45							

Unshaded area indicates generally stable trend (if CV<1)

Shaded area indicates
Expanding trend if S>0
Declining trend if S<0

Stability Evaulation Results

X	No Trend Indicated, Plume Not Dimishing or Expanding (Plume is Stable if CV<1)
	Trend Is Present (≥90% Confidence)
	S < 0 Diminishing Plume
	S > 0 Expanding Plume

MANN-KENDALL PLUME STABILITY ANALYSIS

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Nova Scotia Lands

141360 - LTMM GROUNDWATER MONITORING EVENT NOVEMBER AND DECEMBER 2018

MANN-KENDALL ANALYSIS OF PLUME	MONITORING WELL NO:	CODT-203-MW								
	Event 1	Event 2	Event 3	Event 4	Event 5	Event 6	Event 7	Event 8	Event 9	Event 10	Sum Rows
Indeno(1,2,3-cd)pyrene	0.00029	0.00028	0.00029	0.00064	0.0001	0.00011					
	23-Oct-13	12-Dec-14	8-Dec-15	23-Nov-16	7-Dec-17	5-Dec-18					
Row 1: Compare to Event 1:		-1	0	1	-1	-1	0	0	0	0	-2
Row 2: Compare to Event 2:			1	1	-1	-1	0	0	0	0	0
Row 3: Compare to Event 3:				1	-1	-1	0	0	0	0	-1
Row 4: Compare to Event 4:					-1	-1	0	0	0	0	-2
Row 5: Compare to Event 5:						1	0	0	0	0	1
Row 6: Compare to Event 6:							0	0	0	0	0
Row 7: Compare to Event 7:								0	0	0	0
Row 8: Compare to Event 8:									0	0	0
Row 9: Compare to Event 9:										0	0

1/2 detection limit used for nd, historical data assumed EQL of 0.00001 mg/L

Mann-Kendall (S) Statistic = **-4**

Confidence Level Chart

S	Total No. of Sampling Events						
Value	4	5	6	7	8	9	10
0							
± 1							
± 2							
± 3							
± 4			X				
± 5							
± 6							
± 7							
±8							
± 9							
± 10							
± 11							
± 12							
± 13							
± 14							
± 15							
± 16							
± 17							
± 18							
± 19							
± 20							
± 21							
± 22							
± 23							
± 24	Not Physically possible						
± 25							
± 26							
± 27							
± 28							
± 29							
± 30							
± 31							
± 32							
± 33							
± 34							
± 35							
± 36							
± 37							
± 38							
± 39							
± 40							
± 41							
± 42							
± 43							
± 44							
± 45							

Unshaded area indicates generally stable trend (if CV<1)

Shaded area indicates
Expanding trend if S>0
Declining trend if S<0

Stability Evaulation Results

X	No Trend Indicated, Plume Not Dimishing or Expanding (Plume is Stable if CV<1)
	Trend Is Present (≥90% Confidence)
	S < 0 Diminishing Plume
	S > 0 Expanding Plume

MANN-KENDALL PLUME STABILITY ANALYSIS

OHP & HE

Nova Scotia Lands

141360 - LTMM GROUNDWATER MONITORING EVENT NOVEMBER AND DECEMBER 2018

MANN-KENDALL ANALYSIS OF PLUME	MONITORING WELL NO: CODT-203-MW										
	Event 1	Event 2	Event 3	Event 4	Event 5	Event 6	Event 7	Event 8	Event 9	Event 10	Sum Rows
Naphthalene	0.0015	0.0001	0.0001	0.0001	0.00052	0.0016					
	23-Oct-13	12-Dec-14	8-Dec-15	23-Nov-16	7-Dec-17	5-Dec-18					
Row 1: Compare to Event 1:		-1	-1	-1	-1	1	0	0	0	0	-3
Row 2: Compare to Event 2:			0	0	1	1	0	0	0	0	2
Row 3: Compare to Event 3:				0	1	1	0	0	0	0	2
Row 4: Compare to Event 4:					1	1	0	0	0	0	2
Row 5: Compare to Event 5:						1	0	0	0	0	1
Row 6: Compare to Event 6:							0	0	0	0	0
Row 7: Compare to Event 7:								0	0	0	0
Row 8: Compare to Event 8:									0	0	0
Row 9: Compare to Event 9:										0	0

1/2 detection limit used for nd, historical data assumed EQL of 0.00001 mg/L

Mann-Kendall (S) Statistic = **4**

Confidence Level Chart

S	Total No. of Sampling Events						
Value	4	5	6	7	8	9	10
0							
± 1							
± 2							
± 3							
± 4			X				
± 5							
± 6							
± 7							
±8							
± 9							
± 10							
± 11							
± 12							
± 13							
± 14							
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± 22							
± 23							
± 24	Not Physically possible						
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± 38							
± 39							
± 40							
± 41							
± 42							
± 43							
± 44							
± 45							

Unshaded area indicates generally stable trend (if CV<1)

Shaded area indicates
Expanding trend if S>0
Declining trend if S<0

Stability Evaulation Results

X	No Trend Indicated, Plume Not Dimishing or Expanding (Plume is Stable if CV<1)
	Trend Is Present (≥90% Confidence)
	S < 0 Diminishing Plume
	S > 0 Expanding Plume

MANN-KENDALL PLUME STABILITY ANALYSIS

OHP & HE

Nova Scotia Lands

141360 - LTMM GROUNDWATER MONITORING EVENT NOVEMBER AND DECEMBER 2018

MANN-KENDALL ANALYSIS OF PLUME	MONITORING WELL NO:	MCES-006-MW								
	Event 1	Event 2	Event 3	Event 4	Event 5	Event 6	Event 7	Event 8	Event 9	Event 10	Sum Rows
pH	7.61	8.91	9.44	7.95	7.86	9.15					
	5-Nov-13	10-Dec-14	3-Dec-15	2-Dec-16	13-Dec-17	28-Nov-18					
Row 1: Compare to Event 1:		1	1	1	1	1	0	0	0	0	5
Row 2: Compare to Event 2:			1	-1	-1	1	0	0	0	0	0
Row 3: Compare to Event 3:				-1	-1	-1	0	0	0	0	-3
Row 4: Compare to Event 4:					-1	1	0	0	0	0	0
Row 5: Compare to Event 5:						1	0	0	0	0	1
Row 6: Compare to Event 6:							0	0	0	0	0
Row 7: Compare to Event 7:								0	0	0	0
Row 8: Compare to Event 8:									0	0	0
Row 9: Compare to Event 9:										0	0

Mann-Kendall (S) Statistic = **3**

Confidence Level Chart

S	Total No. of Sampling Events						
Value	4	5	6	7	8	9	10
0							
± 1							
± 2							
± 3			X				
± 4							
± 5							
± 6							
± 7							
±8							
± 9							
± 10							
± 11							
± 12							
± 13							
± 14							
± 15							
± 16							
± 17							
± 18							
± 19							
± 20							
± 21							
± 22							
± 23							
± 24	Not Physically possible						
± 25							
± 26							
± 27							
± 28							
± 29							
± 30							
± 31							
± 32							
± 33							
± 34							
± 35							
± 36							
± 37							
± 38							
± 39							
± 40							
± 41							
± 42							
± 43							
± 44							
± 45							

Unshaded area indicates generally stable trend (if CV<1)

Shaded area indicates
Expanding trend if S>0
Declining trend if S<0

Stability Evaulation Results

X	No Trend Indicated, Plume Not Dimishing or Expanding (Plume is Stable if CV<1)
	Trend Is Present (≥90% Confidence)
	S < 0 Diminishing Plume
	S > 0 Expanding Plume

MANN-KENDALL PLUME STABILITY ANALYSIS

OHP & HE

Nova Scotia Lands

141360 - LTMM GROUNDWATER MONITORING EVENT NOVEMBER AND DECEMBER 2018

MANN-KENDALL ANALYSIS OF PLUME	MONITORING WELL NO:	MCES-006-MW								
	Event 1	Event 2	Event 3	Event 4	Event 5	Event 6	Event 7	Event 8	Event 9	Event 10	Sum Rows
SO4	34	70	88	48	35	64					
	5-Nov-13	10-Dec-14	3-Dec-15	2-Dec-16	13-Dec-17	28-Nov-18					
Row 1: Compare to Event 1:		1	1	1	1	1	0	0	0	0	5
Row 2: Compare to Event 2:			1	-1	-1	-1	0	0	0	0	-2
Row 3: Compare to Event 3:				-1	-1	-1	0	0	0	0	-3
Row 4: Compare to Event 4:					-1	1	0	0	0	0	0
Row 5: Compare to Event 5:						1	0	0	0	0	1
Row 6: Compare to Event 6:							0	0	0	0	0
Row 7: Compare to Event 7:								0	0	0	0
Row 8: Compare to Event 8:									0	0	0
Row 9: Compare to Event 9:										0	0

1/2 detection limit used for nd, historical data assumed EQL of 0.001 mg/L

Mann-Kendall (S) Statistic = **1**

Confidence Level Chart

S Value	Total No. of Sampling Events						
	4	5	6	7	8	9	10
0							
± 1			X				
± 2							
± 3							
± 4							
± 5							
± 6							
± 7							
±8							
± 9							
± 10							
± 11							
± 12							
± 13							
± 14							
± 15							
± 16							
± 17							
± 18							
± 19							
± 20							
± 21							
± 22							
± 23							
± 24	Not Physically possible						
± 25							
± 26							
± 27							
± 28							
± 29							
± 30							
± 31							
± 32							
± 33							
± 34							
± 35							
± 36							
± 37							
± 38							
± 39							
± 40							
± 41							
± 42							
± 43							
± 44							
± 45							

Unshaded area indicates generally stable trend (if CV<1)

Shaded area indicates
Expanding trend if S>0
Declining trend if S<0

Stability Evaulation Results

X	No Trend Indicated, Plume Not Dimishing or Expanding (Plume is Stable if CV<1)
	Trend Is Present (≥90% Confidence)
	S < 0 Diminishing Plume
	S > 0 Expanding Plume

MANN-KENDALL PLUME STABILITY ANALYSIS

OHP & HE

Nova Scotia Lands

141360 - LTMM GROUNDWATER MONITORING EVENT NOVEMBER AND DECEMBER 2018

MANN-KENDALL ANALYSIS OF PLUME	MONITORING WELL NO:	MCES-006-MW								
	Event 1	Event 2	Event 3	Event 4	Event 5	Event 6	Event 7	Event 8	Event 9	Event 10	Sum Rows
TDS	390	260	260	220	200	200					
	5-Nov-13	10-Dec-14	3-Dec-15	2-Dec-16	13-Dec-17	28-Nov-18					
Row 1: Compare to Event 1:		-1	-1	-1	-1	-1	0	0	0	0	-5
Row 2: Compare to Event 2:			0	-1	-1	-1	0	0	0	0	-3
Row 3: Compare to Event 3:				-1	-1	-1	0	0	0	0	-3
Row 4: Compare to Event 4:					-1	-1	0	0	0	0	-2
Row 5: Compare to Event 5:						0	0	0	0	0	0
Row 6: Compare to Event 6:							0	0	0	0	0
Row 7: Compare to Event 7:								0	0	0	0
Row 8: Compare to Event 8:									0	0	0
Row 9: Compare to Event 9:										0	0

1/2 detection limit used for nd, historical data assumed EQL of 0.001 mg/L

Mann-Kendall (S) Statistic = **-13**

Confidence Level Chart

S Value	Total No. of Sampling Events						
	4	5	6	7	8	9	10
0							
± 1							
± 2							
± 3							
± 4							
± 5							
± 6							
± 7							
±8							
± 9							
± 10							
± 11							
± 12							
± 13			X				
± 14							
± 15							
± 16							
± 17							
± 18							
± 19							
± 20							
± 21							
± 22							
± 23							
± 24	Not Physically possible						
± 25							
± 26							
± 27							
± 28							
± 29							
± 30							
± 31							
± 32							
± 33							
± 34							
± 35							
± 36							
± 37							
± 38							
± 39							
± 40							
± 41							
± 42							
± 43							
± 44							
± 45							

Unshaded area indicates generally stable trend (if CV<1)

Shaded area indicates
Expanding trend if S>0
Declining trend if S<0

Stability Evaulation Results

	No Trend Indicated, Plume Not Dimishing or Expanding (Plume is Stable if CV<1)
X	Trend Is Present (≥90% Confidence)
X	S < 0 Diminishing Plume
	S > 0 Expanding Plume

MANN-KENDALL PLUME STABILITY ANALYSIS

OHP & HE

Nova Scotia Lands

141360 - LTMM GROUNDWATER MONITORING EVENT NOVEMBER AND DECEMBER 2018

MANN-KENDALL ANALYSIS OF PLUME	MONITORING WELL NO:	MCES-006-MW								
	Event 1	Event 2	Event 3	Event 4	Event 5	Event 6	Event 7	Event 8	Event 9	Event 10	Sum Rows
Selenium	0.0005	0.0029	0.0033	0.0005	0.0017	0.0015					
	5-Nov-13	10-Dec-14	3-Dec-15	2-Dec-16	13-Dec-17	28-Nov-18					
Row 1: Compare to Event 1:		1	1	0	1	1	0	0	0	0	4
Row 2: Compare to Event 2:			1	-1	-1	-1	0	0	0	0	-2
Row 3: Compare to Event 3:				-1	-1	-1	0	0	0	0	-3
Row 4: Compare to Event 4:					1	1	0	0	0	0	2
Row 5: Compare to Event 5:						-1	0	0	0	0	-1
Row 6: Compare to Event 6:							0	0	0	0	0
Row 7: Compare to Event 7:								0	0	0	0
Row 8: Compare to Event 8:									0	0	0
Row 9: Compare to Event 9:										0	0

1/2 detection limit used for nd, historical data assumed EQL of 0.001 mg/L

Mann-Kendall (S) Statistic = **0**

Confidence Level Chart							
S	Total No. of Sampling Events						
Value	4	5	6	7	8	9	10
0			X				
± 1							
± 2							
± 3							
± 4							
± 5							
± 6							
± 7							
±8							
± 9							
± 10							
± 11							
± 12							
± 13							
± 14							
± 15							
± 16							
± 17							
± 18							
± 19							
± 20							
± 21							
± 22							
± 23							
± 24	Not Physically possible						
± 25							
± 26							
± 27							
± 28							
± 29							
± 30							
± 31							
± 32							
± 33							
± 34							
± 35							
± 36							
± 37							
± 38							
± 39							
± 40							
± 41							
± 42							
± 43							
± 44							
± 45							

Unshaded area indicates generally stable trend (if CV<1)

Shaded area indicates
Expanding trend if S>0
Declining trend if S<0

Stability Evaulation Results	
X	No Trend Indicated, Plume Not Dimishing or Expanding (Plume is Stable if CV<1)
	Trend Is Present (≥90% Confidence)
	S < 0 Diminishing Plume
	S > 0 Expanding Plume

MANN-KENDALL PLUME STABILITY ANALYSIS

OHP & HE

Nova Scotia Lands

141360 - LTMM GROUNDWATER MONITORING EVENT NOVEMBER AND DECEMBER 2018

MANN-KENDALL ANALYSIS OF PLUME	MONITORING WELL NO:	MCES-001-MWA								
	Event 1	Event 2	Event 3	Event 4	Event 5	Event 6	Event 7	Event 8	Event 9	Event 10	Sum Rows
pH	11.8	11.9	11.8	11.9	12	12					
	24-Jul-13	10-Dec-14	2-Dec-15	25-Nov-16	12-Dec-17	28-Nov-18					
Row 1: Compare to Event 1:		1	0	1	1	1	0	0	0	0	4
Row 2: Compare to Event 2:			-1	0	1	1	0	0	0	0	1
Row 3: Compare to Event 3:				1	1	1	0	0	0	0	3
Row 4: Compare to Event 4:					1	1	0	0	0	0	2
Row 5: Compare to Event 5:						0	0	0	0	0	0
Row 6: Compare to Event 6:							0	0	0	0	0
Row 7: Compare to Event 7:								0	0	0	0
Row 8: Compare to Event 8:									0	0	0
Row 9: Compare to Event 9:										0	0

Mann-Kendall (S) Statistic = **10**

Confidence Level Chart							
S	Total No. of Sampling Events						
Value	4	5	6	7	8	9	10
0							
± 1							
± 2							
± 3							
± 4							
± 5							
± 6							
± 7							
±8							
± 9							
± 10			X				
± 11							
± 12							
± 13							
± 14							
± 15							
± 16							
± 17							
± 18							
± 19							
± 20							
± 21							
± 22							
± 23							
± 24	Not Physically possible						
± 25							
± 26							
± 27							
± 28							
± 29							
± 30							
± 31							
± 32							
± 33							
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± 35							
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± 37							
± 38							
± 39							
± 40							
± 41							
± 42							
± 43							
± 44							
± 45							

Unshaded area indicates generally stable trend (if CV<1)

Shaded area indicates
Expanding trend if S>0
Declining trend if S<0

Stability Evaulation Results		
	No Trend Indicated, Plume Not Dimishing or Expanding (Plume is Stable if CV<1)	
X	Trend Is Present (≥90% Confidence)	
	S < 0	Diminishing Plume
X	S > 0	Expanding Plume

MANN-KENDALL PLUME STABILITY ANALYSIS

OHP & HE

Nova Scotia Lands

141360 - LTMM GROUNDWATER MONITORING EVENT NOVEMBER AND DECEMBER 2018

MANN-KENDALL ANALYSIS OF PLUME	MONITORING WELL NO:	MCES-001-MWA								
	Event 1	Event 2	Event 3	Event 4	Event 5	Event 6	Event 7	Event 8	Event 9	Event 10	Sum Rows
SO4	160	120	160	190	160	110					
	24-Jul-13	10-Dec-14	2-Dec-15	25-Nov-16	12-Dec-17	28-Nov-18					
Row 1: Compare to Event 1:		-1	0	1	0	-1	0	0	0	0	-1
Row 2: Compare to Event 2:			1	1	1	-1	0	0	0	0	2
Row 3: Compare to Event 3:				1	0	-1	0	0	0	0	0
Row 4: Compare to Event 4:					-1	-1	0	0	0	0	-2
Row 5: Compare to Event 5:						-1	0	0	0	0	-1
Row 6: Compare to Event 6:							0	0	0	0	0
Row 7: Compare to Event 7:								0	0	0	0
Row 8: Compare to Event 8:									0	0	0
Row 9: Compare to Event 9:										0	0

1/2 detection limit used for nd, historical data assumed EQL of 0.001 mg/L

Mann-Kendall (S) Statistic = **-2**

Confidence Level Chart

S Value	Total No. of Sampling Events						
	4	5	6	7	8	9	10
0							
± 1							
± 2			X				
± 3							
± 4							
± 5							
± 6							
± 7							
±8							
± 9							
± 10							
± 11							
± 12							
± 13							
± 14							
± 15							
± 16							
± 17							
± 18							
± 19							
± 20							
± 21							
± 22							
± 23							
± 24	Not Physically possible						
± 25							
± 26							
± 27							
± 28							
± 29							
± 30							
± 31							
± 32							
± 33							
± 34							
± 35							
± 36							
± 37							
± 38							
± 39							
± 40							
± 41							
± 42							
± 43							
± 44							
± 45							

Unshaded area indicates generally stable trend (if CV<1)

Shaded area indicates
Expanding trend if S>0
Declining trend if S<0

Stability Evaulation Results

X	No Trend Indicated, Plume Not Dimishing or Expanding (Plume is Stable if CV<1)
	Trend Is Present (≥90% Confidence)
	S < 0 Diminishing Plume
	S > 0 Expanding Plume

MANN-KENDALL PLUME STABILITY ANALYSIS

OHP & HE

Nova Scotia Lands

141360 - LTMM GROUNDWATER MONITORING EVENT NOVEMBER AND DECEMBER 2018

MANN-KENDALL ANALYSIS OF PLUME	MONITORING WELL NO:	MCES-001-MWA								
	Event 1	Event 2	Event 3	Event 4	Event 5	Event 6	Event 7	Event 8	Event 9	Event 10	Sum Rows
TDS	542	730	540	730	560	580					
	24-Jul-13	10-Dec-14	2-Dec-15	25-Nov-16	12-Dec-17	28-Nov-18					
Row 1: Compare to Event 1:		1	-1	1	1	1	0	0	0	0	3
Row 2: Compare to Event 2:			-1	0	-1	-1	0	0	0	0	-3
Row 3: Compare to Event 3:				1	1	1	0	0	0	0	3
Row 4: Compare to Event 4:					-1	-1	0	0	0	0	-2
Row 5: Compare to Event 5:						1	0	0	0	0	1
Row 6: Compare to Event 6:							0	0	0	0	0
Row 7: Compare to Event 7:								0	0	0	0
Row 8: Compare to Event 8:									0	0	0
Row 9: Compare to Event 9:										0	0

1/2 detection limit used for nd, historical data assumed EQL of 0.001 mg/L

Mann-Kendall (S) Statistic = **2**

Confidence Level Chart

S Value	Total No. of Sampling Events						
	4	5	6	7	8	9	10
0							
± 1							
± 2			X				
± 3							
± 4							
± 5							
± 6							
± 7							
±8							
± 9							
± 10							
± 11							
± 12							
± 13							
± 14							
± 15							
± 16							
± 17							
± 18							
± 19							
± 20							
± 21							
± 22							
± 23							
± 24	Not Physically possible						
± 25							
± 26							
± 27							
± 28							
± 29							
± 30							
± 31							
± 32							
± 33							
± 34							
± 35							
± 36							
± 37							
± 38							
± 39							
± 40							
± 41							
± 42							
± 43							
± 44							
± 45							

Unshaded area indicates generally stable trend (if CV<1)

Shaded area indicates
Expanding trend if S>0
Declining trend if S<0

Stability Evaulation Results

X	No Trend Indicated, Plume Not Dimishing or Expanding (Plume is Stable if CV<1)
	Trend Is Present (≥90% Confidence)
	S < 0 Diminishing Plume
	S > 0 Expanding Plume

MANN-KENDALL PLUME STABILITY ANALYSIS

OHP & HE

Nova Scotia Lands

141360 - LTMM GROUNDWATER MONITORING EVENT NOVEMBER AND DECEMBER 2018

MANN-KENDALL ANALYSIS OF PLUME	MONITORING WELL NO:	MCES-001-MWA								
	Event 1	Event 2	Event 3	Event 4	Event 5	Event 6	Event 7	Event 8	Event 9	Event 10	Sum Rows
Selenium	0.0016	0.0018	0.0015	0.0019	0.0018	0.0015					
	24-Jul-13	10-Dec-14	2-Dec-15	25-Nov-16	12-Dec-17	28-Nov-18					
Row 1: Compare to Event 1:		1	-1	1	1	-1	0	0	0	0	1
Row 2: Compare to Event 2:			-1	1	0	-1	0	0	0	0	-1
Row 3: Compare to Event 3:				1	1	0	0	0	0	0	2
Row 4: Compare to Event 4:					-1	-1	0	0	0	0	-2
Row 5: Compare to Event 5:						-1	0	0	0	0	-1
Row 6: Compare to Event 6:							0	0	0	0	0
Row 7: Compare to Event 7:								0	0	0	0
Row 8: Compare to Event 8:									0	0	0
Row 9: Compare to Event 9:										0	0

1/2 detection limit used for nd, historical data assumed EQL of 0.001 mg/L

Mann-Kendall (S) Statistic = **-1**

Confidence Level Chart

S	Total No. of Sampling Events						
Value	4	5	6	7	8	9	10
0							
± 1			X				
± 2							
± 3							
± 4							
± 5							
± 6							
± 7							
±8							
± 9							
± 10							
± 11							
± 12							
± 13							
± 14							
± 15							
± 16							
± 17							
± 18							
± 19							
± 20							
± 21							
± 22							
± 23							
± 24	Not Physically possible						
± 25							
± 26							
± 27							
± 28							
± 29							
± 30							
± 31							
± 32							
± 33							
± 34							
± 35							
± 36							
± 37							
± 38							
± 39							
± 40							
± 41							
± 42							
± 43							
± 44							
± 45							

Unshaded area indicates generally stable trend (if CV<1)

Shaded area indicates
Expanding trend if S>0
Declining trend if S<0

Stability Evaulation Results

X	No Trend Indicated, Plume Not Dimishing or Expanding (Plume is Stable if CV<1)
	Trend Is Present (≥90% Confidence)
	S < 0 Diminishing Plume
	S > 0 Expanding Plume

MANN-KENDALL PLUME STABILITY ANALYSIS

OHP & HE

Nova Scotia Lands

141360 - LTMM GROUNDWATER MONITORING EVENT NOVEMBER AND DECEMBER 2018

MANN-KENDALL ANALYSIS OF PLUME	MONITORING WELL NO:	MCES-001-MWB								
	Event 1	Event 2	Event 3	Event 4	Event 5	Event 6	Event 7	Event 8	Event 9	Event 10	Sum Rows
pH	7.32	7.4	7.49	7.42	7.47	11.9					
	14-Nov-13	10-Dec-14	2-Dec-15	25-Nov-16	12-Dec-17	28-Nov-18					
Row 1: Compare to Event 1:		1	1	1	1	1	0	0	0	0	5
Row 2: Compare to Event 2:			1	1	1	1	0	0	0	0	4
Row 3: Compare to Event 3:				-1	-1	1	0	0	0	0	-1
Row 4: Compare to Event 4:					1	1	0	0	0	0	2
Row 5: Compare to Event 5:						1	0	0	0	0	1
Row 6: Compare to Event 6:							0	0	0	0	0
Row 7: Compare to Event 7:								0	0	0	0
Row 8: Compare to Event 8:									0	0	0
Row 9: Compare to Event 9:										0	0

Mann-Kendall (S) Statistic = **11**

Confidence Level Chart

S Value	Total No. of Sampling Events						
	4	5	6	7	8	9	10
0							
± 1							
± 2							
± 3							
± 4							
± 5							
± 6							
± 7							
±8							
± 9							
± 10							
± 11			X				
± 12							
± 13							
± 14							
± 15							
± 16							
± 17							
± 18							
± 19							
± 20							
± 21							
± 22							
± 23							
± 24	Not Physically possible						
± 25							
± 26							
± 27							
± 28							
± 29							
± 30							
± 31							
± 32							
± 33							
± 34							
± 35							
± 36							
± 37							
± 38							
± 39							
± 40							
± 41							
± 42							
± 43							
± 44							
± 45							

Unshaded area indicates generally stable trend (if CV<1)

Shaded area indicates
Expanding trend if S>0
Declining trend if S<0

Stability Evaulation Results

	No Trend Indicated, Plume Not Dimishing or Expanding (Plume is Stable if CV<1)	
X	Trend Is Present (≥90% Confidence)	
	S < 0	Diminishing Plume
X	S > 0	Expanding Plume

MANN-KENDALL PLUME STABILITY ANALYSIS

OHP & HE

Nova Scotia Lands

141360 - LTMM GROUNDWATER MONITORING EVENT NOVEMBER AND DECEMBER 2018

MANN-KENDALL ANALYSIS OF PLUME	MONITORING WELL NO:	MCES-001-MWB								
	Event 1	Event 2	Event 3	Event 4	Event 5	Event 6	Event 7	Event 8	Event 9	Event 10	Sum Rows
SO4	10	6.7	1	1	1	94					
	14-Nov-13	10-Dec-14	2-Dec-15	25-Nov-16	12-Dec-17	28-Nov-18					
Row 1: Compare to Event 1:		-1	-1	-1	-1	1	0	0	0	0	-3
Row 2: Compare to Event 2:			-1	-1	-1	1	0	0	0	0	-2
Row 3: Compare to Event 3:				0	0	1	0	0	0	0	1
Row 4: Compare to Event 4:					0	1	0	0	0	0	1
Row 5: Compare to Event 5:						1	0	0	0	0	1
Row 6: Compare to Event 6:							0	0	0	0	0
Row 7: Compare to Event 7:								0	0	0	0
Row 8: Compare to Event 8:									0	0	0
Row 9: Compare to Event 9:										0	0

1/2 detection limit used for nd, historical data assumed EQL of 0.001 mg/L

Mann-Kendall (S) Statistic = **-2**

Confidence Level Chart

S	Total No. of Sampling Events						
Value	4	5	6	7	8	9	10
0							
± 1							
± 2			X				
± 3							
± 4							
± 5							
± 6							
± 7							
±8							
± 9							
± 10							
± 11							
± 12							
± 13							
± 14							
± 15							
± 16							
± 17							
± 18							
± 19							
± 20							
± 21							
± 22							
± 23							
± 24	Not Physically possible						
± 25							
± 26							
± 27							
± 28							
± 29							
± 30							
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± 32							
± 33							
± 34							
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± 36							
± 37							
± 38							
± 39							
± 40							
± 41							
± 42							
± 43							
± 44							
± 45							

Unshaded area indicates generally stable trend (if CV<1)

Shaded area indicates
Expanding trend if S>0
Declining trend if S<0

Stability Evaulation Results

X	No Trend Indicated, Plume Not Dimishing or Expanding (Plume is Stable if CV<1)
	Trend Is Present (≥90% Confidence)
	S < 0 Diminishing Plume
	S > 0 Expanding Plume

MANN-KENDALL PLUME STABILITY ANALYSIS

OHP & HE

Nova Scotia Lands

141360 - LTMM GROUNDWATER MONITORING EVENT NOVEMBER AND DECEMBER 2018

MANN-KENDALL ANALYSIS OF PLUME	MONITORING WELL NO:	MCES-001-MWB								
	Event 1	Event 2	Event 3	Event 4	Event 5	Event 6	Event 7	Event 8	Event 9	Event 10	Sum Rows
TDS	22000	21000	22000	19000	21000	520					
	14-Nov-13	10-Dec-14	2-Dec-15	25-Nov-16	12-Dec-17	28-Nov-18					
Row 1: Compare to Event 1:		-1	0	-1	-1	-1	0	0	0	0	-4
Row 2: Compare to Event 2:			1	-1	0	-1	0	0	0	0	-1
Row 3: Compare to Event 3:				-1	-1	-1	0	0	0	0	-3
Row 4: Compare to Event 4:					1	-1	0	0	0	0	0
Row 5: Compare to Event 5:						-1	0	0	0	0	-1
Row 6: Compare to Event 6:							0	0	0	0	0
Row 7: Compare to Event 7:								0	0	0	0
Row 8: Compare to Event 8:									0	0	0
Row 9: Compare to Event 9:										0	0

1/2 detection limit used for nd, historical data assumed EQL of 0.001 mg/L

Mann-Kendall (S) Statistic = **-9**

Confidence Level Chart

S Value	Total No. of Sampling Events						
	4	5	6	7	8	9	10
0							
± 1							
± 2							
± 3							
± 4							
± 5							
± 6							
± 7							
±8							
± 9			X				
± 10							
± 11							
± 12							
± 13							
± 14							
± 15							
± 16							
± 17							
± 18							
± 19							
± 20							
± 21							
± 22							
± 23							
± 24	Not Physically possible						
± 25							
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± 39							
± 40							
± 41							
± 42							
± 43							
± 44							
± 45							

Unshaded area indicates generally stable trend (if CV<1)

Shaded area indicates
Expanding trend if S>0
Declining trend if S<0

Stability Evaulation Results

	No Trend Indicated, Plume Not Dimishing or Expanding (Plume is Stable if CV<1)
X	Trend Is Present (≥90% Confidence)
X	S < 0 Diminishing Plume
	S > 0 Expanding Plume

References

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