NOVA SCOTIA LANDS

Long Term Maintenance and Monitoring 2016 Groundwater Monitoring Event

Open Hearth Park and Harbourside East

Final Report

February 2017 – 14-1360-3000

May 3, 2017

Nova Scotia Lands
45 Wabana Court
Harbourside Commercial Park
Sydney, Nova Scotia
B1P 6H2

ATTENTION: Mr. Frank Potter
Executive Director

Long Term Maintenance and Monitoring 2016 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 for your review. Should you have any questions or comments, please contact the undersigned at (902) 562-9880.

Sincerely,

DILLON CONSULTING LIMITED

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

NJW:kme

Enclosure

Our file: 14-1360-3000

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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 to conduct the LTMM program, which consists of an annual groundwater sampling program. The LTMM event completed in 2016 included measurement of hydraulic head levels and sample collection from monitor wells around the shorelines of OHP (i.e., North and South Ponds) and 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 are not available (e.g., for 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., acenaphthylene, anthracene, benzo(a)pyrene, indeno(1,2,3-cd)pyrene and naphthalene) and additional general chemistry and metal parameters (i.e., selenium, sulfate, pH and TDS). Concentrations of indicator parameters in groundwater samples collected were compared to available post-remediation data. 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 on select parameters at select monitor well locations indicates that most concentration trends are stable, decreasing or fluctuating. Increasing and/or potentially increasing concentration trends appear at two monitor well locations (i.e., MCES-006-MW, which is located on the southeast portion of OHP in the vicinity of the former cooling pond, exhibited two indicator parameters with an increasing concentration trend (i.e., pH and SO4); and CODT-201-MWC, which is located in the former Domtar site, exhibited two indicator parameters with potentially increasing concentration trends (i.e., acenaphthylene and naphthalene)).

For the OHP, concentrations of analyzed parameters at the majority of the sampling wells were below the applicable standards. Analytical results indicate no exceedances of the Tier I EQS. Three monitor wells (i.e., MSES-104-MWA/MWB and MSES-008-MW) located along the southeast shoreline contained elevated concentrations of acenaphthylene above the MOE standard. These three wells are located in the vicinity of the former disposal area on the south shoreline of OHP. It is also noted that one monitor well (i.e., MCES-204-MW), located in an area in-filled with slag and coal, contained elevated concentrations of anthracene, sodium and selenium above the MOE standards. Another monitor well located on the eastern shoreline (i.e., MCES-001-MWB) contained a concentration of sodium above the MOE standard. Although the concentrations of sodium are above the MOE standard of 2,300,000 ug/L in MCES-204-MW and MCES-001-MWB, 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.

For HE, concentrations of analyzed parameters at the majority of the sampling wells were also below applicable standards. One monitor well (i.e., CODT-201-MWC), located in the former Domtar site, contained PAH concentration(s) above both the Tier I EQS and MOE standard(s). Three monitor wells (i.e., CODT-008-MWB, CODT-201-MWA and CODT-203-MW), located within HE at the former Domtar site, contained PAH concentrations above their respective MOE standard concentrations.

Approximately 0.25 m of 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. During the 2016 monitoring event, light non-aqueous phase liquid (LNAPL) was detected at one location, SCU10-002-MW; however, the LNAPL was measured at less than 1 millimeter (i.e., 0.5 millimeters). It is noted that SCU10-002-MW is included in the OHP and HE monitoring programs, as well as the Harbourside Commercial Park (HCP) groundwater monitoring program.

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

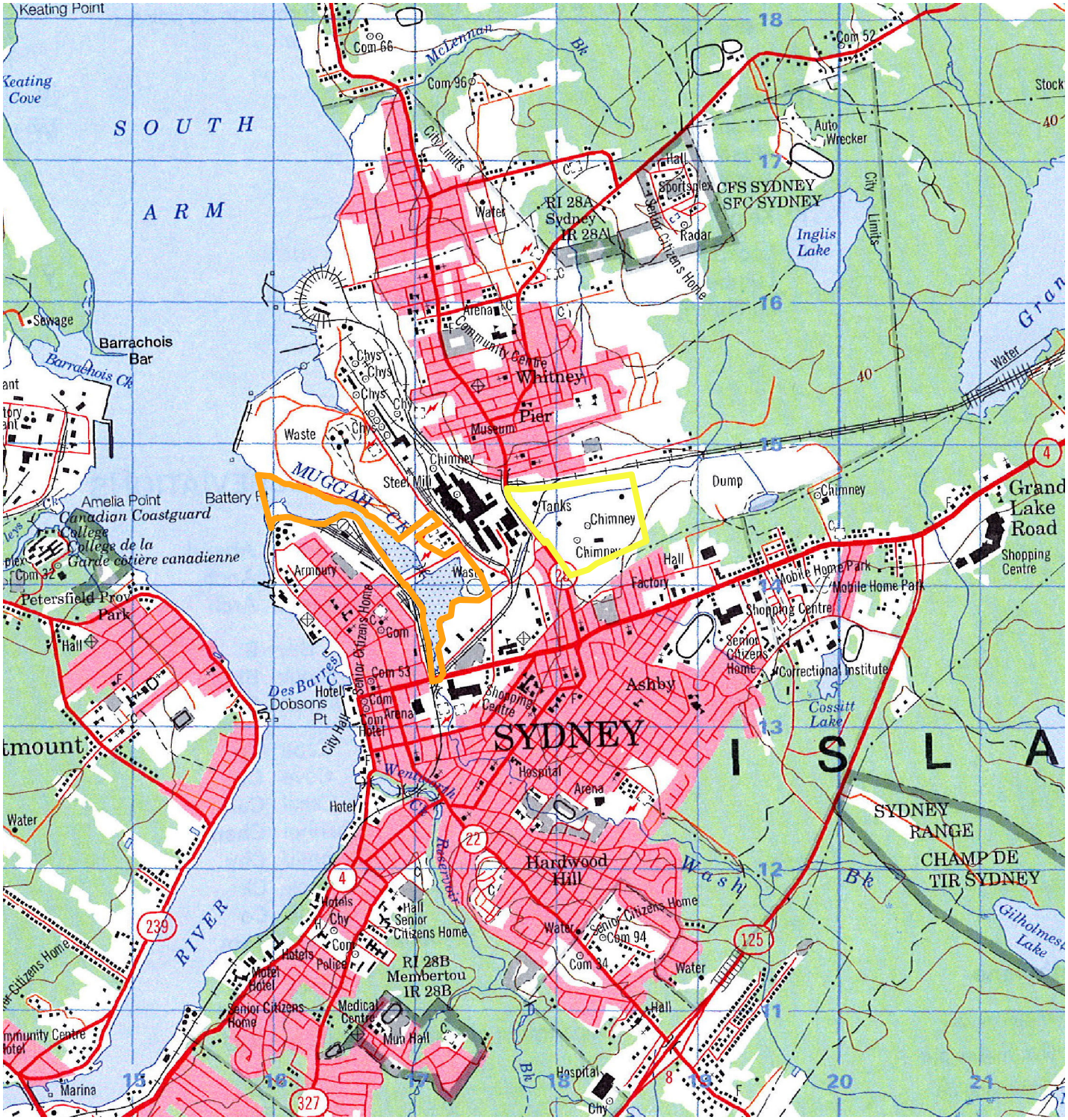
The footprint of the Sydney Tar Ponds and former Coke Ovens Site encompassed approximately 100 hectares of property within the Muggah Creek Watershed in the Cape Breton Regional Municipality of Nova Scotia. Extensive testing identified widespread contamination of soil, groundwater, surface water and 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 2016. 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 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; thereby decreasing the sampling program to 41 monitor wells.



NS Lands
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OPEN HEARTH PARK AND HARBOURSIDE EAST

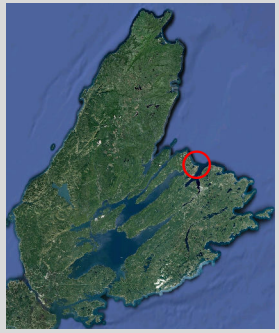
2016 GROUNDWATER MONITORING EVENT

SITE LOCATION

Figure 1-1

Harbourside East

Open Hearth Park



0 250 500 1,000 1,500 m SCALE 1:68202

N W E S

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

Province of Nova Scotia Mapping

MAP CREATED BY: MCL
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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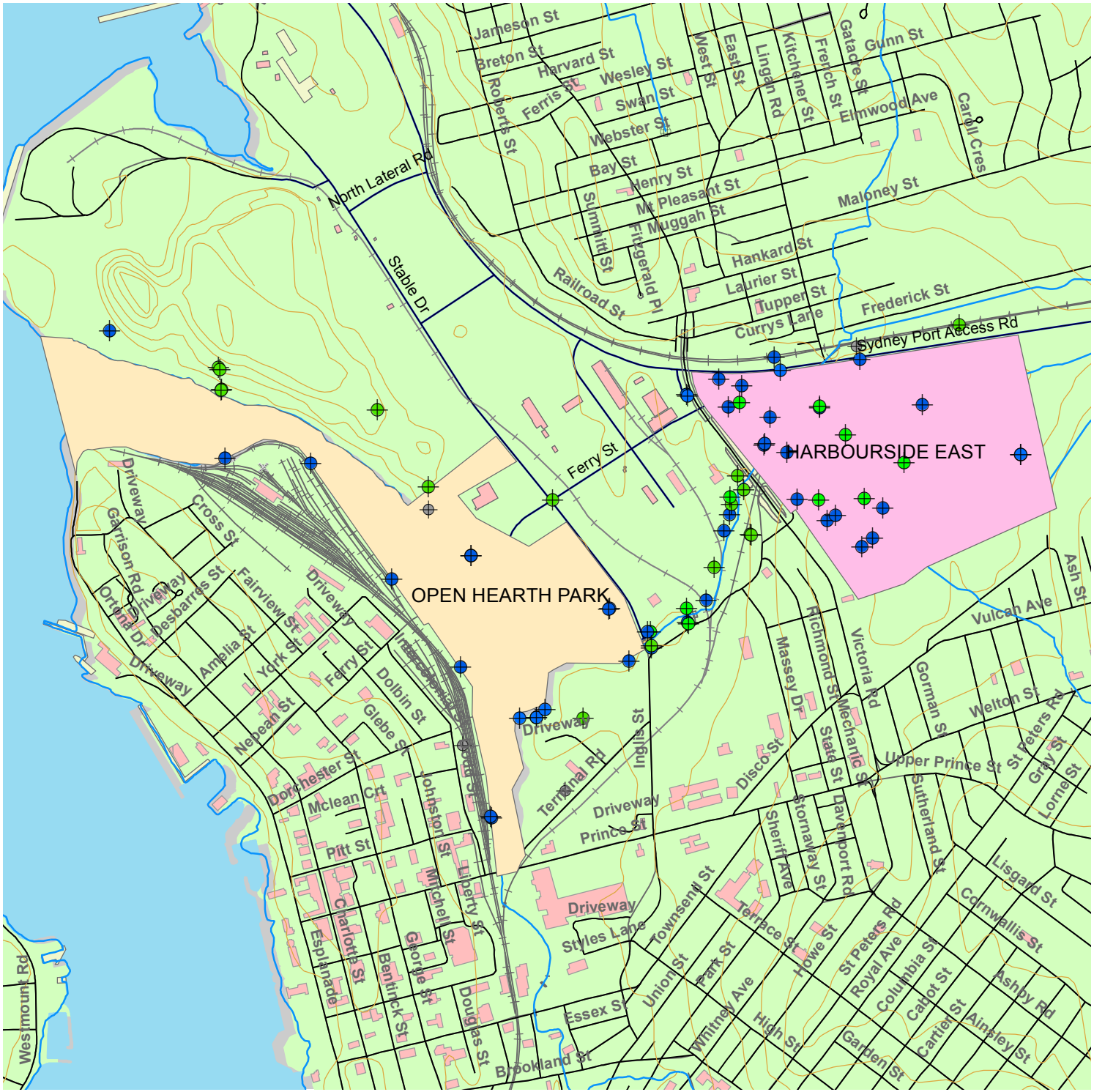
PROJECT: 14-1360

STATUS: FINAL

DATE: 01/25/17



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OPEN HEARTH PARK AND
HARBOURSIDE EAST

2016 GROUNDWATER MONITORING EVENT

STUDY AREAS

FIGURE 1-2

LEGEND

Monitoring Wells

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

0 50 100 200 300 m

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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 included in the 2015 and 2016 LTMM programs to allow for inclusion of bedrock groundwater contours for this area. Additionally, 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 2016 LTMM program was 67 (i.e., 41 sampling and 26 water level wells).

As concentrations of petroleum hydrocarbons (PHC) have remained below laboratory detection limits or at concentrations well 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 41 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). Dillon team members also abided by the procedures governing access to the NS Lands sites.

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 and six trip blanks were collected during the 2016 monitoring event. Relative percent differences were calculated between sample and associated field duplicate results.

Laboratory QC

Analytical services were contracted by NS Lands to Maxxam Analytics Inc. (Maxxam) in Sydney and Bedford, Nova Scotia (NS). Maxxam is accredited to ISO 17025 by the Standards Council of Canada. Laboratory SOPs are based on accepted (e.g., USEPA, EPS, Atlantic PIRI, MSAMS) standard referenced industry protocols and were validated by Maxxam prior to use. 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 the Phase II and III Environmental Site Assessments (ESAs) (JDAC, 2001 and 2002). The wells were terminated within fill (F), native till (T), and shallow, intermediate and deeper bedrock units (SRx, IRx and DRx respectively). 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 2016 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 was 67 (i.e., 41 sampling and 26 water level wells) during the 2016 groundwater monitoring event.

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 the proactive 12V Submersible Pumps installed as part of the EEM program for the Sydney Tar Ponds (STP) remediation project, water was removed 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 2016 groundwater monitoring program included the sampling of 41 monitor wells. Consistent with the 2014 and 2015 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, 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	Total Organic Carbon	Aluminum	Silver
Toluene	Acenaphthylene	Ion Balance (% Difference)	Orthophosphate	Antimony	Strontium
Ethylbenzene	Anthracene	Langelier Index @ 4&20 C	pH	Arsenic	Thallium
Total Xylenes	Benzo(a)anthracene	Saturation pH @ 4&20 C	Silica	Barium	Tin
C6-C10 (Less BTEX)	Benzo(a)pyrene	Alkalinity (total as $CaCo_3$)	Sulphate	Beryllium	Titanium
>C10-C16 Hydrocarbons	Benzo(b)fluoranthene	Sodium	Turbidity	Bismuth	Uranium
>C16-C21 Hydrocarbons	Benzo(j)fluoranthene	Potassium	Conductivity	Boron	Vanadium
>C21-<C32 Hydrocarbons	Benzo(k)fluoranthene	Calcium		Cadmium	Zinc
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	
	Perylene	Nitrogen (Ammonic N)		(Total)	
	Phenanthrene			Molybdenum	
	Pyrene			Nickel	
	1-methylnaphthalene			Phosphorus	
	2-methylnaphthalene			Selenium	

Note:

1. During the 2015 and 2016 groundwater monitoring events, only CODT-2015-MWC was 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 2016 monitoring event also include available post-remediation data. The following parameters with concentrations above applicable standards were selected as indicator parameters for OHP and HE:

- PAHs (i.e., acenaphthylene, anthracene, benzo(a)pyrene, indeno(1,2,3-cd) pyrene and naphthalene);
- General chemistry and metals (i.e., selenium, sulfate, pH and TDS); and,
- Presence/extent of LNAPL or DNAPL.

2.4.1 Regulatory Framework

The remedial criteria used for this assessment were the July 2013 Nova Scotia Contaminated Sites Regulations (NS CSR) Tier I Environmental Quality Standards (EQS) for groundwater. The subject property is classified as having commercial receptors, non-potable groundwater usage and coarse-grained soil. Where Tier I EQS were not available (e.g., for 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 (i.e., stable, decreasing, or increasing).

Based on a review of the analytical results from the LTMM and available post-remediation data, parameters with concentrations above applicable standards were selected for Mann-Kendall analysis. These include PAH indicator parameters acenaphthylene, anthracene, benzo(a)pyrene, indeno(1,2,3-cd)pyrene and naphthalene. Additional 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 solidification/stabilization (S/S) area in consideration of monitoring the solidification/stabilization (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 in-situ 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 historical recordings at the Sydney A station indicates that precipitation of approximately 1355.8 millimeters (mm) was recorded for 2016, which is less than the normal value of yearly precipitation (i.e., as recorded between 1981 and 2010) of 1517 mm (http://climate.weather.gc.ca). The monthly precipitation recorded for November 2016 was 125.8 mm and for December 2016 was 215.5 mm; the monthly normal at the Sydney station is 167 mm (i.e., as recorded between 1981-2010).

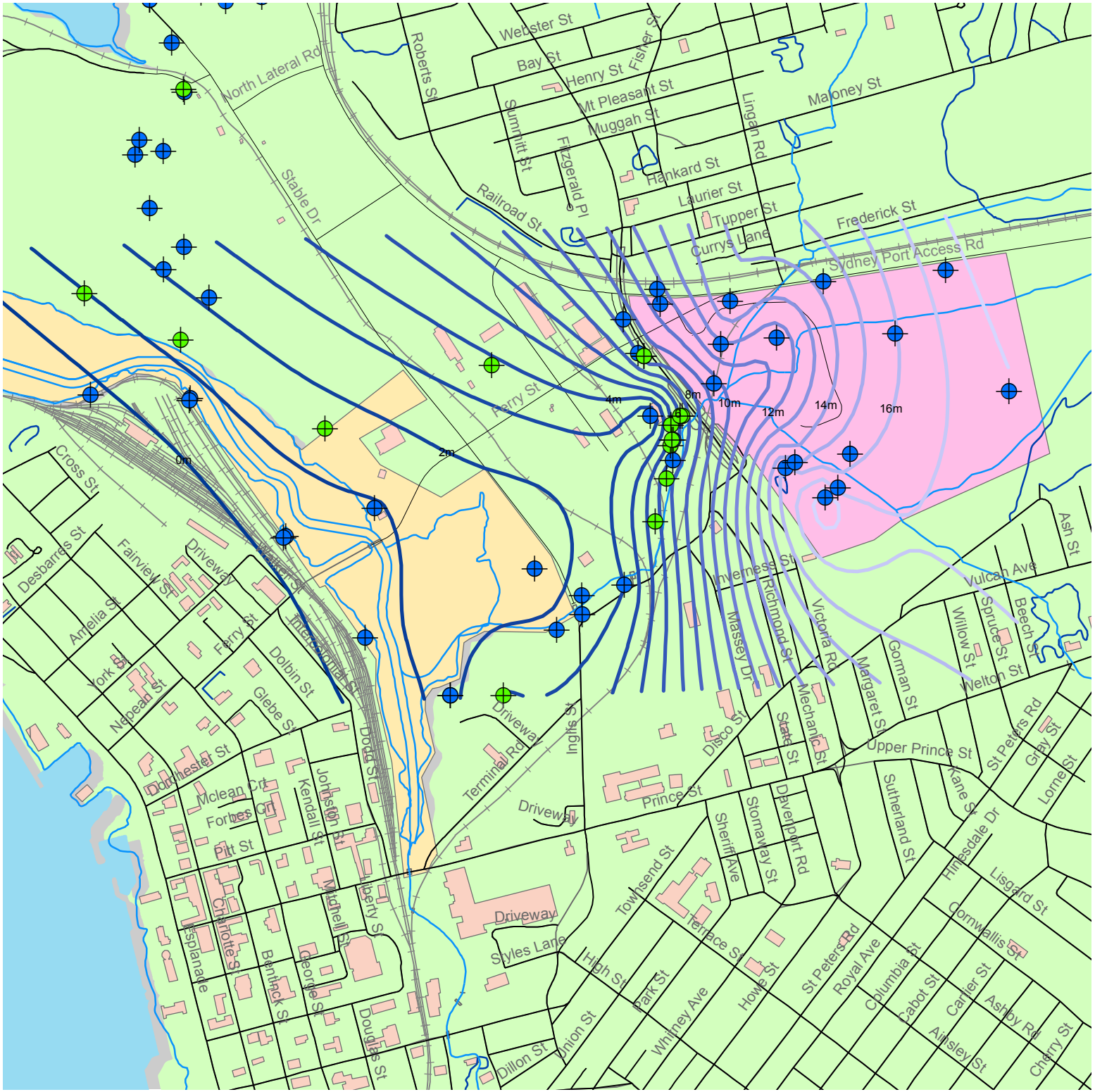
3.2 Groundwater Flow and Hydraulic Head Levels

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 the new survey.

The hydraulic head data obtained from the monitoring areas during the 2016 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 2016 event and that observed during the previous LTMM 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.

Approximately 0.25 m of 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. During the 2016 monitoring event, LNAPL was detected at one location,



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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: MCL
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
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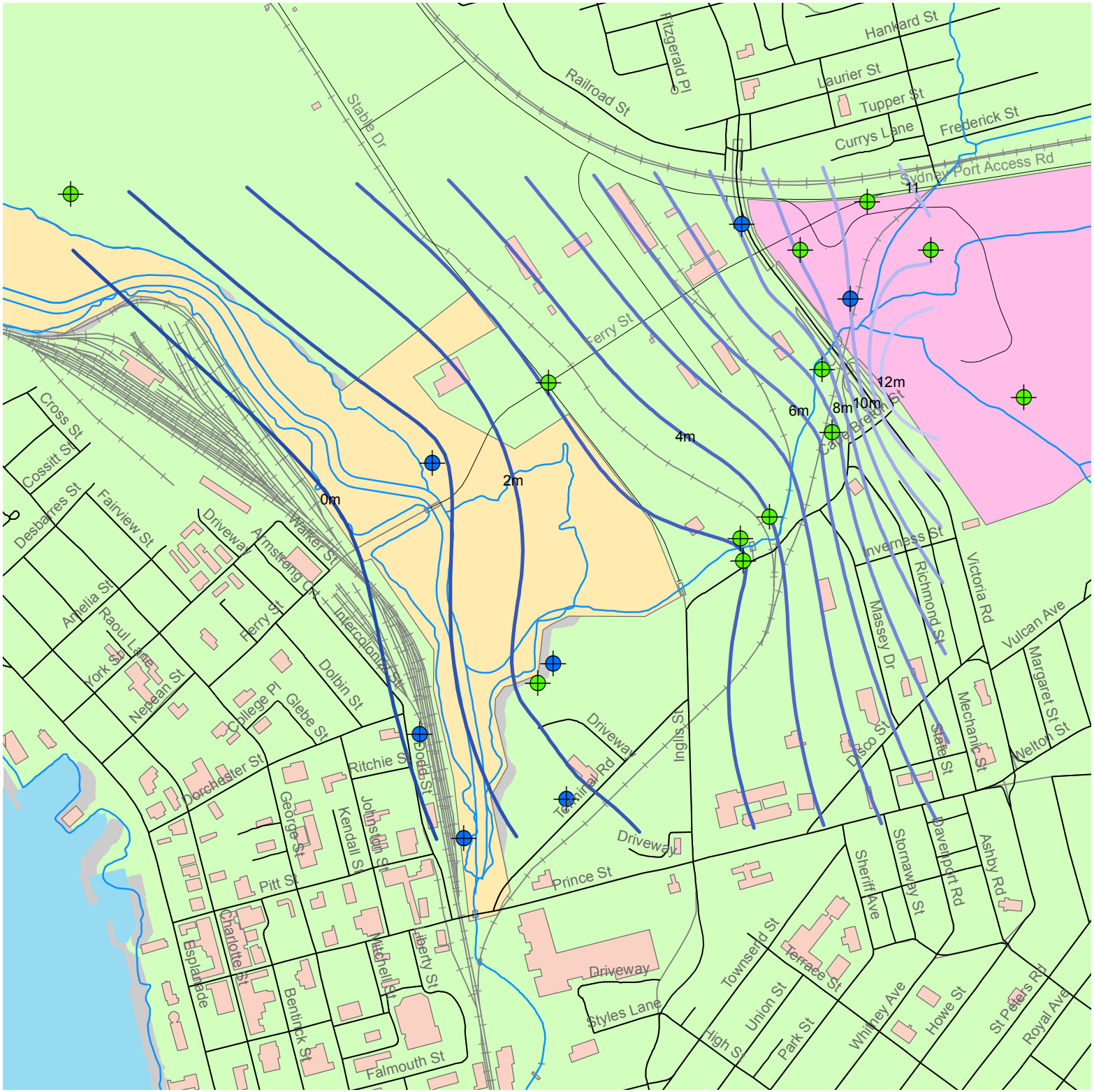
DATE: 01/25/17



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OPEN HEARTH PARK AND
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2016 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

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

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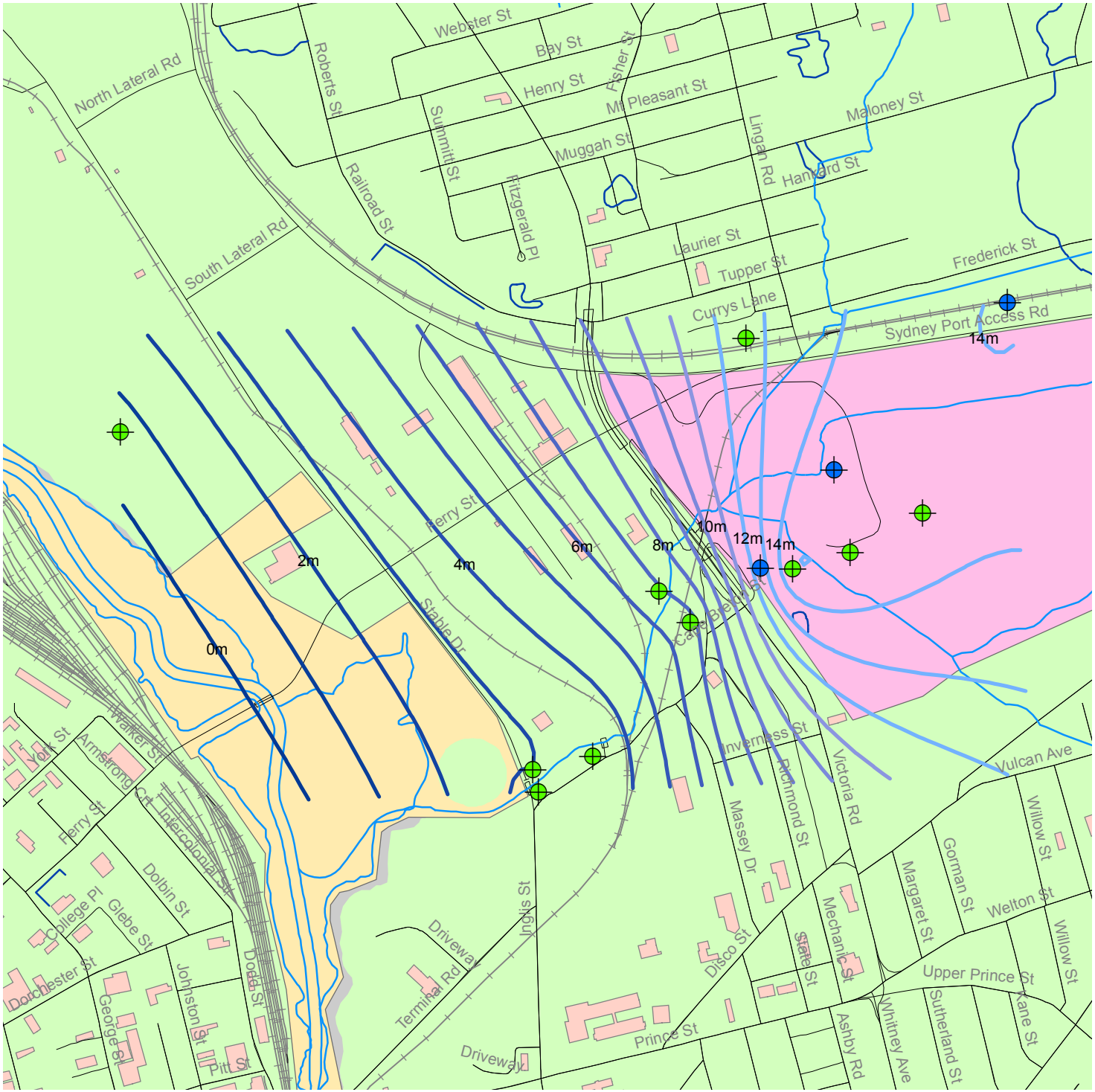

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OPEN HEARTH PARK AND
HARBOURSIDE EAST
2016 GROUNDWATER MONITORING EVENT

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

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SCU10-002-MW; however, the LNAPL was measured at less than 1 millimeter (i.e., 0.5 millimeters). It is noted that SCU10-002-MW is included in the OHP and HE monitoring programs, as well as the Harbourside Commercial Park (HCP) groundwater monitoring program.

3.1 OHP Findings

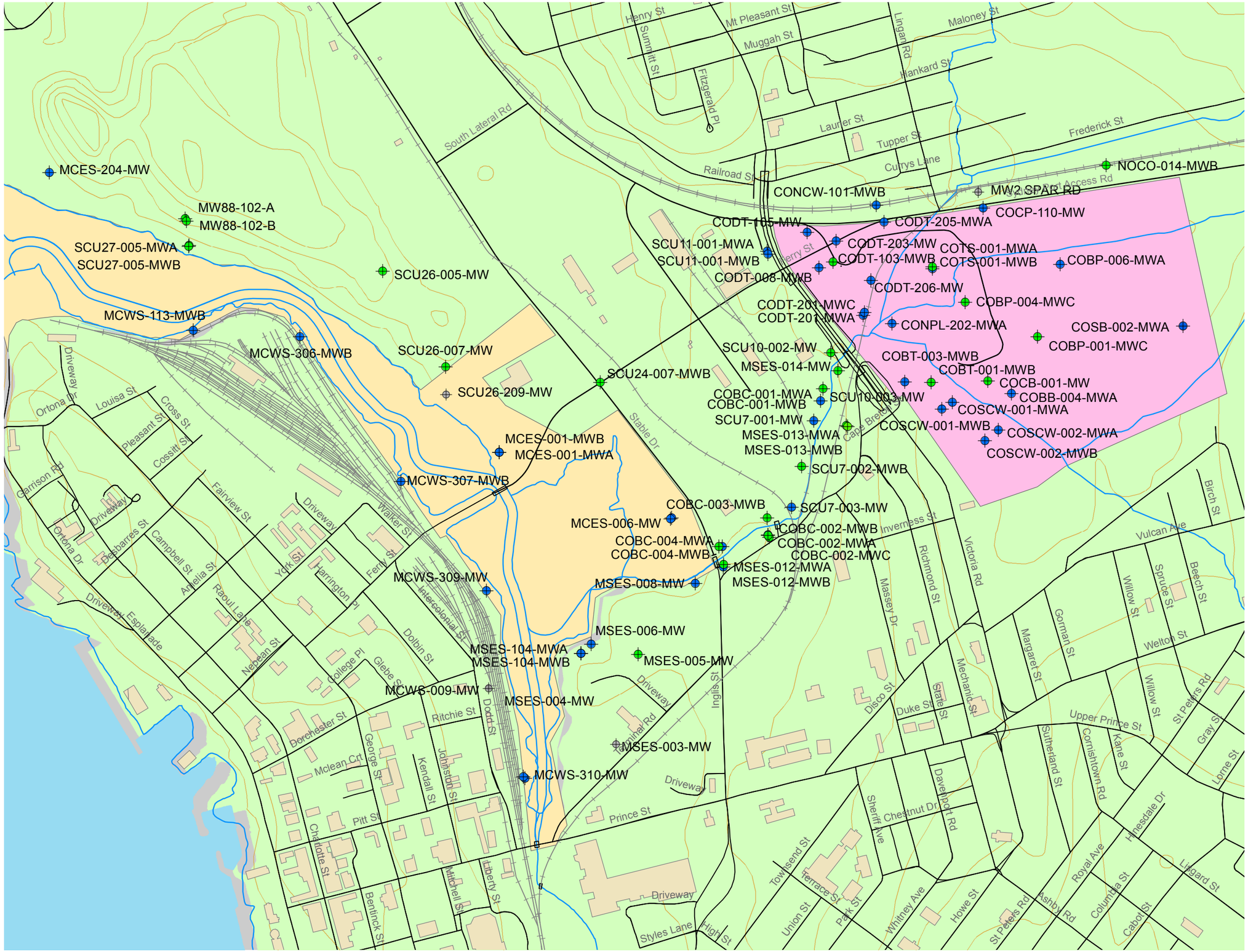
The OHP area (i.e., formerly TP2/TP6/TP7 areas) includes the east, southeast and western shorelines of the former Tar Ponds, as well as a portion of the former SYSCO property along Inglis Street (Figure 3-4). Results of the 2016 monitoring event are presented and discussed in the following subsections.

In the OHP area, the "high dump", used for disposal of blast furnace slag from the former steel plant, is located at the north end of the eastern shoreline, which is also part of the HCP site. Historical in-filling of the southeast shoreline 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 area 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 2016 monitoring event at OHP indicate elevated concentrations (i.e., above applicable criteria) of PAHs and/or metals in groundwater. Specifically, three monitor wells (i.e., MSES-104-MWA/MWB and MSES-008-MW) located on the southeast shoreline contained PAH concentrations above the MOE standards. The three wells are located in the vicinity of the former disposal area on the south shoreline of OHP, which could be a contributing source resulting in the elevated PAH concentrations. It is also noted that one monitor well (i.e., MCES-204-MW), located in an area in-filled with slag and coal adjacent the Portside Aggregate Quarry in the north portion of the site, contained elevated concentrations of anthracene, sodium and selenium above the MOE standards. Another monitor well located on the eastern shoreline (i.e., MCES-001-MWB) contained an elevated concentration of sodium above the MOE standards. Although the concentrations of sodium are above the MOE standard of 2,300,000 ug/L at MCES-204-MW and MCES-001-MWB, 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.

3.1.1 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 2016 Groundwater Monitoring Program included the collection of samples from 41 locations for analysis, 15 of which were collected from monitor wells located on the OHP site. Table 3-1 summarizes indicator parameter concentrations for select monitor wells exhibiting concentrations above applicable criteria or for select monitor wells located in the vicinity of S/S areas.



OPEN HEARTH PARK AND HARBOURSIDE EAST

2016 GROUNDWATER MONITORING EVENT

AREA FEATURES

Figure 3-4

LEGEND

Monitoring Wells

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

Harbourside East

Open Hearth Park

NOTE:
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

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

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

DILLON CONSULTING

PROJECT: 14-1360
STATUS: FINAL
DATE: 01/25/17

Table 3-1 Summary of Indicator Parameter Concentrations

Well ID	Date	Organic Parameters			Inorganic Parameters			
		Acenaphthylene (ug/L)	Anthracene (ug/L)	Indeno(1,2,3-cd) pyrene (ug/L)	Selenium (ug/L)	Sulphur (mg/L)	TDS (mg/L)	pH
NSE Tier I EQS[1]		750	-	-	-	-	-	-
MOE Table 3[2]		1.8	2.4	0.2	63	-	-	-
MCES-006-MW	Mar 2013	0.79	1.1	<0.01	6.3	34	374	7.50
	Jul 2013	1.1	0.84	0.021	<1.0	28	376	7.57
	Nov 2013	1.4	0.69	<0.01	<1.0	34	390	7.61
	Dec 2014	0.26	0.15	<0.01	2.3	70	260	8.91
	Dec 2015	0.031	0.027	<0.010	3.3	88	260	9.44
	Dec 2016	0.24	0.30	<0.010	<1.0	48	220	7.95
MCES-204-MW	Mar 2013	1.7	3.6	0.28	210	1100	15600	9.1
	Jul 2013	1.8	3.3	0.095	120	1200	14700	8.82
	Nov 2013	2.5	4.2	0.18	36	1100	15000	8.93
	Dec 2014	1.9	1.9	0.013	67	730	14000	8.0
	Dec 2015	1.8	2.6	<0.010	<10	800	13000	8.51
	Nov 2016	1.8	2.0	<0.010	86	1100	12000	8.71
MSES-008-MW	Mar 2013	4.2	0.37	<0.01	<10	1000	1950	7.3
	Jul 2013	3.2	0.29	<0.01	<1.0	1100	2080	7.25
	Nov 2013	4.1	0.53	<0.01	<1.0	930	1900	7.11
	Dec 2014	2.7	0.21	<0.01	<1.0	760	1600	6.96
	Dec 2015	2.4	0.23	<0.010	<1.0	620	1400	7.32
	Nov 2016	1.7	0.15	<0.010	<1.0	990	2000	7.09
MSES-104-MWA	Mar 2013	6.9	2.8	1.3	3.4	1100	1700	7.60
	Dec 2014	5.6	0.38	0.034	<1.0	1400	2100	7.61
	Dec 2015	7.5	0.70	<0.010	-<1.0	1200	1600	8.07
	Nov 2016	6.4	0.55	0.053	<1.0	1100	1700	7.5
MSES-104-MWB	Mar 2013	30	1.7	<0.01	<10	2200	3370	6.9
	Jul 2013	36	2.0	0.013	<1.0	2100	3340	6.88
	Nov 2013	32	1.7	<0.01	<1.0	2000	3200	6.80
	Dec 2014	33	1.4	<0.01	<1.0	1800	3000	6.67
	Dec 2015	31	1.4	<0.010	<1.0	1000	2200	7.00
	Dec 2016	45	1.4	<0.010	<1.0	1100	2300	6.96

Notes:
[1]NS Tier I EQS for Groundwater (Coarse Grained Soil, Non- potable Groundwater Commercial/Industrial Site) 2013.
Notes:
[2]Ontario MOE Table 3 Full Depth Generic Site Condition Standards in a Non-potable Groundwater (Coarse Grained Soil) 2011.
Underline Exceeds NS CSR Tier I EQS.
Bold exceeds MOE Table 3 Standards
- No value.

Analytical results indicate no exceedances of the Tier I EQS. Four of the 16 monitor wells sampled on the OHP site had organic parameter concentrations above the MOE standards, as follows:

- MCES-204-MW1: The concentrations of 2.5 ug/L (original sample) and 2.7 ug/L (field duplicate sample) for anthracene exceeded the MOE standard of 2.4 ug/L;
- MSES-008-MW1: The concentration of 2.0 ug/L for acenaphthylene exceeded the MOE standard of 1.8 ug/L in the field duplicate sample collected from this well. However, the acenaphthylene concentration in the original sample had a concentration of 1.7, which is below the MOE standard;
- MSES-104-MWA: The concentration of 6.4 ug/L for acenaphthylene exceeded the MOE standard of 1.8 ug/L; and,
- MSES-104-MWB: The concentration of 45 ug/L for acenaphthylene exceeded the MOE standard of 1.8 ug/L.

Two of the 16 monitor wells sampled on the OHP site had a single inorganic parameter concentration above the MOE standard, as follows:

- MCES-001-MWB: The sodium concentration of 6,200,000 ug/L exceeded the MOE standard of 2,300,000 ug/L; and,
- MCES-204-MW: The concentrations of 3,700,000 ug/L for sodium and 86 ug/L for selenium exceeded the MOE standards of 2,300,000 ug/L and 63 ug/L, respectively.

As stated above, although the concentrations of sodium are above the MOE standard of 2,300,000 ug/L, 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.

Concentrations of analyzed parameters at the majority of the sampling wells were below the applicable standards. As noted above, monitor wells MSES-104-MWA/MWB and MSES-008-MW, located on the southeast shoreline, contained PAH concentrations above the MOE standards. These three wells are located in the vicinity of the former disposal area on the south shoreline of OHP, which could be a contributing source resulting in the elevated PAH concentrations. It is also noted that MCES-204-MW, which contained elevated concentrations of PAHs and selenium above the MOE standards, is located in an area in-filled with slag and coal.

[1] During PAH analysis of groundwater samples from MSES-008-MW (and the field duplicate sample of MSES-008-MW) and MCES-204-MW (and the field duplicate sample of MCES-204-MW) a laboratory error occurred. Specifically, during analysis of the above noted samples, the spike and matrix spike were not able to be reported with the samples. Samples available were repeated and reported along with the original data. This is further discussed below in Section 3.3.3.

3.1.2 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. One monitor well, located on the southeast portion of OHP in the vicinity of the former cooling pond (i.e., MCES-006-MW), exhibited two indicator parameters (i.e., pH and SO4) with increasing concentration trends. Results of Mann-Kendall analysis for OHP are presented in Table 3-2.

Table 3-2 OHP – Trend Analysis Summary

WELL ID	INDICATOR PARAMETER	TREND
MCES-006-MW	pH	Increasing
	TDS	Decreasing
	SO4	Increasing
MCES-204-MW	Acenaphthylene	Stable
	Anthracene	Stable
	Selenium	Stable
MSES-008-MW	Acenaphthylene	Decreasing
MSES-104-MWB	Acenaphthylene	Stable
MSES-104-MWA	Acenaphthylene	Stable

In general, review of trend analysis indicates general plume stability relative to indicator concentrations with isolated parameters in select wells within the plume indicating increasing trends. The groundwater quality trend analysis for the 2016 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.

3.2 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 CO1 (Coke Ovens Brook Connector), CO2 (Tar Cell), CO5 (Vertical Cut-Off Walls), CO6 (Surface Cap) and CO7 (Groundwater Collection System) (Figure 3-4).

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. Results of the 2015 monitoring event are presented and discussed in the following subsections.

Results of the 2016 monitoring event at HE indicate that the concentrations of analyzed parameters at the majority of the sampling wells were below applicable standards. One monitor well (i.e., CODT-201-

MWC), located in the former Domtar site, contained PAH concentration(s) above both the Tier I EQS and MOE standard(s). Three monitor wells (i.e., CODT-008-MWB, CODT-201-MWA and CODT-203-MW), located within HE at the former Domtar site, contained PAH concentrations above their respective MOE standard concentrations. During the 2015 monitoring program, one monitor well (i.e., COSB-002-MWA) located on the east portion of HE (former Coke Ovens site) contained elevated inorganic parameter concentrations above the MOE standards. These exceedances represented an increase in concentrations, and the highest concentrations observed to date for these parameters, at this well from previous monitoring events (i.e., exceedance factors of up to7.5 x the applicable standard for some parameters). No parameter exceedances were identified for COSB-002-MWA during the 2016 monitoring program.

3.2.1 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 2016 LTMM Groundwater Monitoring Program included the collection of samples from 41 locations for analysis, 26 of which were collected from monitor wells located on the HE site. 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	Acenaphthylene (ug/L)	Anthracene (ug/L)	B(a)P (ug/L)	Indeno(1,2,3-cd) pyrene (ug/L)	Napthalene (ug/L)
NSE Tier I EQS[1]		750	-	-	-	7000
MOE[2]		1.8	2.4	0.81	0.2	1400
CODT-008-MWB	Mar 2013	0.6	15	1.7	0.65	17
	Jul 2013	2.8	140	30	14	29
	Oct 2013	3.4	11	2.6	0.64	2.8
	Dec 2014	0.026	2.0	0.032	0.018	<0.20
	Dec 2015	0.047	0.13	1.2	0.31	<0.20
	Nov 2016	5.3	43	*<5.0*	*<5.0*	4100
CODT-201-MWA	Mar 2013	0.012	0.45	0.73	0.33	1.1
	Jul 2013	0.083	2.5	3.6	1.5	0.22
	Oct 2013	0.053	1.7	2.5	1.1	<0.2
	Dec 2014	0.16	2.5	3.7	1.5	46
	Dec 2015	0.078	2.3	4.7	1.9	<0.20
	Nov 2016	0.033	0.85	1.8	0.78	<0.20
CODT-201-MWC	Mar 2013	3.8	4.9	<0.01	<0.01	5100
	Jul 2013	8.0	4.5	0.016	0.014	4900
	Mar 2013	10	3.3	<0.01	<0.01	6300
	Dec 2014	12	5.9	<0.01	<0.01	7200
	Dec 2015	18	*<10*	<0.01	*<10*	9500
	Nov 2016	11	3.3	<0.010	<0.010	7500

Well ID		Organic Parameters				
CODT-203-MW	Mar 2013	0.083	2.1	0.64	0.24	0.62
	Jul 2013	0.13	2.6	1.1	0.38	6.3
	Mar 2013	0.19	2.5	0.71	0.29	1.5
	Dec 2014	<0.01	0.55	0.69	0.28	<0.2
	Dec 2015	0.026	0.42	0.61	0.29	<0.20
	Nov 2016	<0.010	0.79	1.5	0.64	<0.20

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.
Underline Exceeds NS CSR Tier I EQS.
Bold exceeds MOE Table 3 Standards.
Italics denotes detection limit elevated above applicable standards.
- No value.

During the 2016 monitoring event, four of the 26 monitor wells sampled on the HE site had organic parameter concentrations above the Tier I EQS and/or MOE standards, as follows:

- CODT-008-MWB: Concentrations for acenapthylene (5.3 ug/L), anthracene (43 ug/L), benzo(a)anthracene (7.6 ug/L), chrysene (6.0 ug/L) and naphthalene (4,100 ug/L) exceeded the MOE standards of 1.8 ug/L, 2.4 ug/L, 4.7 ug/L, 1 ug/L and 1,400 ug/L, respectively. The naphthalene concentration is the first MOE exceedance observed at this well during the LTMM program; with the concentration of 4,100 ug/L significantly higher than previous events, which had naphthalene concentrations ranging from below laboratory detection limits to 29 ug/L. It is noted that the laboratory detection limits for benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k(fluoranthene, dibenzo(a,h)anthracene and indeno(1,2,3-cd)pyrene were elevated above the applicable criteria;
- CODT-201-MWA: Concentrations for benzo(a)pyrene (1.8 ug/L), benzo(b)fluoranthene (1.4 ug/L), benzo(g,h,i)perylene (0.81 ug/L), benzo(k)fluoranthene (0.85 ug/L), chrysene (2.1 ug/L) and indeno(1,2,3-cd)pyrene (0.78 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;
- CODT-201-MWC: The naphthalene concentration of 7,500 ug/L exceeds the Tier I EQS standard of 7,000 ug/L and the MOE standard of 1,400 ug/L. This is the second highest concentration of naphthalene observed in this well to date (highest concentration of 9,500 ug/L observed during the 2015 LTMM program). Concentrations for acenaphthylene (11 ug/L) and anthracene (3.3 ug/L) exceeded the MOE standards of 1.8 ug/L and 2.4 ug/L, respectively; and,
- CODT-203-MW: Concentrations of benzo(a)pyrene (1.5 ug/L), benzo(b)fluoranthene (1.1 ug/L), benzo(g,h,i)perylene (0.65 ug/L), benzo(k)fluoranthene (0.67 ug/L), chrysene (1.6 ug/L) and indeno(1,2,3-cd)pyrene (0.64 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.

None of the 26 monitor wells sampled on the HE site had inorganic parameter concentrations above the MOE standards.

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. The elevated naphthalene concentration and potentially increasing trend for acenaphthylene at CODT-201-MWC (i.e., shallow bedrock well) could indicate that the impacted groundwater has continued to migrate from fill/till into the underlying aquifers; however, there is the potential that analytical variability due to both high and low concentrations, and the associated imprecision at the laboratory, could be causing the apparent potentially increasing trend. Further monitoring is required to confirm the trends.

3.2.2 Trend Analysis - HE

Mann-Kendall analysis was conducted based on available post-remediation data. Statistical analysis of available indicator parameter concentration trends of the select indicator parameters indicates that concentration trend analyses are stable, decreasing or fluctuating. One monitor well (i.e., CODT-201-MWC (acenaphthylene and naphthalene)) contained concentrations of indicator parameters with potentially increasing concentration trends above the respective Tier I EQS and/or MOE standards. 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	Acenaphthylene	Fluctuating
	Anthracene	Fluctuating
	Benzo(a)pyrene	Fluctuating
	Indeno(1,2,3-cd)pyrene	Fluctuating
	Naphthalene	Fluctuating
CODT-201-MWA	Anthracene	Stable
	Benzo(a)pyrene	Fluctuating
	Indeno(1,2,3-cd)pyrene	Stable
CODT-201-MWC	Acenaphthylene	Potentially Increasing
	Anthracene	Stable
	Naphthalene	Potentially Increasing
CODT-203-MW	Anthracene	Stable
	Indeno(1,2,3-cd)pyrene	Stable

The groundwater quality trend analysis for the 2016 monitoring event was based on the available post-remediation analytical results (i.e., four rounds of sampling events are required) for the select parameters 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 potentially increasing trends.

3.3 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 Trip Blanks
- Section 3.5.4 Equipment Blanks
- Section 3.5.5 Holding Times

Four field duplicates and six trip blanks were collected for the OHP and HE sites during the 2016 monitoring event, as presented in Table B-1 (Appendix B).

During PAH analysis of select groundwater samples (i.e., MSES-104-MWA/MWB, COBC-004-MWA, MSES-008-MW (and the field duplicate sample of MSES-008-MW), MSES-004-MW, MSES-006-MW, MCES-204-MW (and the field duplicate sample of MCES-204-MW), and the trip blank from November 25, 2016) a laboratory error occurred. Specifically, during analysis of the above noted samples, the spike and matrix spike were not able to be reported with the samples. This necessitated a rework or repeat of these samples on a new batch with new QC materials. The samples at this time were past the recommended hold time of 7 days by 3 days (note: the back-up sample bottles were held in cold storage at the laboratory minimizing degradation of analytes).

Samples available were repeated and reported along with the original data. The results of the repeats (reported with relevant QC) agree with the results of the original analysis. Individual results for each analyte, between the original and repeat, are within the laboratory duplicate criteria for PAHs. As there were acceptable results for the spike and matrix spike for the repeats, and good agreement between the original and repeated results, Maxxam indicated that they did not believe there was any issue with the original or repeated results and indicated that there was no impact on data quality. Correspondence from Maxxam pertaining to this laboratory error is included in Appendix C.

3.3.1 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):

- Select parameters at FD-016 (field duplicate of CODT-206-MW) for chrysene, fluoranthene, fluorine, phenanthrene and pyrene; and,
- Select parameters at FD-020 (field duplicate of MCES-204-MW) for total organic carbon, turbidity, selenium and carb alkalinity.

3.3.2 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 issue:

- One analyte (i.e., silver) had a low recovery resulting in a multi-component analysis violation for monitor wells COBB-004-MWA, SCU7-003-MW, CODT-008-MWB, MCWS-306-MWB and MCWS-113-MWB.

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.

3.3.3 Trip Blanks

As PHCs were not included in the 2016 groundwater monitoring program, with the exception of CODT-201-MWC, trip blanks were analyzed for PAHs. PAHs were not detected in the five trip blanks.

3.3.4 Equipment Blanks

No equipment blanks were collected associated with OHP and HE. One equipment blank was collected associated with HCP, which field program was conducted at the same time as the OHP and HE field program. Results are as follows:

- A Modified TPH concentration of 0.13 mg/L was detected in the equipment blank sample and identified as unidentified compounds in the lube oil range;
- A phenanthrene concentration of 0.013 ug/ L was detected in the equipment blank sample; and,
- Metals concentrations including aluminum (5.6 ug/L), barium (1.7 ug/L), calcium (180 ug/L), iron (52 ug/L), sodium (180 ug/L), strontium (2.6 ug/L) and zinc (6.1 ug/L) were detected in the equipment blank sample.

These concentrations in the equipment blank are considered low and not likely to affect the interpretation of groundwater sample results.

One field blank was collected during the HCP 2016 groundwater monitoring program. The field blank was collected in conjunction with the equipment blank to determine if interference from the ambient atmospheric particles was present. Concentrations of BTEX/TPH, PAHs and metals in the field blank were below laboratory detection limits.

3.3.5 Holding Times

There were no holding time exceedances, other than those noted above in relation to the laboratory error.

4.0 Summary

The OHP and HE 2016 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 are not available (i.e., for PAH and metals in groundwater at non-potable sites), applicable MOE standards were used as alternative guidelines.

The groundwater elevation and flow direction for the monitored areas during the 2016 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 2016 data:

OHP

The majority of samples contained indicator parameters at concentrations below the applicable MOE standards, and in most instances, concentrations were comparable to historical findings. No exceedances of the Tier I EQS were observed. Table 4-1 presents parameters above their respective MOE standards at four monitoring locations:

Table 4-1 Summary of 2016 OHP Groundwater Exceedances – Organic Parameters

Parameter	Location (Concentration / MOE Standard)
Acenaphthylene	• MSES-008-MW Field Duplicate (2.0 ug/L / 1.8 ug/L) • MSES-104-MWA (6.4 ug/L / 1.8 ug/L) • MSES-104-MWB (45 ug/L / 1.8 ug/L)
Anthracene	• MCES-204-MW (2.5 ug/L (original) and 2.7 (field duplicate) / 2.4 ug/L)

No Tier I EQS standards are available for inorganic parameters (i.e., on a non-potable site). Table 4-2 presents the inorganic parameter concentrations above the MOE standards at two monitoring locations.

Table 4-2 Summary of 2016 OHP Groundwater Exceedances – Inorganic Parameters

Parameter	Location (Concentration / MOE Standard)
Sodium[1]	• MCES-001-MWB (6,200,000 ug/L / 2,300,000 ug/L) • MCES-204-MW (3,700,000 ug/L / 2,300,000 ug/L)
Selenium	• MCES-204-MW (86 ug/L / 63 ug/L)

Note:
[1] The MOE standard for sodium 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.

As presented in Figure 4.0-1, trend analysis showed one location exhibiting two indicator parameters with an increasing concentration trend via Mann-Kendall analysis in the OHP area, as follows:

- MCES-006-MW: pH and SO4.

Mann-Kendall tables are presented in Appendix D.

HE

The majority of samples contained indicator parameters at concentrations below the Tier I EQS and/or MOE standards and, in most instances, concentrations were comparable to historical findings. Table 4-3 presents parameters above their respective Tier I EQS and/or MOE standards at four monitoring locations:

Table 4-3 Summary of 2016 HE Groundwater Exceedances – Organic Parameters

Parameter	Location (Concentration / Tier I EQS / MOE Standard)
Acenaphthylene	• CODT-008-MWB (5.3 ug/L / 1.8 ug/L) • CODT-201-MWC (11 ug/L / 1.8 ug/L)
Anthracene	• CODT-008-MWB (43 ug/L / 2.4 ug/L) • CODT-201-MWC (3.3 ug/L / 2.4 ug/L)
benzo(a)anthracene	• CODT-008-MWB (7.6 ug/L / 4.7 ug/L)
benzo(a)pyrene	• CODT-201-MWA (1.8 ug/L / 0.81 ug/L) • CODT-203-MW (1.5 ug/L / 0.81 ug/L)
benzo(b)fluoranthene	• CODT-201-MWA (1.4 ug/L / 0.75 ug/L) • CODT-203-MW (1.1 ug/L / 0.75 ug/L)
benzo(g,h,i)perylene	• CODT-201-MWA (0.81 ug/L / 0.2 ug/L) • CODT-203-MW (0.65 ug/L / 0.2 ug/L)
benzo(k)fluoranthene	• CODT-201-MWA (0.85 ug/L / 0.4 ug/L) • CODT-203-MW (0.67 ug/L / 0.4 ug/L)
chrysene	• CODT-008-MWB (6.0 ug/L / 1 ug/L) • CODT-201-MWA (2.1 ug/L / 1 ug/L) • CODT-203-MW (1.6 ug/L / 1 ug/L)
indeno(1,2,3-cd)pyrene	• CODT-201-MWA (0.78 ug/L / 0.2 ug/L) • CODT-203-MW (0.64 ug/L / 0.2 ug/L)

Table 4-3 Summary of 2016 HE Groundwater Exceedances – Organic Parameters

naphthalene	• CODT-008-MWB (4100 ug/L / 1400 ug/L) • CODT-201-MWC (7500 ug/L / 7,000 ug/L/ 1,400 ug/L

None of the 26 monitor wells sampled on the HE site had inorganic parameter concentrations above the MOE standards.

As presented in Figure 4-1, trend analysis showed one location exhibiting two indicator parameters with potentially increasing concentration trends via Mann-Kendall analysis in the HE area, as follows:

- CODT-201-MWC: acenaphthylene and naphthalene

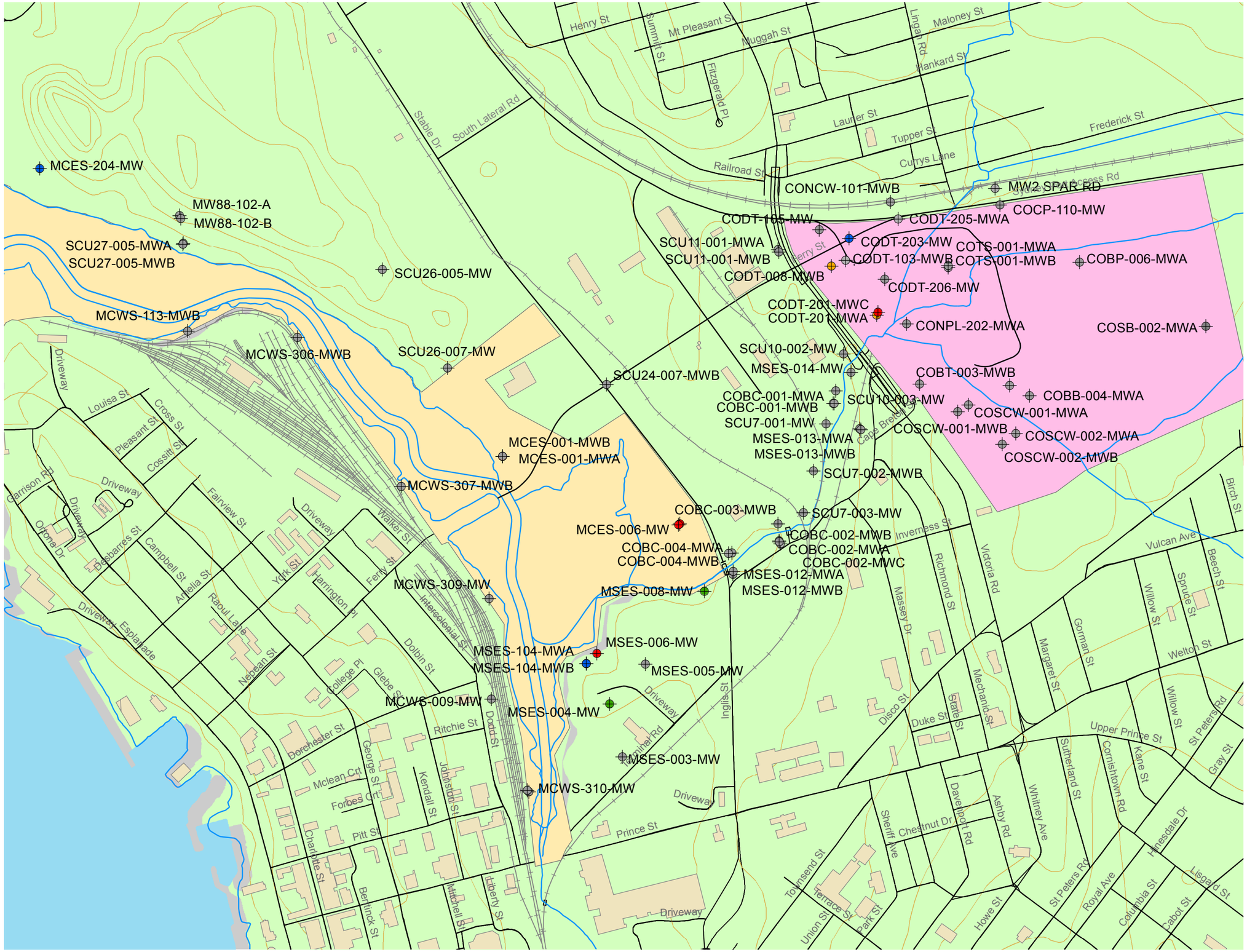
Mann-Kendall tables are presented in Appendix D.

5.0 Recommendations

Review of the 2016 groundwater sampling results, considered in context of historical data associated with OHP and HE sites, suggests that the fall 2017 groundwater monitoring program could include the following:

- The collection of 69 water levels; and,
- The sampling of 41 monitor wells; reduced from 44 following the removal of MW-2 (Spar Road) from the program, decommissioning of MCWS-009-MW (which was damaged in 2015) and the destruction of MSES-003-MW (2016). As concentrations in MSES-003-MW have historically been below applicable criteria, it is not recommended that this well be replaced at this time.

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.



NS Lands
nova scotia lands

OPEN HEARTH PARK AND HARBOURSIDE EAST

2016 GROUNDWATER MONITORING EVENT

INDICATOR PARAMETER CONCENTRATION TREND

Figure 4-1

LEGEND

Trend Analysis

- Increasing
- Fluctuating
- Stable
- Decreasing
- Monitoring Well
- **Open Hearth Park**
- **Harbourside East**

0 75 150 300 450 m

MAP DRAWING INFORMATION:
Province of Nova Scotia Mapping

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

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

DILLON CONSULTING

PROJECT: 14-1360
STATUS: FINAL
DATE: 01/25/17

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 2016 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	
NSE Tier 1 EQS[1]		20	20	20	20	-	-	-	-	-	20	-
COBB-004-MWA (2.05 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 (1.78 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 (3.85 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 (2.19 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 (4.03 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 (2.33 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 (1.86 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 (2.98 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 (3.67 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 (3.85 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
CODT-203-MW (2.59 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 (1.77 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 (2.09 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 (3.72 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 (5.26 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 (1.80 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 2016 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	
NSE Tier 1 EQS[1]		20	20	20	20	-	-	-	-	-	20	-
COSCW-001-MWA (3.56 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 (1.96 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 (4.46 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 (2.40 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 (4.19 m)	12/15/14	DRY										
MCES-001-MWA (6.02 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 (6.51 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 (2.97 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)	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 (2.48 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 (0.86 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 (0.53 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 (0.92m)	12/09/14	<0.001	<0.001	<0.001	<0.002	<0.01	-	<0.05	<0.05	<0.1	<0.1	-
MCWS-310-MW (0.70 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	-

TABLE A-1
LTMM GROUNDWATER MONITORING EVENT NOVEMBER AND DECEMBER 2016 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	
NSE Tier 1 EQS[1]		20	20	20	20	-	-	-	-	-	20	-
MSES-004-MW (7.75 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 (3.75 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
MSES-008-MW (4.17m)	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 (3.56 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 (2.49 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 (2.12 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	-
	12/16/14[FD]	<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 (2.66 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 (2.07 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 (1.74 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 (1.10 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 2016 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
NSE Tier 1 EQS[1]		-	750	-	-	-	-	-	-	-	-	-	-	-	-	38000	38000	7000	-	-	-
MOE Table 3[2]		600	1.8	2.4	4.7	0.81	0.75	0.2	-	0.4	1	0.52	130	400	0.2	1800	1800	1400	-	580	68
COBB-004-MWA (2.05 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
COBC-001-MWA (1.78 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
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
COBB-004-MW (3.85 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	0.011	<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
COBP-006-MWA (2.19 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	0.091	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
COBT-003-MWB (4.03 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	0.03	<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

TABLE A-2
LTMM GROUNDWATER MONITORING EVENT NOVEMBER AND DECEMBER 2016 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
NSE Tier 1 EQS[1]		-	750	-	-	-	-	-	-	-	-	-	-	-	-	38000	38000	7000	-	-	-
MOE Table 3[2]		600	1.8	2.4	4.7	0.81	0.75	0.2	-	0.4	1	0.52	130	400	0.2	1800	1800	1400	-	580	68
COCP-110-MW (2.33 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
CODT-008-MWB (1.86 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
CODT-105-MW (2.98 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
CODT-201-MWA (3.67 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
CODT-201-MWC (3.85 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
CODT-203-MW (2.59 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

TABLE A-2
LTMM GROUNDWATER MONITORING EVENT NOVEMBER AND DECEMBER 2016 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
NSE Tier 1 EQS[1]		-	750	-	-	-	-	-	-	-	-	-	-	-	-	38000	38000	7000	-	-	-
MOE Table 3[2]		600	1.8	2.4	4.7	0.81	0.75	0.2	-	0.4	1	0.52	130	400	0.2	1800	1800	1400	-	580	68
CODT-205-MWA (1.77 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
CODT-206-MW (2.09 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
CONCW-101-MWB (3.72 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
CONPL-202-MWA (5.26 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
COSB-002-MWA (1.80 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	0.200	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	<0.01	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
COSCW-001-MWA (3.56 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
COSCW-001-MWB (1.96 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
COSCW-002-MWA (4.46 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

TABLE A-2
LTMM GROUNDWATER MONITORING EVENT NOVEMBER AND DECEMBER 2016 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
NSE Tier 1 EQS[1]		-	750	-	-	-	-	-	-	-	-	-	-	-	-	38000	38000	7000	-	-	-
MOE Table 3[2]		600	1.8	2.4	4.7	0.81	0.75	0.2	-	0.4	1	0.52	130	400	0.2	1800	1800	1400	-	580	68
COSCW-002-MWB (2.40 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
COTS-001-MWA[3] (4.19 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	NM
COTS-001-MWB[3] (4.48 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
MCES-001-MWA (6.02 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
MCES-001-MWB (6.51 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
MCES-006-MW (2.97 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
MCES-204-MW (4.17 m)	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	<0.01	<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	<0.01	<0.05	<0.05	<0.2	<0.01	0.011	<0.01
MCWS-113-MWB (2.48 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

TABLE A-2
LTMM GROUNDWATER MONITORING EVENT NOVEMBER AND DECEMBER 2016 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
NSE Tier 1 EQS[1]		-	750	-	-	-	-	-	-	-	-	-	-	-	-	38000	38000	7000	-	-	-
MOE Table 3[2]		600	1.8	2.4	4.7	0.81	0.75	0.2	-	0.4	1	0.52	130	400	0.2	1800	1800	1400	-	580	68
MCWS-306-MWB (0.86 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
MCWS-307-MWB (0.53 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
MCWS-309-MW (0.92 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
MCWS-310-MW (0.70 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
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 (7.75 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

TABLE A-2
LTMM GROUNDWATER MONITORING EVENT NOVEMBER AND DECEMBER 2016 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
NSE Tier 1 EQS[1]		-	750	-	-	-	-	-	-	-	-	-	-	-	-	38000	38000	7000	-	-	-
MOE Table 3[2]		600	1.8	2.4	4.7	0.81	0.75	0.2	-	0.4	1	0.52	130	400	0.2	1800	1800	1400	-	580	68
MSES-006-MW (3.75 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
MSES-008-MW (4.17 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
MSES-012-MWA (3.56 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
MSES-104-MWA (2.49 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
MSES-104-MWB (2.12 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
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	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.024	<0.01	0.15	0.081	1.1	<0.01	0.016	<0.01

TABLE A-2
LTMM GROUNDWATER MONITORING EVENT NOVEMBER AND DECEMBER 2016 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
NSE Tier 1 EQS[1]		-	750	-	-	-	-	-	-	-	-	-	-	-	-	38000	38000	7000	-	-	-
MOE Table 3[2]		600	1.8	2.4	4.7	0.81	0.75	0.2	-	0.4	1	0.52	130	400	0.2	1800	1800	1400	-	580	68
SCU11-001-MWA (2.66 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
SCU11-001-MWB (2.07 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
SCU7-001-MW (1.74 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
SCU7-003-MW (1.10 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

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 2015 and 2016 programs in place of COTS-001-MWA, which again had insufficient water for sampling.

4 - Benzo(j)fluoranthene was historically not included in PAH analysis.

5 - Underline Exceeds NSE Tier I EQS

6 - **Bold exceeds MOE Table 3 Standards**

7 - *Italics indicates laboratory detection limit elevated above criteria*

8 - This summary is to be used in conjunction with, not as a replacement of, the Laboratory Certificates of Analysis, which contain QA/QC information

TABLE A-3 LTMM GROUNDWATER MONITORING EVENT NOVEMBER AND DECEMBER 2016
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	TURB	COND	pH	HARD	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
NSE Tier 1 EQS[1]		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MOE Table 3[2]		2300000	-	-	-	-	-	2300000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
COBB-004-MWA (2.05 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
COBC-001-MWA (1.78 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
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
COBC-004-MWA (3.85 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
COBP-006-MWA (2.19 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

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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	Li	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	µg/L
NSE Tier 1 EQS[1]		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
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 (2.05 m)	03/27/13	<25	<5	<3	44	<2.5	<10	<500	0.12	<5	<5	<10	<500	<5	12	<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	16	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	15	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	NM	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	NM	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	NM	1700	<0.013	11	2.5	<1.0	<0.10	740	<0.10	<2.0	<2.0	3.2	<2.0	48
COBC-001-MWA (1.78 m)	03/15/13[L]	NM	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	9.3	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	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	8.3	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	8.1	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	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	22	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	NM	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	NM	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	NM	2500	<0.013	<2.0	<2.0	<1.0	<0.10	10000	<0.10	<2.0	<2.0	0.17	<2.0	61
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	<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	<2	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	<2	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	NM	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	NM	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	NM	98	<0.013	<2.0	2.5	6.9	<0.10	650	<0.10	<2.0	<2.0	<0.10	<2.0	160
COBC-004-MWA (3.85 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	34	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	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	40	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	20	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	NM	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	NM	<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	NM	35	<0.013	3.8	<2.0	1.7	<0.10	400	<0.10	<2.0	<2.0	0.59	13	41
COBP-006-MWA (2.19 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	NM
	03/27/13[FD]	31	<5	3.1	30	<2.5	<10	<500	<0.085	<5	<5	<10	23000	<5	14	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	NM
	03/27/13	<25	<5	<3	31	<2.5	<10	<500	<0.085	<5	<5	<10	23000	<5	16	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	16	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	15	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	<0.4	<2	19000	<0.5	NM	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	NM	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	NM	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	NM	5300	<0.013	<2.0	<2.0	<1.0	<0.10	450	<0.10	<2.0	<2.0	<0.10	<2.0	47

TABLE A-3 LTMM GROUNDWATER MONITORING EVENT NOVEMBER AND DECEMBER 2016
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	TURB	COND	pH	HARD	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
NSE Tier 1 EQS[1]		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MOE Table 3[2]		2300000	-	-	-	-	-	2300000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
COBT-003-MWB (4.03 m)	03/13/12[L]	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	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
COCP-110-MW (2.33 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
CODT-008-MWB (1.86 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
CODT-105-MW (2.98 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
CODT-201-MWA (3.67 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
CODT-201-MWC (3.85 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
CODT-203-MW (2.59 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

TABLE A-3 LTMM GROUNDWATER MONITORING EVENT NOVEMBER AND DECEMBER 2016
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	Li	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	µg/L
NSE Tier 1 EQS[1]		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
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 (4.03 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	NM
	03/13/12[FD]	<5	0.51	3.4	42	<0.5	<2	<100	<0.017	<1	<1	<2	210	<1	9.7	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	10	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	12	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	NM
	09/12/12	<5	<1	3.7	67	<0.5	<2	<100	0.055	<1	<1	<2	170	<1	13	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	10	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	10	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	13	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	12	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	11	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	NM	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	NM	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	NM	2200	<0.013	<2.0	<2.0	<1.0	<0.10	1400	<0.10	<2.0	<2.0	0.25	<2.0	21
COCP-110-MW (2.33 m)	03/27/13[L]	<25	<5	14	60	<2.5	<10	<500	0.1	<5	<5	<10	4200	<5	39	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	39	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	56	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	NM
	11/06/13	14	1.8	19	81	<1	<2	82	0.011	<1	<0.4	<2	3300	<0.5	65	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	NM	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	NM	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	NM	110	<0.013	4	<2.0	1.7	<0.10	500	<0.10	<2.0	<2.0	3	4.7	<5.0
CODT-008-MWB (1.86 m)	03/29/13	34	<1	9.7	27	<0.5	<2	<100	<0.017	<1	<1	4.7	<100	<1	3.6	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	3.3	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	8.2	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	NM	<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	NM	<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	NM	430	<0.013	<2.0	<2.0	<1.0	<0.10	280	<0.10	<2.0	<2.0	0.31	<2.0	<5.0
CODT-105-MW (2.98 m)	01/15/13	18	2.3	1.7	22	<0.5	<2	<100	0.058	<1	<1	8.5	<100	<1	5.2	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	2.5	<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	3.7	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	9.7	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	NM	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	NM	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	NM	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	NM	7.6	<0.013	7.5	<2.0	12	<0.10	480	<0.10	<2.0	<2.0	2.5	3.3	68
CODT-201-MWA (3.67 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	NM
	03/13/13	11	<1	0.73	17	<0.5	<2	<100	0.078	<1	<1	8	<100	<1	<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	<2	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	<2	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	NM	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	NM	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	NM	<2.0	<0.013	2.1	<2.0	4	<0.10	280	<0.10	<2.0	<2.0	0.6	<2.0	50
CODT-201-MWC (3.85 m)	03/13/13	20	<1	4.1	340	<0.5	<2	<100	0.2	<1	<1	<2	<100	<1	9.5	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	11	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	9.7	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	9.5	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	NM	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	NM	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	NM	670	<0.013	<2.0	<2.0	<1.0	<0.10	520	<0.10	<2.0	<2.0	<0.10	<2.0	<5.0
CODT-203-MW (2.59 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	NM
	03/13/13	13	<1	20	250	<0.5	<2	<100	0.028	<1	1.7	<2	5200	<1	21	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	18	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	17	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	15	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	NM	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	NM	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	NM	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	NM	390	<0.013	<2.0	<2.0	<1.0	<0.10	340	0.15	<2.0	<2.0	1.1	<2.0	60

TABLE A-3 LTMM GROUNDWATER MONITORING EVENT NOVEMBER AND DECEMBER 2016
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	TURB	COND	pH	HARD	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
NSE Tier 1 EQS[1]		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MOE Table 3[2]		2300000	-	-	-	-	-	2300000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CODT-205-MWA (1.77 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
CODT-206-MW (2.09 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
CONCW-101-MWB (3.72 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
CONPL-202-MWA (5.26 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
COSB-002-MWA (1.80 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
COSCW-001-MWA (3.56 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
COSCW-001-MWB (1.96 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

TABLE A-3 LTMM GROUNDWATER MONITORING EVENT NOVEMBER AND DECEMBER 2016
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	Li	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	µg/L
NSE Tier 1 EQS[1]		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
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-205-MWA (1.77 m)	03/13/13[FD]	5.6	<1	1.3	92	<0.5	<2	<100	0.044	<1	<1	<2	490	<1	12	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	12	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	NM
	07/16/13	10.6	<1	5	85.8	<1	<2	<50	0.025	<1	<0.4	5.3	2820	<0.5	12	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	NM
	10/23/13	13	<1	6.8	120	<1	<2	58	0.012	<1	<0.40	<2	3200	<0.50	13	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	NM	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	NM	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	NM	920	<0.013	3.1	<2.0	<1.0	<0.10	3300	<0.10	<2.0	<2.0	0.79	<2.0	35
CODT-206-MW (2.09 m)	03/13/13[L]	17	<1	2.4	41	<0.5	<2	<100	0.041	<1	<1	2.2	1600	<1	1.5	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	1.6	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	<2	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	<2	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	NM	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	NM	<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	NM	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	NM	250	<0.013	<2.0	<2.0	<1.0	<0.10	170	<0.10	<2.0	<2.0	0.71	<2.0	87
CONCW-101-MWB (3.72 m)	03/15/13	43	<1	5.1	56	<0.5	<2	<100	0.041	1.1	<1	<2	<100	<1	9.4	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	NM
	07/17/13	23.6	<1	8	38.4	<1	<2	<50	<0.017	<1	<0.4	3.2	<50	<0.5	8.4	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	7.8	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	NM	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	NM	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	NM	<2.0	0.013	5	<2.0	3.9	<0.10	560	<0.10	<2.0	<2.0	<0.10	<2.0	<5.0
CONPL-202-MWA (5.26 m)	12/15/14	17	<1	2.2	43	<1	<2	<50	0.27	<1	0.84	<2	280	<0.5	NM	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	NM	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	NM	430	<0.013	<2.0	<2.0	<1.0	<0.10	470	<0.10	<2.0	<2.0	2	<2.0	<5.0
COSB-002-MWA (1.80 m)	03/18/13	10	2.3	<0.6	20	<0.5	<2	<100	0.098	<1	<1	3.3	220	<1	9.3	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	26	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	68	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	68	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	67	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	NM	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	NM	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	NM	580	<0.013	<2.0	4.5	<1.0	<0.10	420	<0.10	<2.0	<2.0	0.14	<2.0	97
COSCW-001-MWA (3.56 m)	03/19/13	7.3	<1	<0.6	41	<0.5	<2	<100	<0.017	<1	<1	5.3	280	<1	6.1	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	7.3	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	7.7	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	NM	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	NM	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	NM	66	<0.013	<2.0	<2.0	<1.0	<0.10	660	<0.10	<2.0	<2.0	0.63	<2.0	81
COSCW-001-MWB (1.96 m)	03/19/13	6.7	<1	1.8	120	<0.5	<2	<100	0.19	<1	<1	<2	640	<1	7.3	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	NM
	07/17/13	16.2	<1	2.6	107	<1	<2	52	<0.017	<1	<0.4	4.9	181	<0.5	7.8	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	NM
	10/24/13	18	<1	1.1	120	<1	<2	62	<0.01	<1	<0.4	<2	200	<0.5	8.8	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	NM	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	NM	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	NM	66	<0.013	<2.0	<2.0	<1.0	<0.10	660	<0.10	<2.0	<2.0	0.63	<2.0	81

TABLE A-3 LTMM GROUNDWATER MONITORING EVENT NOVEMBER AND DECEMBER 2016
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	TURB	COND	pH	HARD	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
NSE Tier 1 EQS[1]		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MOE Table 3[2]		2300000	-	-	-	-	-	2300000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
COSCW-002-MWA (4.46 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
COSCW-002-MWB (2.40 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
COTS-001-MWA[3] (4.19 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
COTS-001-MWB[3] (4.48 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
MCES-001-MWA (6.02 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
MCES-001-MWB[8] (6.51 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	21,000	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	22,000	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
MCES-006-MW (2.97 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
MCES-204-MW[8] (4.17 m)	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	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

TABLE A-3 LTMM GROUNDWATER MONITORING EVENT NOVEMBER AND DECEMBER 2016
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	Li	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	µg/L
NSE Tier 1 EQS[1]		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
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
COSCW-002-MWA (4.46 m)	03/26/13	9.5	<1	<0.6	21	<0.5	<2	<100	0.066	<1	<1	5	<100	<1	5.2	<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	6.7	<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	6.7	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	NM	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	NM	<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	NM	18	<0.013	5.6	<2.0	<1.0	<0.10	1300	<0.10	<2.0	<2.0	1.1	<2.0	<5.0
COSCW-002-MWB (2.40 m)	03/19/13[L]	6.1	<1	<0.6	26	<0.5	<2	<100	0.045	<1	<1	<2	<100	<1	2.2	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	2.3	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	3.7	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	NM
	10/24/13	26	<1	2.3	30	<1	<2	<50	0.15	<1	<0.4	<2	320	<0.5	3.7	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	NM	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	NM	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	NM	200	<0.013	7.1	<2.0	<1.0	<0.10	150	<0.10	<2.0	<2.0	1.7	<2.0	80
COTS-001-MWA[3] (4.19 m)	11/15/13[L]	230	<1	<1	64	<1	<2	<50	0.59	<1	2.4	47	59	2.8	NM	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	3.4	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	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
COTS-001-MWB[3] (4.48 m)	12/08/15	6	<1.0	<1.0	43	<1.0	<2.0	<50	0	<1.0	<0.40	<2.0	<50	<0.50	NM	22	<0.013	<2.0	<2.0	<1.0	<0.10	1,600	<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	0.2	<1.0	<0.40	<2.0	<50	<0.50	NM	1400	<0.013	<2.0	<2.0	<1.0	<0.10	1500	<0.10	<2.0	<2.0	0.62	<2.0	<5.0
MCES-001-MWA (6.02 m)	03/28/13[FD]	18	<1	0.9	150	<0.5	<2	<100	<0.017	<1	<1	4.7	100	3.9	75	<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	72	<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	78	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	NM	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	NM	<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	NM	<2.0	<0.013	9.3	<2.0	1.9	<0.10	1300	<0.10	<2.0	<2.0	<0.10	18	<5.0
MCES-001-MWB[8] (6.51 m)	03/28/13	<50	<10	<6	3500	<5	<20	2200	0.19	<10	<10	<20	18000	<10	240	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	260	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	270	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	NM	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	NM	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	NM	1300	<0.013	<20	<20	<10	<1.0	54000	<1.0	<20	<20	1.3	<20	<50
MCES-006-MW (2.97 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	2.6	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	<2.0	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	2.5	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	2.3	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	NM	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	NM	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	NM	2700	<0.013	<2.0	<2.0	<1.0	<0.10	510	<0.10	<2.0	<2.0	0.6	16	<5.0
MCES-204-MW[8] (4.17 m)	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	NM
	03/28/13	62	<10	<6	75	<5.0	<20	1300	<0.17	<10	<10	<20	1600	<10	190	<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	190	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	NM
	11/07/13	59	<10	<10	71	<10	<20	1200	<0.10	<10	<4.0	<20	<500	<5.0	160	<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	NM	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	NM	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	NM	<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	NM	<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	NM	<20	<0.13	<20	<20	**86**	<1.0	4800	<1.0	<20	<20	<1.0	<20	<50

TABLE A-3 LTMM GROUNDWATER MONITORING EVENT NOVEMBER AND DECEMBER 2016
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	TURB	COND	pH	HARD	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
NSE Tier 1 EQS[1]		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MOE Table 3[2]		2300000	-	-	-	-	-	2300000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
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	480	8.93	1.02	0.361	0.113	6.94	7.19
MCWS-113-MWB (2.48 m)	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
MCWS-306-MWB (0.86 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
MCWS-307-MWB (0.53 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
MCWS-309-MW (0.92 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
MCWS-310-MW (0.70 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
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

TABLE A-3 LTMM GROUNDWATER MONITORING EVENT NOVEMBER AND DECEMBER 2016
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	Li	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	µg/L
NSE Tier 1 EQS[1]		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
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-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	NM	130	<0.013	<2	<2	<1	<0.1	320	<0.1	<2	<2	0.69	<2	<5
	12/9/14	7.8	<1	<1	73	<1	<2	<50	0.033	<1	<0.4	<2	<50	<0.5	NM	130	<0.013	<2	<2	<1	<0.1	310	<0.1	<2	<2	0.7	<2	<5
MCWS-113-MWB (2.48 m)	03/27/13	<25	<5	<3	210	<2.5	<10	<500	<0.085	<5	<5	<10	2300	<5	11	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	13	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	15	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	NM	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	NM	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	NM	3500	<0.013	<2.0	<2.0	<1.0	<0.10	350	<0.10	<2.0	<2.0	<0.10	<2.0	97
MCWS-306-MWB (0.86 m)	03/27/13	12	<1	<0.6	17	<0.5	<2	110	0.38	<1	<1	<2	<100	<1	2.6	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	4.1	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	4.3	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	NM	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	NM	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	NM	2900	<0.013	2.3	2	<1.0	<0.10	340	<0.10	<2.0	<2.0	1.9	<2.0	5.3
MCWS-307-MWB (0.53 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	6.6	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	7.2	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	7.4	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	NM	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	NM	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	NM	130	<0.013	<2.0	<2.0	<1.0	<0.10	310	<0.10	<2.0	<2.0	1.3	<2.0	<5.0
MCWS-309-MW (0.92 m)	03/29/13	1800	<1.0	5.1	21	<0.5	<2.0	640	0.17	2.2	<1.0	11	2500	3	3.6	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	<2.0	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	<2.0	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	NM	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	NM	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	NM	2000	0.013	2.3	<2.0	<1.0	<0.10	29	<0.10	<2.0	<2.0	0.19	<2.0	<5.0
MCWS-310-MW (0.70 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	12	<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	13	<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	16	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	13	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	NM	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	NM	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	NM	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	NM	2.3	<0.013	<2.0	6	<1.0	<0.10	130	<0.10	<2.0	<2.0	<0.10	<2.0	440
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	<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	7.1	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	6.6	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	6.6	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	NM
	11/05/13	13	<1.0	64	18	<1.0	<2.0	53	0.036	<1.0	1.9	12	19000	<0.5	7.2	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	NM	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	NM	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	NM	9700	<0.013	<2.0	<2.0	<1.0	<0.10	1200	<0.10	<2.0	<2.0	0.23	<2.0	<5.0

TABLE A-3 LTMM GROUNDWATER MONITORING EVENT NOVEMBER AND DECEMBER 2016
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	TURB	COND	pH	HARD	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
NSE Tier 1 EQS[1]		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MOE Table 3[2]		2300000	-	-	-	-	-	2300000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MSES-004-MW (7.75 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
MSES-006-MW (3.75 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
MSES-008-MW (4.17 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
MSES-012-MWA (3.56 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	510	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
MSES-104-MWA (2.49 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
MSES-104-MWB (2.12 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
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	1400	7.83	320	180	1.1	820	13.1	1.14	0.631	0.384	7.2	7.44

TABLE A-3 LTMM GROUNDWATER MONITORING EVENT NOVEMBER AND DECEMBER 2016
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	Li	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	µg/L
NSE Tier 1 EQS[1]		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
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-004-MW (7.75 m)	03/26/13	240	<10	<6	7.4	<5	<20	<1000	<0.17	<10	<10	<20	2500	<10	14	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	12	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	11	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	NM	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	NM	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	NM	1100	<0.013	<2.0	<2.0	<1.0	<0.10	280	<0.10	<2.0	<2.0	0.16	<2.0	140
MSES-006-MW (3.75 m)	03/26/13	<50	<10	<6	13	<5	<20	<1000	0.24	<10	<10	<20	3000	<10	17	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	NM
	07/24/13	35.9	<1	1.5	13.9	<1	<2	309	0.083	<1	5.29	<2	1940	<0.5	16	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	NM
	11/05/13	11	<1	1.8	13	<1	<2	300	0.027	<1	5.4	<2	2200	<0.5	15	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	NM	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	NM	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	NM	54000	<0.013	<2.0	13	<1.0	<0.10	3600	<0.10	<2.0	<2.0	4.4	<2.0	250
MSES-008-MW (4.17 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	NM
	03/26/13	<50	<10	16	8.1	<5	<20	<1000	<0.17	<10	<10	<20	13000	<10	35	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	29	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	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	30	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	NM	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	NM	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	NM	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	NM	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	NM	1000	<0.013	3	<2.0	<1.0	<0.10	600	<0.10	<2.0	<2.0	0.74	<2.0	110
MSES-012-MWA (3.56 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	12	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	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	14	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	14	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	14	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	NM	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	NM	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	NM	81	<0.013	<2.0	<2.0	13	<0.10	400	<0.10	<2.0	<2.0	0.47	<2.0	82
MSES-104-MWA (2.49 m)	03/28/13	8.9	<1	1.8	12	<0.5	<2	<100	<0.017	<1	<1	<2	1600	<1	22	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	NM	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	NM	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	NM	100	<0.013	6.3	<2.0	<1.0	<0.10	520	<0.10	<2.0	<2.0	<0.10	<2.0	<5.0
MSES-104-MWB (2.12 m)	03/26/13	400	<10	<6	19	<5	<20	<1000	<0.17	<10	44	<20	13000	<10	15	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	NM
	07/24/13	239	<1	4.2	17.5	<1	<2	187	0.071	<1	23.8	<2	9590	<0.5	13	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	13	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	13	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	NM	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	NM	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	NM	37000	<0.013	<2.0	12	<1.0	<0.10	1600	<0.10	<2.0	<2.0	2	<2.0	<5.0
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	26	<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	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	24	<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	36	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	NM
	11/06/13	13	6.7	14	68	<1.0	<2.0	73	0.024	<1	<0.4	3.0	<50	<0.5	38	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	<2	65	0.37	<1	<0.4	3.7	<50	<0.5	NM	9.5	<0.013	2.1	<2	1.9	<0.1	560	<0.1	<2	<2	3.3	2	20
	12/16/14	13	12	16	53	<1	<2	65	0.38	<1	<0.4	<2	<50	<0.5	NM	8.3	<0.013	2.1	<2	1.8	<0.1	560	<0.1	<2	<2	3.3	<2	18

TABLE A-3 LTMM GROUNDWATER MONITORING EVENT NOVEMBER AND DECEMBER 2016
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	TURB	COND	pH	HARD	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
NSE Tier 1 EQS[1]		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MOE Table 3[2]		2300000	-	-	-	-	-	2300000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SCU11-001-MWA (2.66 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
SCU11-001-MWB (2.07 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
SCU7-001-MW (1.74 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	1700	7.21	1100	230	<1.0	1500	23.3	0.63	0.588	0.344	6.62	6.86
SCU7-003-MW (1.10 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

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 - 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 2015 and 2016 programs in place of COTS-001-MWA, which again had insufficient water for sampling.
4 - During the 2015 groundwater monitoring program, MCWS-009-MW was found to be damaged beyond repair and was subsquently decommissioned.
5 - Underline Exceeds NSE Tier I EQS
6 - **Bold exceeds MOE Table 3 Standards**
7 - This summary is to used in conjunction with, not as a replacement of, the Laboratory Certificates of Analysis, which contain QA/QC information.
8 - 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.

Appendix B

QC Tables

TABLE B-1
LTMM GROUNDWATER MONITORING EVENT NOVEMBER/DECEMBER 2016 OHP AND HE
SUMMARY OF FIELD DUPLICATES AND TRIP BLANKS

FD	Date Sampled	TB	Date Sampled	PROGRAM
FD-019 - B6P5134	11/23/2016	TB-028 - B6P4529	11/22/2016	GW
FD-020 - B6P8249	11/25/2016	TB-029 - B6P5134	11/23/2016	GW
FD-021 - B6P8249	11/25/2016	TB-030 - B6P8249	11/25/2016	GW
FD-022 - B6P9071	11/28/2016	TB-031 - B6P9071	11/28/2016	GW
		TB-032 - B6Q0833	11/30/2016	GW
		TB-033 - B6Q3940	12/2/2016	GW

TABLE B-2
LTMM GROUNDWATER MONITORING EVENT NOVEMBER/DECEMBER 2016 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																			
CODT-105-MW	FD-019	Field Duplicate	11/23/2016	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
	FD-019	Regular	11/23/2016	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
	FD-019	RPD (%)	11/23/2016	6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	4	NA	NA	NA	NA	NA	NA	NA	2
MCES-204-MW	FD-020	Field Duplicate	11/25/2016	1.6	1.7	2.7	0.14	0.022	0.015	<0.010	0.015	0.010	0.14	<0.010	2.9	4.2	<0.010	4.8	7.2	46	<0.010	9.5	1.7
	FD-020	Regular	11/25/2016	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
	FD-020	RPD (%)	11/25/2016	0	0	8	15	5	18	NA	7	18	15	NA	19	0	NA	NA	NA	NA	NA	15	13
MCES-204-MW[R]	FD-020	Field Duplicate	11/25/2016	1.4	1.6	1.8	0.11	0.01	0.01	<0.010	<0.010	<0.010	0.10	<0.010	2.1	3.70	<0.010	4.100	6.2	43.00	<0.010	7.1	1.2
	FD-020	Regular	11/25/2016	1.7	1.8	2	0.12	0.02	0.01	<0.010	0.01	<0.010	0.12	<0.010	2.4	4.40	<0.010	4.900	7.4	49.00	<0.010	6.3	1.4
	FD-020	RPD (%)	11/25/2016	19	12	11	9	21	15	NA	NA	NA	19	NA	13	17	NA	18	18	13	NA	12	15
MSES-008-MW	FD-021	Field Duplicate	11/25/2016	1.4	1.8	0.16	0.049	<0.010	<0.010	<0.010	<0.010	<0.010	0.040	<0.010	1.0	3.1	<0.010	0.42	<0.050	<0.20	<0.010	0.80	0.77
	FD-021	Regular	11/25/2016	1.4	1.7	0.15	0.054	<0.010	<0.010	<0.010	<0.010	<0.010	0.045	<0.010	1.0	3.1	<0.010	0.40	<0.050	<0.20	<0.010	0.84	0.79
	FD-021	RPD (%)	11/25/2016	0	6	6	10	NA	NA	NA	NA	NA	12	NA	0	0	NA	5	NA	NA	NA	5	3
MSES-008-MW[R]	FD-021	Field Duplicate	11/25/2016	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
	FD-021	Regular	11/25/2016	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
	FD-021	RPD (%)	11/25/2016	13	16	14	25	NA	NA	NA	NA	NA	27	NA	30	15	NA	14	NA	NA	NA	26	27
CODT-206-MW	FD-016	Field Duplicate	11/28/2016	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
	FD-016	Regular	11/28/2016	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	0.080
	FD-016	RPD (%)	11/28/2016	NA	NA	NA	NA	NA	NA	NA	NA	NA	**48**	NA	**53**	**62**	NA	NA	NA	NA	NA	**43**	**55**

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 GROUNDWATER MONITORING EVENT NOVEMBER/DECEMBER 2016 OHP AND HE
RPD FOR FIELD DUPLICATES (GROUNDWATER) - 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
CODT-105-MW	FD-019	Field Duplicate	11/23/2016	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	19	2.6
	FD-019	Regular	11/23/2016	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	20	2.5
	FD-019	RPD (%)	11/23/2016	2	0	0	0	4	0	0	7	NA	NA	3	4	1	17	NA	0	7	1	1	3	4	6	0	5	4
MCES-204-MW	FD-020	Field Duplicate	11/25/2016	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	2.0	12000	<50	<10
	FD-020	Regular	11/25/2016	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	<50	<10
	FD-020	RPD (%)	11/25/2016	0	0	0	0	3	0	7	NA	NA	NA	NA	NA	NA	0	NA	**190**	**38**	0	2	0	4	**35**	0	NA	NA
MSES-008-MW	FD-021	Field Duplicate	11/25/2016	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	6.8	<1.0
	FD-021	Regular	11/25/2016	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	6.2	<1.0
	FD-021	RPD (%)	11/25/2016	0	0	2	3	0	1	5	4	NA	NA	NA	NA	NA	12	NA	6	18	0	0	0	5	NA	0	9	NA
CDOT-206-MW	FD-016	Field Duplicate	11/28/2016	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	30	<1.0
	FD-016	Regular	11/28/2016	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	31	<1.0
	FD-016	RPD (%)	11/28/2016	2	0	2	0	2	0	3	0	3	NA	NA	NA	NA	1	0	4	7	0	1	0	1	NA	0	3	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
CODT-105-MW	FD-019	Field Duplicate	11/23/2016	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
	FD-019	Regular	11/23/2016	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
	FD-019	RPD (%)	11/23/2016	5	0	NA	NA	0	NA	NA	NA	NA	NA	NA	1	NA	0	NA	9	NA	0	NA	NA	NA	0	3	1
MCES-204-MW	FD-020	Field Duplicate	11/25/2016	<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
	FD-020	Regular	11/25/2016	<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
	FD-020	RPD (%)	11/25/2016	NA	5	NA	NA	9	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**57**	NA	2	NA	NA	NA	NA	NA	NA
MSES-008-MW	FD-021	Field Duplicate	11/25/2016	11	8.6	<1.0	<2.0	67	0.027	<1.0	<0.40	<2.0	11000	<0.50	990	<0.013	3.0	<2.0	<1.0	<0.10	600	<0.10	<2.0	<2.0	0.74	<2.0	100
	FD-021	Regular	11/25/2016	12	8.7	<1.0	<2.0	66	0.013	<1.0	<0.40	<2.0	12000	<0.50	1000	<0.013	3.0	<2.0	<1.0	<0.10	600	<0.10	<2.0	<2.0	0.74	<2.0	110
	FD-021	RPD (%)	11/25/2016	9	1	NA	NA	10	NA	NA	6	NA	9	NA	1	NA	0	NA	NA	NA	0	NA	NA	NA	0	NA	10
CDOT-206-MW	FD-016	Field Duplicate	11/28/2016	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
	FD-016	Regular	11/28/2016	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
	FD-016	RPD (%)	11/28/2016	0	0	NA	NA	NA	30	NA	NA	NA	11	NA	0	NA	NA	NA	NA	NA	0	NA	NA	NA	1	NA	0

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

DILLON CONSULTING

Wambolt, Nadine <nwambolt@dillon.ca>

Fwd: NS Lands B6P8249

Wambolt, Nadine <nwambolt@dillon.ca> Tue, Feb 7, 2017 at 2:50 PM
To: Nadine Wambolt <nwambolt@dillon.ca>

——— Forwarded message ———
From: **Alan Stewart** <AStewart@maxxam.ca>
Date: 8 December 2016 at 12:12
Subject: NS Lands B6P8249
To: "bmaclean@dillon.ca" <bmaclean@dillon.ca>
Cc: Heather Macumber <HMacumber@maxxam.ca>

Hi Brad

This is in regards to PAH reworks for the above mentioned job.

The samples were originally prepped but due to a laboratory error, the Spike and Matrix spike were not able to be reported with the samples. This necessitated a rework or repeat of all the samples on a new batch with new QC materials The samples at this time were past the SOP recommended hold time of 7 days by 3 days. (Note: The back-up sample bottles are always held in cold storage minimizing any degradation of analytes).

Samples available were repeated and reported along with the original data. The results of the repeats (reported with all relevant QC) agree very well with the results of the original analysis. Individual results for each analyte between the original and repeat are well within the our duplicate criteria for PAHs. As we have acceptable results for the Spike and Matrix spike for the repeats, and very good agreement between the original and repeated results, I do not believe there is any issue with the original or repeated results and strongly believe there has been no impact on data quality.

Let me know if you would like me to look into this any further and I will be happy to assist.

ALAN G. STEWART
Manager – Organic Chemistry

Office 902 420-0203 ext. 225

Mobile 902-229-9896
Toll free 800 565 7227 / Fax 902-420-8612

200 Bluewater Road, Suite 105, Bedford NS B4B 1G9

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NOTE: As per Atlantic RBCA and effective September 1st, soil samples to be analyzed for volatile petroleum hydrocarbons (BTEX, C6-C10) or Volatile Organic Compounds (VOCs) must be field preserved in methanol. Please contact your project manager for more information.

Your Project #: 4104251070
Site Location: OHP/HE SITE
Your C.O.C. #: 586491

Attention:Nadine Wambolt

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

Report Date: 2016/12/01
Report #: R4269987
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B6P4529
Received: 2016/11/22, 16:20

Sample Matrix: Water
Samples Received: 7

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Reference
Carbonate, Bicarbonate and Hydroxide (1)	6	N/A	2016/11/28	N/A	SM 22 4500-CO2 D
Alkalinity (1)	6	N/A	2016/11/29	ATL SOP 00013	EPA 310.2 R1974 m
Chloride (1)	6	N/A	2016/11/30	ATL SOP 00014	SM 22 4500-Cl- E m
Colour (1)	6	N/A	2016/11/29	ATL SOP 00020	SM 22 2120C m
Conductance - water (1)	6	N/A	2016/11/28	ATL SOP 00004	SM 22 2510B m
Hardness (calculated as CaCO3) (1)	6	N/A	2016/11/29	ATL SOP 00048	SM 22 2340 B
Mercury - Total (CVAA,LL) (1)	6	2016/11/29	2016/11/30	ATL SOP 00026	EPA 245.1 R3 m
Metals Water Diss. MS (as rec'd) (1)	6	N/A	2016/11/28	ATL SOP 00058	EPA 6020A R1 m
Ion Balance (% Difference) (1)	6	N/A	2016/11/30	N/A	Auto Calc.
Anion and Cation Sum (1)	6	N/A	2016/11/30	N/A	Auto Calc.
Nitrogen Ammonia - water (1)	6	N/A	2016/11/29	ATL SOP 00015	EPA 350.1 R2 m
Nitrogen - Nitrate + Nitrite (1)	6	N/A	2016/11/30	ATL SOP 00016	USGS SOPINCF0452.2 m
Nitrogen - Nitrite (1)	6	N/A	2016/11/29	ATL SOP 00017	SM 22 4500-NO2- B m
Nitrogen - Nitrate (as N) (1)	6	N/A	2016/11/30	ATL SOP 00018	ASTM D3867-16
PAH in Water by GC/MS (SIM) (1)	1	2016/11/28	2016/11/29	ATL SOP 00103	EPA 8270D 2007 m
PAH in Water by GC/MS (SIM) (1)	6	2016/11/28	2016/11/30	ATL SOP 00103	EPA 8270D 2007 m
pH (1, 2)	6	N/A	2016/11/28	ATL SOP 00003	SM 22 4500-H+ B m
Phosphorus - ortho (1)	6	N/A	2016/11/29	ATL SOP 00021	EPA 365.2 m
Sat. pH and Langelier Index (@ 20C) (1)	6	N/A	2016/11/30	ATL SOP 00049	Auto Calc.
Sat. pH and Langelier Index (@ 4C) (1)	6	N/A	2016/11/30	ATL SOP 00049	Auto Calc.
Reactive Silica (1)	6	N/A	2016/11/29	ATL SOP 00022	EPA 366.0 m
Sulphate (1)	6	N/A	2016/11/29	ATL SOP 00023	ASTMD516-11 m
Total Dissolved Solids (TDS calc) (1)	6	N/A	2016/11/30	N/A	Auto Calc.
Organic carbon - Total (TOC) (1, 3)	6	N/A	2016/11/30	ATL SOP 00037	SM 22 5310C m
Turbidity (1)	6	N/A	2016/11/28	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

Your Project #: 4104251070
Site Location: OHP/HE SITE
Your C.O.C. #: 586491

Attention:Nadine Wambolt

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

Report Date: 2016/12/01
Report #: R4269987
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B6P4529
Received: 2016/11/22, 16:20

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.

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.

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.

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.
Candace Hillier, Cl Svc - Sydney
Email: chillier@maxxam.ca
Phone# (902) 567 1255

==========

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 #: B6P4529
Report Date: 2016/12/01

Dillon Consulting Limited
Client Project #: 4104251070
Site Location: OHP/HE SITE

RESULTS OF ANALYSES OF WATER

Maxxam ID		DMP614			DMP615		DMP616		
Sampling Date		2016/11/22			2016/11/22		2016/11/22		
COC Number		586491			586491		586491		
	UNITS	COSCW-001-MWA	RDL	QC Batch	COSCW-001-MWB	RDL	COSCW-002-MWA	RDL	QC Batch
Calculated Parameters									
Anion Sum	me/L	4.96	N/A	4761813	5.31	N/A	10.2	N/A	4761813
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	180	1.0	4762899	210	1.0	350	1.0	4762899
Calculated TDS	mg/L	280	1.0	4761814	290	1.0	560	1.0	4761814
Carb. Alkalinity (calc. as CaCO3)	mg/L	<1.0	1.0	4762899	1.5	1.0	1.1	1.0	4762899
Cation Sum	me/L	4.96	N/A	4761813	5.19	N/A	9.89	N/A	4761813
Hardness (CaCO3)	mg/L	220	1.0	4761811	210	1.0	470	1.0	4761811
Ion Balance (% Difference)	%	0.00	N/A	4761812	1.14	N/A	1.35	N/A	4761812
Langelier Index (@ 20C)	N/A	0.381		4762901	0.601		0.797		4762901
Langelier Index (@ 4C)	N/A	0.132		4762902	0.352		0.550		4762902
Nitrate (N)	mg/L	<0.050	0.050	4762014	<0.050	0.050	0.090	0.050	4762014
Saturation pH (@ 20C)	N/A	7.30		4762901	7.27		6.73		4762901
Saturation pH (@ 4C)	N/A	7.55		4762902	7.52		6.98		4762902
Inorganics									
Total Alkalinity (Total as CaCO3)	mg/L	180	25	4769440	220	25	350	25	4769440
Dissolved Chloride (Cl)	mg/L	13	1.0	4769443	14	1.0	7.8	1.0	4769443
Colour	TCU	<5.0	5.0	4769448	<5.0	5.0	<5.0	5.0	4769448
Nitrate + Nitrite (N)	mg/L	<0.050	0.050	4769451	<0.050	0.050	0.090	0.050	4769451
Nitrite (N)	mg/L	<0.010	0.010	4769452	<0.010	0.010	<0.010	0.010	4769452
Nitrogen (Ammonia Nitrogen)	mg/L	<0.050	0.050	4770059	<0.050	0.050	<0.050	0.050	4770059
Total Organic Carbon (C)	mg/L	<5.0 (1)	5.0	4769653	1.5	0.50	0.59	0.50	4769653
Orthophosphate (P)	mg/L	0.014	0.010	4769450	0.014	0.010	0.017	0.010	4769450
pH	pH	7.68	N/A	4767774	7.87	N/A	7.52	N/A	4767776
Reactive Silica (SiO2)	mg/L	12	0.50	4769446	13	0.50	14	0.50	4769446
Dissolved Sulphate (SO4)	mg/L	47	10	4769445	29	2.0	140	10	4769445
Turbidity	NTU	95	0.10	4767862	0.42	0.10	31	0.10	4767862
Conductivity	uS/cm	450	1.0	4767775	470	1.0	850	1.0	4767777

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

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 Job #: B6P4529
Report Date: 2016/12/01

Dillon Consulting Limited
Client Project #: 4104251070
Site Location: OHP/HE SITE

RESULTS OF ANALYSES OF WATER

Maxxam ID		DMP617		DMP618			DMP619		
Sampling Date		2016/11/22		2016/11/22			2016/11/22		
COC Number		586491		586491			586491		
	UNITS	COSCW-002-MWB	RDL	COBC-002-MWA	RDL	QC Batch	MSES-012-MWA	RDL	QC Batch
Calculated Parameters									
Anion Sum	me/L	6.40	N/A	15.4	N/A	4761813	24.2	N/A	4761813
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	180	1.0	58	1.0	4762899	200	1.0	4762899
Calculated TDS	mg/L	370	1.0	930	1.0	4761814	1600	1.0	4761814
Carb. Alkalinity (calc. as CaCO3)	mg/L	<1.0	1.0	<1.0	1.0	4762899	<1.0	1.0	4762899
Cation Sum	me/L	6.35	N/A	15.5	N/A	4761813	25.6	N/A	4761813
Hardness (CaCO3)	mg/L	260	1.0	430	1.0	4761811	970	1.0	4761811
Ion Balance (% Difference)	%	0.390	N/A	0.190	N/A	4761812	2.81	N/A	4761812
Langelier Index (@ 20C)	N/A	0.507		-1.32		4762901	0.232		4762901
Langelier Index (@ 4C)	N/A	0.259		-1.57		4762902	-0.0130		4762902
Nitrate (N)	mg/L	0.087	0.050	0.50	0.050	4762014	0.50	0.050	4762014
Saturation pH (@ 20C)	N/A	7.25		7.62		4762901	6.79		4762901
Saturation pH (@ 4C)	N/A	7.49		7.86		4762902	7.03		4762902
Inorganics									
Total Alkalinity (Total as CaCO3)	mg/L	180	25	58	5.0	4769440	200	25	4769440
Dissolved Chloride (Cl)	mg/L	10	1.0	340	5.0	4769443	170	1.0	4769443
Colour	TCU	<5.0	5.0	<5.0	5.0	4769448	<5.0	5.0	4769448
Nitrate + Nitrite (N)	mg/L	0.087	0.050	0.50	0.050	4769451	0.50	0.050	4769451
Nitrite (N)	mg/L	<0.010	0.010	<0.010	0.010	4769452	<0.010	0.010	4769452
Nitrogen (Ammonia Nitrogen)	mg/L	<0.050	0.050	0.056	0.050	4770059	<0.050	0.050	4770059
Total Organic Carbon (C)	mg/L	0.66	0.50	1.4	0.50	4769653	1.3	0.50	4769653
Orthophosphate (P)	mg/L	0.014	0.010	0.011	0.010	4769450	0.031	0.010	4769450
pH	pH	7.75	N/A	6.29	N/A	4767776	7.02	N/A	4767774
Reactive Silica (SiO2)	mg/L	9.4	0.50	3.8	0.50	4769446	45	1.0	4769446
Dissolved Sulphate (SO4)	mg/L	120	10	230	40	4769445	740	60	4769445
Turbidity	NTU	5.0	0.10	7.1	0.10	4767862	20	0.10	4767865
Conductivity	uS/cm	580	1.0	1600	1.0	4767777	2200	1.0	4767775

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

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 Job #: B6P4529
Report Date: 2016/12/01

Dillon Consulting Limited
Client Project #: 4104251070
Site Location: OHP/HE SITE

MERCURY BY COLD VAPOUR AA (WATER)

Maxxam ID		DMP614	DMP615	DMP616	DMP617		
Sampling Date		2016/11/22	2016/11/22	2016/11/22	2016/11/22		
COC Number		586491	586491	586491	586491		
	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	4769628

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam ID		DMP618	DMP619		
Sampling Date		2016/11/22	2016/11/22		
COC Number		586491	586491		
	UNITS	COBC-002-MWA	MSES-012-MWA	RDL	QC Batch
Metals					
Total Mercury (Hg)	ug/L	<0.013	<0.013	0.013	4769628

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B6P4529
Report Date: 2016/12/01

Dillon Consulting Limited
Client Project #: 4104251070
Site Location: OHP/HE SITE

ELEMENTS BY ICP/MS (WATER)

Maxxam ID		DMP614	DMP615	DMP616	DMP617		
Sampling Date		2016/11/22	2016/11/22	2016/11/22	2016/11/22		
COC Number		586491	586491	586491	586491		
	UNITS	COSCW-001-MWA	COSCW-001-MWB	COSCW-002-MWA	COSCW-002-MWB	RDL	QC Batch
Metals							
Dissolved Aluminum (Al)	ug/L	9.9	5.6	9.4	7.7	5.0	4764936
Dissolved Antimony (Sb)	ug/L	<1.0	<1.0	<1.0	<1.0	1.0	4764936
Dissolved Arsenic (As)	ug/L	<1.0	<1.0	<1.0	<1.0	1.0	4764936
Dissolved Barium (Ba)	ug/L	48	130	23	30	1.0	4764936
Dissolved Beryllium (Be)	ug/L	<1.0	<1.0	<1.0	<1.0	1.0	4764936
Dissolved Bismuth (Bi)	ug/L	<2.0	<2.0	<2.0	<2.0	2.0	4764936
Dissolved Boron (B)	ug/L	<50	66	50	<50	50	4764936
Dissolved Cadmium (Cd)	ug/L	0.13	0.014	0.12	0.23	0.010	4764936
Dissolved Calcium (Ca)	ug/L	72000	65000	160000	86000	100	4764936
Dissolved Chromium (Cr)	ug/L	<1.0	<1.0	<1.0	<1.0	1.0	4764936
Dissolved Cobalt (Co)	ug/L	<0.40	<0.40	<0.40	<0.40	0.40	4764936
Dissolved Copper (Cu)	ug/L	15	<2.0	40	2.3	2.0	4764936
Dissolved Iron (Fe)	ug/L	<50	<50	<50	130	50	4764936
Dissolved Lead (Pb)	ug/L	<0.50	<0.50	0.61	<0.50	0.50	4764936
Dissolved Magnesium (Mg)	ug/L	8500	12000	18000	11000	100	4764936
Dissolved Manganese (Mn)	ug/L	66	18	<2.0	200	2.0	4764936
Dissolved Molybdenum (Mo)	ug/L	<2.0	5.6	<2.0	7.1	2.0	4764936
Dissolved Nickel (Ni)	ug/L	<2.0	<2.0	<2.0	<2.0	2.0	4764936
Dissolved Phosphorus (P)	ug/L	<100	<100	<100	<100	100	4764936
Dissolved Potassium (K)	ug/L	1700	3700	1500	1700	100	4764936
Dissolved Selenium (Se)	ug/L	<1.0	<1.0	<1.0	<1.0	1.0	4764936
Dissolved Silver (Ag)	ug/L	<0.10	<0.10	<0.10	<0.10	0.10	4764936
Dissolved Sodium (Na)	ug/L	14000	20000	8400	25000	100	4764936
Dissolved Strontium (Sr)	ug/L	660	1300	240	150	2.0	4764936
Dissolved Thallium (Tl)	ug/L	<0.10	<0.10	<0.10	<0.10	0.10	4764936
Dissolved Tin (Sn)	ug/L	<2.0	<2.0	<2.0	<2.0	2.0	4764936
Dissolved Titanium (Ti)	ug/L	<2.0	<2.0	<2.0	<2.0	2.0	4764936
Dissolved Uranium (U)	ug/L	0.63	1.1	4.2	1.7	0.10	4764936
Dissolved Vanadium (V)	ug/L	<2.0	<2.0	<2.0	<2.0	2.0	4764936
Dissolved Zinc (Zn)	ug/L	81	<5.0	100	80	5.0	4764936

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B6P4529
Report Date: 2016/12/01

Dillon Consulting Limited
Client Project #: 4104251070
Site Location: OHP/HE SITE

ELEMENTS BY ICP/MS (WATER)

Maxxam ID		DMP618	DMP619		
Sampling Date		2016/11/22	2016/11/22		
COC Number		586491	586491		
	UNITS	COBC-002-MWA	MSES-012-MWA	RDL	QC Batch
Metals					
Dissolved Aluminum (Al)	ug/L	66	9.7	5.0	4764936
Dissolved Antimony (Sb)	ug/L	<1.0	<1.0	1.0	4764936
Dissolved Arsenic (As)	ug/L	<1.0	<1.0	1.0	4764936
Dissolved Barium (Ba)	ug/L	15	6.5	1.0	4764936
Dissolved Beryllium (Be)	ug/L	<1.0	<1.0	1.0	4764936
Dissolved Bismuth (Bi)	ug/L	<2.0	<2.0	2.0	4764936
Dissolved Boron (B)	ug/L	79	<50	50	4764936
Dissolved Cadmium (Cd)	ug/L	0.21	0.066	0.010	4764936
Dissolved Calcium (Ca)	ug/L	150000	330000	100	4764936
Dissolved Chromium (Cr)	ug/L	<1.0	<1.0	1.0	4764936
Dissolved Cobalt (Co)	ug/L	0.75	<0.40	0.40	4764936
Dissolved Copper (Cu)	ug/L	44	20	2.0	4764936
Dissolved Iron (Fe)	ug/L	<50	180	50	4764936
Dissolved Lead (Pb)	ug/L	0.61	<0.50	0.50	4764936
Dissolved Magnesium (Mg)	ug/L	16000	33000	100	4764936
Dissolved Manganese (Mn)	ug/L	98	81	2.0	4764936
Dissolved Molybdenum (Mo)	ug/L	<2.0	<2.0	2.0	4764936
Dissolved Nickel (Ni)	ug/L	2.5	<2.0	2.0	4764936
Dissolved Phosphorus (P)	ug/L	<100	<100	100	4764936
Dissolved Potassium (K)	ug/L	2600	3300	100	4764936
Dissolved Selenium (Se)	ug/L	6.9	13	1.0	4764936
Dissolved Silver (Ag)	ug/L	<0.10	<0.10	0.10	4764936
Dissolved Sodium (Na)	ug/L	160000	140000	100	4764936
Dissolved Strontium (Sr)	ug/L	650	400	2.0	4764936
Dissolved Thallium (Tl)	ug/L	<0.10	<0.10	0.10	4764936
Dissolved Tin (Sn)	ug/L	<2.0	<2.0	2.0	4764936
Dissolved Titanium (Ti)	ug/L	<2.0	<2.0	2.0	4764936
Dissolved Uranium (U)	ug/L	<0.10	0.47	0.10	4764936
Dissolved Vanadium (V)	ug/L	<2.0	<2.0	2.0	4764936
Dissolved Zinc (Zn)	ug/L	160	82	5.0	4764936

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Report Date: 2016/12/01

Dillon Consulting Limited
Client Project #: 4104251070
Site Location: OHP/HE SITE

SEMI-VOLATILE ORGANICS BY GC-MS (WATER)

Maxxam ID		DMP614	DMP615	DMP616	DMP617		
Sampling Date		2016/11/22	2016/11/22	2016/11/22	2016/11/22		
COC Number		586491	586491	586491	586491		
	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	4767826
2-Methylnaphthalene	ug/L	<0.050	<0.050	<0.050	<0.050	0.050	4767826
Acenaphthene	ug/L	<0.010	<0.010	<0.010	<0.010	0.010	4767826
Acenaphthylene	ug/L	<0.010	<0.010	<0.010	<0.010	0.010	4767826
Anthracene	ug/L	<0.010	<0.010	<0.010	<0.010	0.010	4767826
Benzo(a)anthracene	ug/L	<0.010	<0.010	<0.010	<0.010	0.010	4767826
Benzo(a)pyrene	ug/L	<0.010	<0.010	<0.010	<0.010	0.010	4767826
Benzo(b)fluoranthene	ug/L	<0.010	<0.010	<0.010	<0.010	0.010	4767826
Benzo(g,h,i)perylene	ug/L	<0.010	<0.010	<0.010	<0.010	0.010	4767826
Benzo(j)fluoranthene	ug/L	<0.010	<0.010	<0.010	<0.010	0.010	4767826
Benzo(k)fluoranthene	ug/L	<0.010	<0.010	<0.010	<0.010	0.010	4767826
Chrysene	ug/L	<0.010	<0.010	<0.010	<0.010	0.010	4767826
Dibenz(a,h)anthracene	ug/L	<0.010	<0.010	<0.010	<0.010	0.010	4767826
Fluoranthene	ug/L	0.011	<0.010	0.013	<0.010	0.010	4767826
Fluorene	ug/L	<0.010	<0.010	<0.010	<0.010	0.010	4767826
Indeno(1,2,3-cd)pyrene	ug/L	<0.010	<0.010	<0.010	<0.010	0.010	4767826
Naphthalene	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	4767826
Perylene	ug/L	<0.010	<0.010	<0.010	<0.010	0.010	4767826
Phenanthrene	ug/L	0.012	<0.010	0.011	<0.010	0.010	4767826
Pyrene	ug/L	<0.010	<0.010	<0.010	<0.010	0.010	4767826
Surrogate Recovery (%)							
D10-Anthracene	%	83	76	75	74		4767826
D14-Terphenyl	%	77 (1)	79	78	78		4767826
D8-Acenaphthylene	%	78	69	70	69		4767826

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		DMP618	DMP619	DMP621		
Sampling Date		2016/11/22	2016/11/22	2016/11/22		
COC Number		586491	586491	586491		
	UNITS	COBC-002-MWA	MSES-012-MWA	TB-028	RDL	QC Batch
Polyaromatic Hydrocarbons						
1-Methylnaphthalene	ug/L	<0.050	<0.050	<0.050	0.050	4767826
2-Methylnaphthalene	ug/L	<0.050	<0.050	<0.050	0.050	4767826
Acenaphthene	ug/L	<0.010	<0.010	<0.010	0.010	4767826
Acenaphthylene	ug/L	<0.010	<0.010	<0.010	0.010	4767826
Anthracene	ug/L	<0.010	0.015	<0.010	0.010	4767826
Benzo(a)anthracene	ug/L	<0.010	0.023	<0.010	0.010	4767826
Benzo(a)pyrene	ug/L	<0.010	0.018	<0.010	0.010	4767826
Benzo(b)fluoranthene	ug/L	<0.010	0.014	<0.010	0.010	4767826
Benzo(g,h,i)perylene	ug/L	<0.010	<0.010	<0.010	0.010	4767826
Benzo(j)fluoranthene	ug/L	<0.010	<0.010	<0.010	0.010	4767826
Benzo(k)fluoranthene	ug/L	<0.010	<0.010	<0.010	0.010	4767826
Chrysene	ug/L	<0.010	0.028	<0.010	0.010	4767826
Dibenz(a,h)anthracene	ug/L	<0.010	<0.010	<0.010	0.010	4767826
Fluoranthene	ug/L	<0.010	0.057	<0.010	0.010	4767826
Fluorene	ug/L	<0.010	0.018	<0.010	0.010	4767826
Indeno(1,2,3-cd)pyrene	ug/L	<0.010	<0.010	<0.010	0.010	4767826
Naphthalene	ug/L	<0.20	<0.20	<0.20	0.20	4767826
Perylene	ug/L	<0.010	<0.010	<0.010	0.010	4767826
Phenanthrene	ug/L	<0.010	0.034	<0.010	0.010	4767826
Pyrene	ug/L	<0.010	0.041	<0.010	0.010	4767826
Surrogate Recovery (%)						
D10-Anthracene	%	79	90	83		4767826
D14-Terphenyl	%	83	94	86		4767826
D8-Acenaphthylene	%	84	96	77		4767826

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GENERAL COMMENTS

Results relate only to the items tested.

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Maxxam Job #: B6P4529
Report Date: 2016/12/01

Dillon Consulting Limited
Client Project #: 4104251070
Site Location: OHP/HE SITE

QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
4764936	BAN	Matrix Spike	Dissolved Aluminum (Al)	2016/11/28		103	%	80 - 120
			Dissolved Antimony (Sb)	2016/11/28		105	%	80 - 120
			Dissolved Arsenic (As)	2016/11/28		96	%	80 - 120
			Dissolved Barium (Ba)	2016/11/28		97	%	80 - 120
			Dissolved Beryllium (Be)	2016/11/28		94	%	80 - 120
			Dissolved Bismuth (Bi)	2016/11/28		100	%	80 - 120
			Dissolved Boron (B)	2016/11/28		99	%	80 - 120
			Dissolved Cadmium (Cd)	2016/11/28		98	%	80 - 120
			Dissolved Calcium (Ca)	2016/11/28		101	%	80 - 120
			Dissolved Chromium (Cr)	2016/11/28		95	%	80 - 120
			Dissolved Cobalt (Co)	2016/11/28		96	%	80 - 120
			Dissolved Copper (Cu)	2016/11/28		93	%	80 - 120
			Dissolved Iron (Fe)	2016/11/28		NC	%	80 - 120
			Dissolved Lead (Pb)	2016/11/28		97	%	80 - 120
			Dissolved Magnesium (Mg)	2016/11/28		103	%	80 - 120
			Dissolved Manganese (Mn)	2016/11/28		NC	%	80 - 120
			Dissolved Molybdenum (Mo)	2016/11/28		103	%	80 - 120
			Dissolved Nickel (Ni)	2016/11/28		96	%	80 - 120
			Dissolved Phosphorus (P)	2016/11/28		105	%	80 - 120
			Dissolved Potassium (K)	2016/11/28		107	%	80 - 120
			Dissolved Selenium (Se)	2016/11/28		98	%	80 - 120
			Dissolved Silver (Ag)	2016/11/28		91	%	80 - 120
			Dissolved Sodium (Na)	2016/11/28		102	%	80 - 120
			Dissolved Strontium (Sr)	2016/11/28		NC	%	80 - 120
			Dissolved Thallium (Tl)	2016/11/28		101	%	80 - 120
			Dissolved Tin (Sn)	2016/11/28		104	%	80 - 120
			Dissolved Titanium (Ti)	2016/11/28		100	%	80 - 120
			Dissolved Uranium (U)	2016/11/28		106	%	80 - 120
			Dissolved Vanadium (V)	2016/11/28		98	%	80 - 120
			Dissolved Zinc (Zn)	2016/11/28		95	%	80 - 120
4764936	BAN	Spiked Blank	Dissolved Aluminum (Al)	2016/11/28		105	%	80 - 120
			Dissolved Antimony (Sb)	2016/11/28		105	%	80 - 120
			Dissolved Arsenic (As)	2016/11/28		96	%	80 - 120
			Dissolved Barium (Ba)	2016/11/28		98	%	80 - 120
			Dissolved Beryllium (Be)	2016/11/28		94	%	80 - 120
			Dissolved Bismuth (Bi)	2016/11/28		103	%	80 - 120
			Dissolved Boron (B)	2016/11/28		101	%	80 - 120
			Dissolved Cadmium (Cd)	2016/11/28		96	%	80 - 120
			Dissolved Calcium (Ca)	2016/11/28		102	%	80 - 120
			Dissolved Chromium (Cr)	2016/11/28		96	%	80 - 120
			Dissolved Cobalt (Co)	2016/11/28		96	%	80 - 120
			Dissolved Copper (Cu)	2016/11/28		93	%	80 - 120
			Dissolved Iron (Fe)	2016/11/28		100	%	80 - 120
			Dissolved Lead (Pb)	2016/11/28		98	%	80 - 120
			Dissolved Magnesium (Mg)	2016/11/28		106	%	80 - 120
			Dissolved Manganese (Mn)	2016/11/28		100	%	80 - 120
			Dissolved Molybdenum (Mo)	2016/11/28		101	%	80 - 120
			Dissolved Nickel (Ni)	2016/11/28		97	%	80 - 120
			Dissolved Phosphorus (P)	2016/11/28		107	%	80 - 120
			Dissolved Potassium (K)	2016/11/28		110	%	80 - 120
			Dissolved Selenium (Se)	2016/11/28		95	%	80 - 120
			Dissolved Silver (Ag)	2016/11/28		97	%	80 - 120
			Dissolved Sodium (Na)	2016/11/28		105	%	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 Strontium (Sr)	2016/11/28		100	%	80 - 120
			Dissolved Thallium (Tl)	2016/11/28		102	%	80 - 120
			Dissolved Tin (Sn)	2016/11/28		103	%	80 - 120
			Dissolved Titanium (Ti)	2016/11/28		102	%	80 - 120
			Dissolved Uranium (U)	2016/11/28		106	%	80 - 120
			Dissolved Vanadium (V)	2016/11/28		97	%	80 - 120
			Dissolved Zinc (Zn)	2016/11/28		96	%	80 - 120
4764936	BAN	Method Blank	Dissolved Aluminum (Al)	2016/11/28	<5.0		ug/L	
			Dissolved Antimony (Sb)	2016/11/28	<1.0		ug/L	
			Dissolved Arsenic (As)	2016/11/28	<1.0		ug/L	
			Dissolved Barium (Ba)	2016/11/28	<1.0		ug/L	
			Dissolved Beryllium (Be)	2016/11/28	<1.0		ug/L	
			Dissolved Bismuth (Bi)	2016/11/28	<2.0		ug/L	
			Dissolved Boron (B)	2016/11/28	<50		ug/L	
			Dissolved Cadmium (Cd)	2016/11/28	<0.010		ug/L	
			Dissolved Calcium (Ca)	2016/11/28	<100		ug/L	
			Dissolved Chromium (Cr)	2016/11/28	<1.0		ug/L	
			Dissolved Cobalt (Co)	2016/11/28	<0.40		ug/L	
			Dissolved Copper (Cu)	2016/11/28	<2.0		ug/L	
			Dissolved Iron (Fe)	2016/11/28	<50		ug/L	
			Dissolved Lead (Pb)	2016/11/28	<0.50		ug/L	
			Dissolved Magnesium (Mg)	2016/11/28	<100		ug/L	
			Dissolved Manganese (Mn)	2016/11/28	<2.0		ug/L	
			Dissolved Molybdenum (Mo)	2016/11/28	<2.0		ug/L	
			Dissolved Nickel (Ni)	2016/11/28	<2.0		ug/L	
			Dissolved Phosphorus (P)	2016/11/28	<100		ug/L	
			Dissolved Potassium (K)	2016/11/28	<100		ug/L	
			Dissolved Selenium (Se)	2016/11/28	<1.0		ug/L	
			Dissolved Silver (Ag)	2016/11/28	<0.10		ug/L	
			Dissolved Sodium (Na)	2016/11/28	<100		ug/L	
			Dissolved Strontium (Sr)	2016/11/28	<2.0		ug/L	
			Dissolved Thallium (Tl)	2016/11/28	<0.10		ug/L	
			Dissolved Tin (Sn)	2016/11/28	<2.0		ug/L	
			Dissolved Titanium (Ti)	2016/11/28	<2.0		ug/L	
			Dissolved Uranium (U)	2016/11/28	<0.10		ug/L	
			Dissolved Vanadium (V)	2016/11/28	<2.0		ug/L	
			Dissolved Zinc (Zn)	2016/11/28	<5.0		ug/L	
4764936	BAN	RPD	Dissolved Aluminum (Al)	2016/11/28	NC		%	20
			Dissolved Antimony (Sb)	2016/11/28	NC		%	20
			Dissolved Arsenic (As)	2016/11/28	NC		%	20
			Dissolved Barium (Ba)	2016/11/28	4.3		%	20
			Dissolved Beryllium (Be)	2016/11/28	NC		%	20
			Dissolved Bismuth (Bi)	2016/11/28	NC		%	20
			Dissolved Boron (B)	2016/11/28	NC		%	20
			Dissolved Cadmium (Cd)	2016/11/28	NC		%	20
			Dissolved Calcium (Ca)	2016/11/28	0.21		%	20
			Dissolved Chromium (Cr)	2016/11/28	NC		%	20
			Dissolved Cobalt (Co)	2016/11/28	NC		%	20
			Dissolved Copper (Cu)	2016/11/28	NC		%	20
			Dissolved Iron (Fe)	2016/11/28	0.45		%	20
			Dissolved Lead (Pb)	2016/11/28	NC		%	20
			Dissolved Magnesium (Mg)	2016/11/28	0.46		%	20
			Dissolved Manganese (Mn)	2016/11/28	0.39		%	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 Molybdenum (Mo)	2016/11/28	NC		%	20
			Dissolved Nickel (Ni)	2016/11/28	NC		%	20
			Dissolved Phosphorus (P)	2016/11/28	NC		%	20
			Dissolved Potassium (K)	2016/11/28	2.2		%	20
			Dissolved Selenium (Se)	2016/11/28	NC		%	20
			Dissolved Silver (Ag)	2016/11/28	NC		%	20
			Dissolved Sodium (Na)	2016/11/28	0.80		%	20
			Dissolved Strontium (Sr)	2016/11/28	1.5		%	20
			Dissolved Thallium (Tl)	2016/11/28	NC		%	20
			Dissolved Tin (Sn)	2016/11/28	NC		%	20
			Dissolved Titanium (Ti)	2016/11/28	NC		%	20
			Dissolved Uranium (U)	2016/11/28	NC		%	20
			Dissolved Vanadium (V)	2016/11/28	NC		%	20
			Dissolved Zinc (Zn)	2016/11/28	NC		%	20
4767774	JMV	QC Standard	pH	2016/11/28		100	%	97 - 103
4767774	JMV	RPD	pH	2016/11/28	1.2		%	N/A
4767775	JMV	Spiked Blank	Conductivity	2016/11/28		101	%	80 - 120
4767775	JMV	Method Blank	Conductivity	2016/11/28	1.7, RDL=1.0		uS/cm	
4767775	JMV	RPD	Conductivity	2016/11/28	0.64		%	25
4767776	JMV	QC Standard	pH	2016/11/28		100	%	97 - 103
4767776	JMV	RPD	pH	2016/11/28	0.086		%	N/A
4767777	JMV	Spiked Blank	Conductivity	2016/11/28		101	%	80 - 120
4767777	JMV	Method Blank	Conductivity	2016/11/28	1.6, RDL=1.0		uS/cm	
4767777	JMV	RPD	Conductivity	2016/11/28	0.66		%	25
4767826	RST	Matrix Spike [DMP614-01]	D10-Anthracene	2016/11/29		75	%	30 - 130
			D14-Terphenyl	2016/11/29		70	%	30 - 130
			D8-Acenaphthylene	2016/11/29		74	%	30 - 130
			1-Methylnaphthalene	2016/11/29		69	%	30 - 130
			2-Methylnaphthalene	2016/11/29		72	%	30 - 130
			Acenaphthene	2016/11/29		74	%	30 - 130
			Acenaphthylene	2016/11/29		79	%	30 - 130
			Anthracene	2016/11/29		75	%	30 - 130
			Benzo(a)anthracene	2016/11/29		79	%	30 - 130
			Benzo(a)pyrene	2016/11/29		67	%	30 - 130
			Benzo(b)fluoranthene	2016/11/29		74	%	30 - 130
			Benzo(g,h,i)perylene	2016/11/29		69	%	30 - 130
			Benzo(j)fluoranthene	2016/11/29		64	%	30 - 130
			Benzo(k)fluoranthene	2016/11/29		66	%	30 - 130
			Chrysene	2016/11/29		78	%	30 - 130
			Dibenz(a,h)anthracene	2016/11/29		65	%	30 - 130
			Fluoranthene	2016/11/29		72	%	30 - 130
			Fluorene	2016/11/29		77	%	30 - 130
			Indeno(1,2,3-cd)pyrene	2016/11/29		66	%	30 - 130
			Naphthalene	2016/11/29		70	%	30 - 130
			Perylene	2016/11/29		62	%	30 - 130
			Phenanthrene	2016/11/29		78	%	30 - 130
			Pyrene	2016/11/29		67	%	30 - 130
4767826	RST	Spiked Blank	D10-Anthracene	2016/11/29		91	%	30 - 130
			D14-Terphenyl	2016/11/29		83	%	30 - 130
			D8-Acenaphthylene	2016/11/29		87	%	30 - 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	2016/11/29		74	%	30 - 130
			2-Methylnaphthalene	2016/11/29		77	%	30 - 130
			Acenaphthene	2016/11/29		84	%	30 - 130
			Acenaphthylene	2016/11/29		92	%	30 - 130
			Anthracene	2016/11/29		90	%	30 - 130
			Benzo(a)anthracene	2016/11/29		84	%	30 - 130
			Benzo(a)pyrene	2016/11/29		81	%	30 - 130
			Benzo(b)fluoranthene	2016/11/29		86	%	30 - 130
			Benzo(g,h,i)perylene	2016/11/29		83	%	30 - 130
			Benzo(j)fluoranthene	2016/11/29		78	%	30 - 130
			Benzo(k)fluoranthene	2016/11/29		83	%	30 - 130
			Chrysene	2016/11/29		74	%	30 - 130
			Dibenz(a,h)anthracene	2016/11/29		76	%	30 - 130
			Fluoranthene	2016/11/29		81	%	30 - 130
			Fluorene	2016/11/29		91	%	30 - 130
			Indeno(1,2,3-cd)pyrene	2016/11/29		79	%	30 - 130
			Naphthalene	2016/11/29		74	%	30 - 130
			Perylene	2016/11/29		79	%	30 - 130
			Phenanthrene	2016/11/29		95	%	30 - 130
			Pyrene	2016/11/29		76	%	30 - 130
4767826	RST	Method Blank	D10-Anthracene	2016/11/29		78	%	30 - 130
			D14-Terphenyl	2016/11/29		92	%	30 - 130
			D8-Acenaphthylene	2016/11/29		70	%	30 - 130
			1-Methylnaphthalene	2016/11/29	<0.050		ug/L	
			2-Methylnaphthalene	2016/11/29	<0.050		ug/L	
			Acenaphthene	2016/11/29	<0.010		ug/L	
			Acenaphthylene	2016/11/29	<0.010		ug/L	
			Anthracene	2016/11/29	<0.010		ug/L	
			Benzo(a)anthracene	2016/11/29	<0.010		ug/L	
			Benzo(a)pyrene	2016/11/29	<0.010		ug/L	
			Benzo(b)fluoranthene	2016/11/29	<0.010		ug/L	
			Benzo(g,h,i)perylene	2016/11/29	<0.010		ug/L	
			Benzo(j)fluoranthene	2016/11/29	<0.010		ug/L	
			Benzo(k)fluoranthene	2016/11/29	<0.010		ug/L	
			Chrysene	2016/11/29	<0.010		ug/L	
			Dibenz(a,h)anthracene	2016/11/29	<0.010		ug/L	
			Fluoranthene	2016/11/29	<0.010		ug/L	
			Fluorene	2016/11/29	<0.010		ug/L	
			Indeno(1,2,3-cd)pyrene	2016/11/29	<0.010		ug/L	
			Naphthalene	2016/11/29	<0.20		ug/L	
			Perylene	2016/11/29	<0.010		ug/L	
			Phenanthrene	2016/11/29	<0.010		ug/L	
			Pyrene	2016/11/29	<0.010		ug/L	
4767826	RST	RPD	Acenaphthylene	2016/11/29	NC		%	40
			Anthracene	2016/11/29	NC		%	40
			Fluorene	2016/11/29	NC		%	40
			Naphthalene	2016/11/29	NC		%	40
			Phenanthrene	2016/11/29	NC		%	40
			Pyrene	2016/11/29	NC		%	40
4767862	JMV	QC Standard	Turbidity	2016/11/28		98	%	80 - 120
4767862	JMV	Spiked Blank	Turbidity	2016/11/28		94	%	80 - 120
4767862	JMV	Method Blank	Turbidity	2016/11/28	<0.10		NTU	
4767862	JMV	RPD	Turbidity	2016/11/28	NC		%	20

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Maxxam Job #: B6P4529
Report Date: 2016/12/01

Dillon Consulting Limited
Client Project #: 4104251070
Site Location: OHP/HE SITE

QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
4767865	JMV	QC Standard	Turbidity	2016/11/28		97	%	80 - 120
4767865	JMV	Spiked Blank	Turbidity	2016/11/28		94	%	80 - 120
4767865	JMV	Method Blank	Turbidity	2016/11/28	<0.10		NTU	
4767865	JMV	RPD	Turbidity	2016/11/28	NC		%	20
4769440	NRG	Matrix Spike [DMP615-02]	Total Alkalinity (Total as CaCO3)	2016/11/29		NC	%	80 - 120
4769440	NRG	Spiked Blank	Total Alkalinity (Total as CaCO3)	2016/11/29		106	%	80 - 120
4769440	NRG	Method Blank	Total Alkalinity (Total as CaCO3)	2016/11/29	<5.0		mg/L	
4769440	NRG	RPD [DMP615-02]	Total Alkalinity (Total as CaCO3)	2016/11/29	2.6		%	25
4769443	MCN	Matrix Spike [DMP615-02]	Dissolved Chloride (Cl)	2016/11/30		NC	%	80 - 120
4769443	MCN	QC Standard	Dissolved Chloride (Cl)	2016/11/30		110	%	80 - 120
4769443	MCN	Spiked Blank	Dissolved Chloride (Cl)	2016/11/30		102	%	80 - 120
4769443	MCN	Method Blank	Dissolved Chloride (Cl)	2016/11/30	<1.0		mg/L	
4769443	MCN	RPD [DMP615-02]	Dissolved Chloride (Cl)	2016/11/30	7.4		%	25
4769445	MCN	Matrix Spike [DMP615-02]	Dissolved Sulphate (SO4)	2016/11/29		NC	%	80 - 120
4769445	MCN	Spiked Blank	Dissolved Sulphate (SO4)	2016/11/29		98	%	80 - 120
4769445	MCN	Method Blank	Dissolved Sulphate (SO4)	2016/11/29	<2.0		mg/L	
4769445	MCN	RPD [DMP615-02]	Dissolved Sulphate (SO4)	2016/11/29	0.71		%	25
4769446	KBT	Matrix Spike [DMP615-02]	Reactive Silica (SiO2)	2016/11/29		NC	%	80 - 120
4769446	KBT	Spiked Blank	Reactive Silica (SiO2)	2016/11/29		99	%	80 - 120
4769446	KBT	Method Blank	Reactive Silica (SiO2)	2016/11/29	<0.50		mg/L	
4769446	KBT	RPD [DMP615-02]	Reactive Silica (SiO2)	2016/11/29	3.0		%	25
4769448	KBT	Spiked Blank	Colour	2016/11/29		93	%	80 - 120
4769448	KBT	Method Blank	Colour	2016/11/29	<5.0		TCU	
4769448	KBT	RPD [DMP615-02]	Colour	2016/11/29	NC		%	20
4769450	KBT	Matrix Spike [DMP615-02]	Orthophosphate (P)	2016/11/29		92	%	80 - 120
4769450	KBT	Spiked Blank	Orthophosphate (P)	2016/11/29		98	%	80 - 120
4769450	KBT	Method Blank	Orthophosphate (P)	2016/11/29	<0.010		mg/L	
4769450	KBT	RPD [DMP615-02]	Orthophosphate (P)	2016/11/29	NC		%	25
4769451	MCN	Matrix Spike [DMP615-02]	Nitrate + Nitrite (N)	2016/11/30		101	%	80 - 120
4769451	MCN	Spiked Blank	Nitrate + Nitrite (N)	2016/11/30		100	%	80 - 120
4769451	MCN	Method Blank	Nitrate + Nitrite (N)	2016/11/30	<0.050		mg/L	
4769451	MCN	RPD [DMP615-02]	Nitrate + Nitrite (N)	2016/11/30	NC		%	25
4769452	KBT	Matrix Spike [DMP615-02]	Nitrite (N)	2016/11/29		100	%	80 - 120
4769452	KBT	Spiked Blank	Nitrite (N)	2016/11/29		95	%	80 - 120
4769452	KBT	Method Blank	Nitrite (N)	2016/11/29	<0.010		mg/L	
4769452	KBT	RPD [DMP615-02]	Nitrite (N)	2016/11/29	NC		%	25
4769628	ARS	Matrix Spike	Total Mercury (Hg)	2016/11/30		98	%	80 - 120
4769628	ARS	Spiked Blank	Total Mercury (Hg)	2016/11/30		98	%	80 - 120
4769628	ARS	Method Blank	Total Mercury (Hg)	2016/11/30	<0.013		ug/L	
4769628	ARS	RPD	Total Mercury (Hg)	2016/11/30	NC		%	20
4769653	SMT	Matrix Spike	Total Organic Carbon (C)	2016/11/30		95	%	80 - 120
4769653	SMT	Spiked Blank	Total Organic Carbon (C)	2016/11/30		97	%	80 - 120
4769653	SMT	Method Blank	Total Organic Carbon (C)	2016/11/30	<0.50		mg/L	
4769653	SMT	RPD	Total Organic Carbon (C)	2016/11/30	NC		%	20
4770059	NRG	Matrix Spike	Nitrogen (Ammonia Nitrogen)	2016/11/29		NC	%	80 - 120

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Maxxam Job #: B6P4529
Report Date: 2016/12/01

Dillon Consulting Limited
Client Project #: 4104251070
Site Location: OHP/HE SITE

QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
4770059	NRG	Spiked Blank	Nitrogen (Ammonia Nitrogen)	2016/11/29		108	%	80 - 120
4770059	NRG	Method Blank	Nitrogen (Ammonia Nitrogen)	2016/11/29	<0.050		mg/L	
4770059	NRG	RPD	Nitrogen (Ammonia Nitrogen)	2016/11/29	1.1		%	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 spiked amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than 2x that of 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 (one or both samples < 5x RDL).

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Site Location: OHP/HE SITE

VALIDATION SIGNATURE PAGE

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

Alan Stewart, Organics Manager, Bedford

Mike MacGillivray, Scientific Specialist (Inorganics)

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 #: 4104251070
Site Location: OHP/HE SITE
Your C.O.C. #: 586491

Attention:Nadine Wambolt

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

Report Date: 2016/12/01
Report #: R4270925
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B6P5134
Received: 2016/11/23, 15:57

Sample Matrix: Water
Samples Received: 9

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Reference
Carbonate, Bicarbonate and Hydroxide (1)	5	N/A	2016/11/29	N/A	SM 22 4500-CO2 D
Carbonate, Bicarbonate and Hydroxide (1)	3	N/A	2016/11/30	N/A	SM 22 4500-CO2 D
Alkalinity (1)	2	N/A	2016/11/30	ATL SOP 00013	EPA 310.2 R1974 m
Alkalinity (1)	6	N/A	2016/12/01	ATL SOP 00013	EPA 310.2 R1974 m
Chloride (1)	8	N/A	2016/12/01	ATL SOP 00014	SM 22 4500-Cl- E m
Colour (1)	8	N/A	2016/11/30	ATL SOP 00020	SM 22 2120C m
Conductance - water (1)	5	N/A	2016/11/29	ATL SOP 00004	SM 22 2510B m
Conductance - water (1)	3	N/A	2016/11/30	ATL SOP 00004	SM 22 2510B m
Hardness (calculated as CaCO3) (1)	8	N/A	2016/11/30	ATL SOP 00048	SM 22 2340 B
Mercury - Total (CVAA,LL) (1)	8	2016/11/30	2016/12/01	ATL SOP 00026	EPA 245.1 R3 m
Metals Water Diss. MS (as rec'd) (1)	6	N/A	2016/11/29	ATL SOP 00058	EPA 6020A R1 m
Metals Water Diss. MS (as rec'd) (1)	2	N/A	2016/11/30	ATL SOP 00058	EPA 6020A R1 m
Ion Balance (% Difference) (1)	8	N/A	2016/12/01	N/A	Auto Calc.
Anion and Cation Sum (1)	8	N/A	2016/12/01	N/A	Auto Calc.
Nitrogen Ammonia - water (1)	8	N/A	2016/11/30	ATL SOP 00015	EPA 350.1 R2 m
Nitrogen - Nitrate + Nitrite (1)	8	N/A	2016/12/01	ATL SOP 00016	USGS SOPINCF0452.2 m
Nitrogen - Nitrite (1)	8	N/A	2016/12/01	ATL SOP 00017	SM 22 4500-NO2- B m
Nitrogen - Nitrate (as N) (1)	8	N/A	2016/12/01	ATL SOP 00018	ASTM D3867-16
PAH in Water by GC/MS (SIM) (1)	9	2016/11/29	2016/11/30	ATL SOP 00103	EPA 8270D 2007 m
pH (1, 2)	5	N/A	2016/11/29	ATL SOP 00003	SM 22 4500-H+ B m
pH (1, 2)	3	N/A	2016/11/30	ATL SOP 00003	SM 22 4500-H+ B m
Phosphorus - ortho (1)	8	N/A	2016/11/30	ATL SOP 00021	EPA 365.2 m
Sat. pH and Langelier Index (@ 20C) (1)	8	N/A	2016/12/01	ATL SOP 00049	Auto Calc.
Sat. pH and Langelier Index (@ 4C) (1)	8	N/A	2016/12/01	ATL SOP 00049	Auto Calc.
Reactive Silica (1)	8	N/A	2016/11/30	ATL SOP 00022	EPA 366.0 m
Sulphate (1)	8	N/A	2016/11/30	ATL SOP 00023	ASTMD516-11 m
Total Dissolved Solids (TDS calc) (1)	8	N/A	2016/12/01	N/A	Auto Calc.
Organic carbon - Total (TOC) (1, 3)	8	N/A	2016/11/30	ATL SOP 00037	SM 22 5310C m
Turbidity (1)	4	N/A	2016/11/29	ATL SOP 00011	EPA 180.1 R2 m
Turbidity (1)	4	N/A	2016/11/30	ATL SOP 00011	EPA 180.1 R2 m

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Your Project #: 4104251070
Site Location: OHP/HE SITE
Your C.O.C. #: 586491

Attention:Nadine Wambolt

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

Report Date: 2016/12/01
Report #: R4270925
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B6P5134
Received: 2016/11/23, 15:57

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.

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.

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.

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.
Candace Hillier, Cl Svc - Sydney
Email: chillier@maxxam.ca
Phone# (902) 567 1255

==========

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Maxxam Job #: B6P5134
Report Date: 2016/12/01

Dillon Consulting Limited
Client Project #: 4104251070
Site Location: OHP/HE SITE

RESULTS OF ANALYSES OF WATER

Maxxam ID		DMS295			DMS296			DMS297		
Sampling Date		2016/11/23			2016/11/23			2016/11/23		
COC Number		586491			586491			586491		
	UNITS	CONPL-202-MWA	RDL	QC Batch	CODT-205-MWA	RDL	QC Batch	CODT-203-MW	RDL	QC Batch
Calculated Parameters										
Anion Sum	me/L	10.5	N/A	4761813	6.13	N/A	4761813	8.82	N/A	4761813
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	350	1.0	4760780	270	1.0	4760780	160	1.0	4760780
Calculated TDS	mg/L	570	1.0	4761814	330	1.0	4761814	540	1.0	4761814
Carb. Alkalinity (calc. as CaCO3)	mg/L	<1.0	1.0	4760780	1.3	1.0	4760780	<1.0	1.0	4760780
Cation Sum	me/L	9.90	N/A	4761813	5.80	N/A	4761813	8.60	N/A	4761813
Hardness (CaCO3)	mg/L	460	1.0	4761811	210	1.0	4761811	300	1.0	4761811
Ion Balance (% Difference)	%	2.80	N/A	4761812	2.77	N/A	4761812	1.26	N/A	4761812
Langelier Index (@ 20C)	N/A	0.634		4760787	0.528		4760787	-0.0590		4760787
Langelier Index (@ 4C)	N/A	0.386		4760788	0.279		4760788	-0.306		4760788
Nitrate (N)	mg/L	<0.050	0.050	4762014	0.050	0.050	4762014	0.29	0.050	4762014
Saturation pH (@ 20C)	N/A	6.77		4760787	7.17		4760787	7.24		4760787
Saturation pH (@ 4C)	N/A	7.02		4760788	7.42		4760788	7.49		4760788
Inorganics										
Total Alkalinity (Total as CaCO3)	mg/L	350	25	4771665	270	25	4771665	160	25	4771665
Dissolved Chloride (Cl)	mg/L	14	1.0	4771667	14	1.0	4771667	74	1.0	4771667
Colour	TCU	<5.0	5.0	4771671	9.0	5.0	4771671	7.5	5.0	4771671
Nitrate + Nitrite (N)	mg/L	0.053	0.050	4771673	0.065	0.050	4771673	0.31	0.050	4771673
Nitrite (N)	mg/L	0.014	0.010	4771674	0.015	0.010	4771674	0.020	0.010	4771674
Nitrogen (Ammonia Nitrogen)	mg/L	0.074	0.050	4771910	0.19	0.050	4771910	0.057	0.050	4771910
Total Organic Carbon (C)	mg/L	2.8	0.50	4771716	6.8	0.50	4771716	3.6	0.50	4771716
Orthophosphate (P)	mg/L	0.017	0.010	4771672	0.016	0.010	4771672	0.024	0.010	4771672
pH	pH	7.41	N/A	4769369	7.70	N/A	4771463	7.18	N/A	4769367
Reactive Silica (SiO2)	mg/L	11	0.50	4771669	16	0.50	4771669	22	0.50	4771669
Dissolved Sulphate (SO4)	mg/L	150	10	4771668	18	2.0	4771668	170	10	4771668
Turbidity	NTU	3.3	0.10	4769434	24	0.10	4771485	65	0.10	4769424
Conductivity	uS/cm	800	1.0	4769370	510	1.0	4771464	800	1.0	4769368

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

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Maxxam Job #: B6P5134
Report Date: 2016/12/01

Dillon Consulting Limited
Client Project #: 4104251070
Site Location: OHP/HE SITE

RESULTS OF ANALYSES OF WATER

Maxxam ID		DMS298			DMS299			DMS300		
Sampling Date		2016/11/23			2016/11/23			2016/11/23		
COC Number		586491			586491			586491		
	UNITS	CONCW-101-MWB	RDL	QC Batch	CODT-105-MW	RDL	QC Batch	SCU11-001-MWB	RDL	QC Batch
Calculated Parameters										
Anion Sum	me/L	5.96	N/A	4761813	8.51	N/A	4761813	3.21	N/A	4761813
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	<1.0	1.0	4762899	220	1.0	4762899	59	1.0	4762899
Calculated TDS	mg/L	420	1.0	4761814	520	1.0	4761814	190	1.0	4761814
Carb. Alkalinity (calc. as CaCO3)	mg/L	<1.0	1.0	4762899	1.7	1.0	4762899	<1.0	1.0	4762899
Cation Sum	me/L	7.19	N/A	4761813	9.06	N/A	4761813	3.46	N/A	4761813
Hardness (CaCO3)	mg/L	240	1.0	4761811	340	1.0	4761811	87	1.0	4761811
Ion Balance (% Difference)	%	9.35	N/A	4761812	3.13	N/A	4761812	3.75	N/A	4761812
Langelier Index (@ 20C)	N/A	NC		4762901	0.811		4762901	-1.04		4762901
Langelier Index (@ 4C)	N/A	NC		4762902	0.563		4762902	-1.29		4762902
Nitrate (N)	mg/L	<0.050	0.050	4762014	0.76	0.050	4762014	1.5	0.050	4762014
Saturation pH (@ 20C)	N/A	NC		4762901	7.10		4762901	8.15		4762901
Saturation pH (@ 4C)	N/A	NC		4762902	7.35		4762902	8.40		4762902
Inorganics										
Total Alkalinity (Total as CaCO3)	mg/L	39	5.0	4771665	220	25	4771665	59	5.0	4771665
Dissolved Chloride (Cl)	mg/L	88	1.0	4771667	36	1.0	4771667	54	1.0	4771667
Colour	TCU	6.3	5.0	4771671	<5.0	5.0	4771671	62	25	4771671
Nitrate + Nitrite (N)	mg/L	<0.050	0.050	4771673	0.98	0.050	4771673	1.5	0.050	4771673
Nitrite (N)	mg/L	0.015	0.010	4771674	0.22	0.010	4771674	0.057	0.010	4771674
Nitrogen (Ammonia Nitrogen)	mg/L	1.0	0.050	4771910	0.080	0.050	4771910	3.8	0.25	4771910
Total Organic Carbon (C)	mg/L	3.1	0.50	4771750	2.9	0.50	4771750	8.1 (1)	5.0	4771750
Orthophosphate (P)	mg/L	0.022	0.010	4771672	0.026	0.010	4771672	0.75	0.050	4771672
pH	pH	11.1 (2)	N/A	4769367	7.91	N/A	4771461	7.11	N/A	4769377
Reactive Silica (SiO2)	mg/L	22	0.50	4771669	14	0.50	4771669	2.8	0.50	4771669
Dissolved Sulphate (SO4)	mg/L	130	10	4771668	140	10	4771668	17	2.0	4771668
Turbidity	NTU	18	0.10	4769424	1.3	0.10	4771485	3.9	0.10	4771483
Conductivity	uS/cm	790	1.0	4769368	750	1.0	4771462	320	1.0	4769378

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

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Maxxam Job #: B6P5134
Report Date: 2016/12/01

Dillon Consulting Limited
Client Project #: 4104251070
Site Location: OHP/HE SITE

RESULTS OF ANALYSES OF WATER

Maxxam ID		DMS309			DMS310		
Sampling Date		2016/11/23			2016/11/23		
COC Number		586491			586491		
	UNITS	SCU11-001-MWA	RDL	QC Batch	FD-019	RDL	QC Batch
Calculated Parameters							
Anion Sum	me/L	12.3	N/A	4761813	8.59	N/A	4761813
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	160	1.0	4762899	230	1.0	4762899
Calculated TDS	mg/L	660	1.0	4761814	520	1.0	4761814
Carb. Alkalinity (calc. as CaCO3)	mg/L	<1.0	1.0	4762899	1.6	1.0	4762899
Cation Sum	me/L	11.2	N/A	4761813	8.98	N/A	4761813
Hardness (CaCO3)	mg/L	430	1.0	4761811	330	1.0	4761811
Ion Balance (% Difference)	%	4.98	N/A	4761812	2.22	N/A	4761812
Langelier Index (@ 20C)	N/A	0.303		4762901	0.781		4762901
Langelier Index (@ 4C)	N/A	0.0560		4762902	0.533		4762902
Nitrate (N)	mg/L	<0.050	0.050	4762014	0.74	0.050	4762014
Saturation pH (@ 20C)	N/A	7.14		4762901	7.09		4762901
Saturation pH (@ 4C)	N/A	7.39		4762902	7.34		4762902
Inorganics							
Total Alkalinity (Total as CaCO3)	mg/L	160	25	4771665	230	25	4771665
Dissolved Chloride (Cl)	mg/L	320	5.0	4771667	36	1.0	4771667
Colour	TCU	8.1	5.0	4771671	<5.0	5.0	4771671
Nitrate + Nitrite (N)	mg/L	<0.050	0.050	4771673	0.97	0.050	4771673
Nitrite (N)	mg/L	0.016	0.010	4771674	0.23	0.010	4771674
Nitrogen (Ammonia Nitrogen)	mg/L	2.7	0.25	4771910	0.095	0.050	4771910
Total Organic Carbon (C)	mg/L	7.1 (1)	5.0	4771750	2.9	0.50	4771750
Orthophosphate (P)	mg/L	0.55	0.050	4771672	0.025	0.010	4771672
pH	pH	7.45	N/A	4769367	7.87	N/A	4771461
Reactive Silica (SiO2)	mg/L	9.0	0.50	4771669	15	0.50	4771669
Dissolved Sulphate (SO4)	mg/L	6.8	2.0	4771668	140	10	4771668
Turbidity	NTU	8.2	0.10	4769424	1.4	0.10	4771485
Conductivity	uS/cm	1300	1.0	4769368	760	1.0	4771462

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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Report Date: 2016/12/01

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MERCURY BY COLD VAPOUR AA (WATER)

Maxxam ID		DMS295	DMS296	DMS297	DMS298	DMS299		
Sampling Date		2016/11/23	2016/11/23	2016/11/23	2016/11/23	2016/11/23		
COC Number		586491	586491	586491	586491	586491		
	UNITS	CONPL-202-MWA	CODT-205-MWA	CODT-203-MW	CONCW-101-MWB	CODT-105-MW	RDL	QC Batch
Metals								
Total Mercury (Hg)	ug/L	<0.013	<0.013	<0.013	0.013	<0.013	0.013	4772120

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam ID		DMS300	DMS309	DMS310		
Sampling Date		2016/11/23	2016/11/23	2016/11/23		
COC Number		586491	586491	586491		
	UNITS	SCU11-001-MWB	SCU11-001-MWA	FD-019	RDL	QC Batch
Metals						
Total Mercury (Hg)	ug/L	<0.013	<0.013	<0.013	0.013	4772120

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Report Date: 2016/12/01

Dillon Consulting Limited
Client Project #: 4104251070
Site Location: OHP/HE SITE

ELEMENTS BY ICP/MS (WATER)

Maxxam ID		DMS295	DMS296	DMS297	DMS298	DMS299		
Sampling Date		2016/11/23	2016/11/23	2016/11/23	2016/11/23	2016/11/23		
COC Number		586491	586491	586491	586491	586491		
	UNITS	CONPL-202-MWA	CODT-205-MWA	CODT-203-MW	CONCW-101-MWB	CODT-105-MW	RDL	QC Batch
Metals								
Dissolved Aluminum (Al)	ug/L	6.0	14	18	170	20	5.0	4769458
Dissolved Antimony (Sb)	ug/L	<1.0	<1.0	<1.0	<1.0	2.5	1.0	4769458
Dissolved Arsenic (As)	ug/L	<1.0	8.0	1.1	8.9	2.2	1.0	4769458
Dissolved Barium (Ba)	ug/L	33	280	67	45	28	1.0	4769458
Dissolved Beryllium (Be)	ug/L	<1.0	<1.0	<1.0	<1.0	<1.0	1.0	4769458
Dissolved Bismuth (Bi)	ug/L	<2.0	<2.0	<2.0	<2.0	<2.0	2.0	4769458
Dissolved Boron (B)	ug/L	<50	54	56	<50	70	50	4769458
Dissolved Cadmium (Cd)	ug/L	0.025	0.011	0.10	<0.010	0.047	0.010	4769458
Dissolved Calcium (Ca)	ug/L	150000	68000	110000	95000	110000	100	4769458
Dissolved Chromium (Cr)	ug/L	<1.0	<1.0	<1.0	<1.0	<1.0	1.0	4769458
Dissolved Cobalt (Co)	ug/L	<0.40	<0.40	<0.40	<0.40	<0.40	0.40	4769458
Dissolved Copper (Cu)	ug/L	<2.0	<2.0	<2.0	<2.0	10	2.0	4769458
Dissolved Iron (Fe)	ug/L	<50	2000	54	<50	<50	50	4769458
Dissolved Lead (Pb)	ug/L	<0.50	<0.50	<0.50	<0.50	0.52	0.50	4769458
Dissolved Magnesium (Mg)	ug/L	23000	9500	6000	<100	17000	100	4769458
Dissolved Manganese (Mn)	ug/L	430	920	390	<2.0	7.6	2.0	4769458
Dissolved Molybdenum (Mo)	ug/L	<2.0	3.1	<2.0	5.0	7.5	2.0	4769458
Dissolved Nickel (Ni)	ug/L	<2.0	<2.0	<2.0	<2.0	<2.0	2.0	4769458
Dissolved Phosphorus (P)	ug/L	<100	<100	<100	<100	<100	100	4769458
Dissolved Potassium (K)	ug/L	1600	4800	3800	5900	21000	100	4769458
Dissolved Selenium (Se)	ug/L	<1.0	<1.0	<1.0	3.9	12	1.0	4769458
Dissolved Silver (Ag)	ug/L	<0.10	<0.10	<0.10	<0.10	<0.10	0.10	4769458
Dissolved Sodium (Na)	ug/L	16000	33000	59000	51000	42000	100	4769458
Dissolved Strontium (Sr)	ug/L	470	3300	340	560	480	2.0	4769458
Dissolved Thallium (Tl)	ug/L	<0.10	<0.10	0.15	<0.10	<0.10	0.10	4769458
Dissolved Tin (Sn)	ug/L	<2.0	<2.0	<2.0	<2.0	<2.0	2.0	4769458
Dissolved Titanium (Ti)	ug/L	<2.0	<2.0	<2.0	<2.0	<2.0	2.0	4769458
Dissolved Uranium (U)	ug/L	2.0	0.79	1.1	<0.10	2.5	0.10	4769458
Dissolved Vanadium (V)	ug/L	<2.0	<2.0	<2.0	<2.0	3.3	2.0	4769458
Dissolved Zinc (Zn)	ug/L	<5.0	35	60	<5.0	68	5.0	4769458

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Report Date: 2016/12/01

Dillon Consulting Limited
Client Project #: 4104251070
Site Location: OHP/HE SITE

ELEMENTS BY ICP/MS (WATER)

Maxxam ID		DMS300	DMS309	DMS310		
Sampling Date		2016/11/23	2016/11/23	2016/11/23		
COC Number		586491	586491	586491		
	UNITS	SCU11-001-MWB	SCU11-001-MWA	FD-019	RDL	QC Batch
Metals						
Dissolved Aluminum (Al)	ug/L	23	8.9	19	5.0	4769458
Dissolved Antimony (Sb)	ug/L	<1.0	<1.0	2.6	1.0	4769458
Dissolved Arsenic (As)	ug/L	<1.0	1.6	2.1	1.0	4769458
Dissolved Barium (Ba)	ug/L	31	280	28	1.0	4769458
Dissolved Beryllium (Be)	ug/L	<1.0	<1.0	<1.0	1.0	4769458
Dissolved Bismuth (Bi)	ug/L	<2.0	<2.0	<2.0	2.0	4769458
Dissolved Boron (B)	ug/L	<50	<50	70	50	4769458
Dissolved Cadmium (Cd)	ug/L	<0.010	0.013	0.044	0.010	4769458
Dissolved Calcium (Ca)	ug/L	29000	140000	110000	100	4769458
Dissolved Chromium (Cr)	ug/L	<1.0	<1.0	<1.0	1.0	4769458
Dissolved Cobalt (Co)	ug/L	<0.40	<0.40	<0.40	0.40	4769458
Dissolved Copper (Cu)	ug/L	<2.0	<2.0	10	2.0	4769458
Dissolved Iron (Fe)	ug/L	330	170	<50	50	4769458
Dissolved Lead (Pb)	ug/L	<0.50	0.59	0.52	0.50	4769458
Dissolved Magnesium (Mg)	ug/L	3300	16000	17000	100	4769458
Dissolved Manganese (Mn)	ug/L	240	680	7.5	2.0	4769458
Dissolved Molybdenum (Mo)	ug/L	<2.0	<2.0	7.5	2.0	4769458
Dissolved Nickel (Ni)	ug/L	<2.0	<2.0	<2.0	2.0	4769458
Dissolved Phosphorus (P)	ug/L	960	780	<100	100	4769458
Dissolved Potassium (K)	ug/L	8900	8000	21000	100	4769458
Dissolved Selenium (Se)	ug/L	<1.0	<1.0	11	1.0	4769458
Dissolved Silver (Ag)	ug/L	<0.10	<0.10	<0.10	0.10	4769458
Dissolved Sodium (Na)	ug/L	28000	51000	41000	100	4769458
Dissolved Strontium (Sr)	ug/L	420	3000	480	2.0	4769458
Dissolved Thallium (Tl)	ug/L	<0.10	<0.10	<0.10	0.10	4769458
Dissolved Tin (Sn)	ug/L	<2.0	<2.0	<2.0	2.0	4769458
Dissolved Titanium (Ti)	ug/L	<2.0	<2.0	<2.0	2.0	4769458
Dissolved Uranium (U)	ug/L	<0.10	0.22	2.5	0.10	4769458
Dissolved Vanadium (V)	ug/L	<2.0	<2.0	3.4	2.0	4769458
Dissolved Zinc (Zn)	ug/L	11	<5.0	69	5.0	4769458

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Maxxam Job #: B6P5134
Report Date: 2016/12/01

Dillon Consulting Limited
Client Project #: 4104251070
Site Location: OHP/HE SITE

SEMI-VOLATILE ORGANICS BY GC-MS (WATER)

Maxxam ID		DMS295	DMS296	DMS297	DMS298	DMS299		
Sampling Date		2016/11/23	2016/11/23	2016/11/23	2016/11/23	2016/11/23		
COC Number		586491	586491	586491	586491	586491		
	UNITS	CONPL-202-MWA	CODT-205-MWA	CODT-203-MW	CONCW-101-MWB	CODT-105-MW	RDL	QC Batch
Polyaromatic Hydrocarbons								
1-Methylnaphthalene	ug/L	<0.050	0.30	0.063	0.091	<0.050	0.050	4769486
2-Methylnaphthalene	ug/L	<0.050	<0.050	0.060	0.073	<0.050	0.050	4769486
Acenaphthene	ug/L	<0.010	0.38	0.37	0.059	0.018	0.010	4769486
Acenaphthylene	ug/L	<0.010	0.60	<0.010	0.052	<0.010	0.010	4769486
Anthracene	ug/L	<0.010	0.033	0.79	0.042	<0.010	0.010	4769486
Benzo(a)anthracene	ug/L	0.021	<0.010	1.7	0.062	<0.010	0.010	4769486
Benzo(a)pyrene	ug/L	0.015	<0.010	1.5	0.045	<0.010	0.010	4769486
Benzo(b)fluoranthene	ug/L	0.011	<0.010	1.1	0.037	<0.010	0.010	4769486
Benzo(g,h,i)perylene	ug/L	<0.010	<0.010	0.65	0.030	<0.010	0.010	4769486
Benzo(j)fluoranthene	ug/L	<0.010	<0.010	0.69	0.023	<0.010	0.010	4769486
Benzo(k)fluoranthene	ug/L	<0.010	<0.010	0.67	0.021	<0.010	0.010	4769486
Chrysene	ug/L	0.018	<0.010	1.6	0.053	<0.010	0.010	4769486
Dibenz(a,h)anthracene	ug/L	<0.010	<0.010	0.23	<0.010	<0.010	0.010	4769486
Fluoranthene	ug/L	0.037	0.043	3.4	0.15	0.047	0.010	4769486
Fluorene	ug/L	<0.010	0.43	0.40	0.078	<0.010	0.010	4769486
Indeno(1,2,3-cd)pyrene	ug/L	<0.010	<0.010	0.64	0.026	<0.010	0.010	4769486
Naphthalene	ug/L	<0.20	<0.20	<0.20	0.55	<0.20	0.20	4769486
Perylene	ug/L	<0.010	<0.010	0.31	0.011	<0.010	0.010	4769486
Phenanthrene	ug/L	0.033	0.10	2.6	0.22	<0.010	0.010	4769486
Pyrene	ug/L	0.028	0.023	2.7	0.11	0.041	0.010	4769486
Surrogate Recovery (%)								
D10-Anthracene	%	77	74	85	99	78		4769486
D14-Terphenyl	%	98	80	93	103	96		4769486
D8-Acenaphthylene	%	77	78	92	102	97		4769486

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Report Date: 2016/12/01

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Client Project #: 4104251070
Site Location: OHP/HE SITE

SEMI-VOLATILE ORGANICS BY GC-MS (WATER)

Maxxam ID		DMS300	DMS309	DMS310	DMS315		
Sampling Date		2016/11/23	2016/11/23	2016/11/23	2016/11/23		
COC Number		586491	586491	586491	586491		
	UNITS	SCU11-001-MWB	SCU11-001-MWA	FD-019	TB-029	RDL	QC Batch
Polyaromatic Hydrocarbons							
1-Methylnaphthalene	ug/L	<0.050	<0.050	<0.050	<0.050	0.050	4769486
2-Methylnaphthalene	ug/L	<0.050	<0.050	<0.050	<0.050	0.050	4769486
Acenaphthene	ug/L	<0.010	<0.010	0.017	<0.010	0.010	4769486
Acenaphthylene	ug/L	<0.010	<0.010	<0.010	<0.010	0.010	4769486
Anthracene	ug/L	<0.010	<0.010	<0.010	<0.010	0.010	4769486
Benzo(a)anthracene	ug/L	<0.010	<0.010	<0.010	<0.010	0.010	4769486
Benzo(a)pyrene	ug/L	<0.010	<0.010	<0.010	<0.010	0.010	4769486
Benzo(b)fluoranthene	ug/L	<0.010	<0.010	<0.010	<0.010	0.010	4769486
Benzo(g,h,i)perylene	ug/L	<0.010	<0.010	<0.010	<0.010	0.010	4769486
Benzo(j)fluoranthene	ug/L	<0.010	<0.010	<0.010	<0.010	0.010	4769486
Benzo(k)fluoranthene	ug/L	<0.010	<0.010	<0.010	<0.010	0.010	4769486
Chrysene	ug/L	<0.010	<0.010	<0.010	<0.010	0.010	4769486
Dibenz(a,h)anthracene	ug/L	<0.010	<0.010	<0.010	<0.010	0.010	4769486
Fluoranthene	ug/L	<0.010	<0.010	0.049	<0.010	0.010	4769486
Fluorene	ug/L	<0.010	<0.010	<0.010	<0.010	0.010	4769486
Indeno(1,2,3-cd)pyrene	ug/L	<0.010	<0.010	<0.010	<0.010	0.010	4769486
Naphthalene	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	4769486
Perylene	ug/L	<0.010	<0.010	<0.010	<0.010	0.010	4769486
Phenanthrene	ug/L	<0.010	0.016	<0.010	<0.010	0.010	4769486
Pyrene	ug/L	<0.010	<0.010	0.042	<0.010	0.010	4769486
Surrogate Recovery (%)							
D10-Anthracene	%	62	76	91	84		4769486
D14-Terphenyl	%	73	85	96	101		4769486
D8-Acenaphthylene	%	73	85	93	102		4769486

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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GENERAL COMMENTS

Sample DMS298 [CONCW-101-MWB] : Poor RCAp Ion Balance due to sample matrix. Possibly due to fine particulate matter.

Results relate only to the items tested.

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Maxxam Job #: B6P5134
Report Date: 2016/12/01

Dillon Consulting Limited
Client Project #: 4104251070
Site Location: OHP/HE SITE

QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
4769367	JMV	QC Standard	pH	2016/11/29		100	%	97 - 103
4769367	JMV	RPD	pH	2016/11/29	1.6		%	N/A
4769368	JMV	Spiked Blank	Conductivity	2016/11/29		102	%	80 - 120
4769368	JMV	Method Blank	Conductivity	2016/11/29	1.3, RDL=1.0		uS/cm	
4769368	JMV	RPD	Conductivity	2016/11/29	0.71		%	25
4769369	JMV	QC Standard	pH	2016/11/29		100	%	97 - 103
4769369	JMV	RPD	pH	2016/11/29	0.080		%	N/A
4769370	JMV	Spiked Blank	Conductivity	2016/11/29		100	%	80 - 120
4769370	JMV	Method Blank	Conductivity	2016/11/29	1.6, RDL=1.0		uS/cm	
4769370	JMV	RPD	Conductivity	2016/11/29	0.33		%	25
4769377	JMV	QC Standard	pH	2016/11/29		100	%	97 - 103
4769377	JMV	RPD	pH	2016/11/29	0.49		%	N/A
4769378	JMV	Spiked Blank	Conductivity	2016/11/29		100	%	80 - 120
4769378	JMV	Method Blank	Conductivity	2016/11/29	1.5, RDL=1.0		uS/cm	
4769378	JMV	RPD	Conductivity	2016/11/29	2.1		%	25
4769424	JMV	QC Standard	Turbidity	2016/11/29		97	%	80 - 120
4769424	JMV	Spiked Blank	Turbidity	2016/11/29		95	%	80 - 120
4769424	JMV	Method Blank	Turbidity	2016/11/29	<0.10		NTU	
4769424	JMV	RPD	Turbidity	2016/11/29	43 (1)		%	20
4769434	JMV	QC Standard	Turbidity	2016/11/29		97	%	80 - 120
4769434	JMV	Spiked Blank	Turbidity	2016/11/29		95	%	80 - 120
4769434	JMV	Method Blank	Turbidity	2016/11/29	<0.10		NTU	
4769434	JMV	RPD	Turbidity	2016/11/29	0.43		%	20
4769458	MLB	Matrix Spike	Dissolved Aluminum (Al)	2016/11/29		104	%	80 - 120
			Dissolved Antimony (Sb)	2016/11/29		104	%	80 - 120
			Dissolved Arsenic (As)	2016/11/29		NC	%	80 - 120
			Dissolved Barium (Ba)	2016/11/29		NC	%	80 - 120
			Dissolved Beryllium (Be)	2016/11/29		99	%	80 - 120
			Dissolved Bismuth (Bi)	2016/11/29		99	%	80 - 120
			Dissolved Boron (B)	2016/11/29		100	%	80 - 120
			Dissolved Cadmium (Cd)	2016/11/29		102	%	80 - 120
			Dissolved Calcium (Ca)	2016/11/29		NC	%	80 - 120
			Dissolved Chromium (Cr)	2016/11/29		99	%	80 - 120
			Dissolved Cobalt (Co)	2016/11/29		97	%	80 - 120
			Dissolved Copper (Cu)	2016/11/29		100	%	80 - 120
			Dissolved Iron (Fe)	2016/11/29		NC	%	80 - 120
			Dissolved Lead (Pb)	2016/11/29		99	%	80 - 120
			Dissolved Magnesium (Mg)	2016/11/29		NC	%	80 - 120
			Dissolved Manganese (Mn)	2016/11/29		NC	%	80 - 120
			Dissolved Molybdenum (Mo)	2016/11/29		104	%	80 - 120
			Dissolved Nickel (Ni)	2016/11/29		99	%	80 - 120
			Dissolved Phosphorus (P)	2016/11/29		106	%	80 - 120
			Dissolved Potassium (K)	2016/11/29		NC	%	80 - 120
			Dissolved Selenium (Se)	2016/11/29		98	%	80 - 120
			Dissolved Silver (Ag)	2016/11/29		85	%	80 - 120
			Dissolved Sodium (Na)	2016/11/29		NC	%	80 - 120
			Dissolved Strontium (Sr)	2016/11/29		NC	%	80 - 120
			Dissolved Thallium (Tl)	2016/11/29		101	%	80 - 120
			Dissolved Tin (Sn)	2016/11/29		104	%	80 - 120
			Dissolved Titanium (Ti)	2016/11/29		105	%	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 Uranium (U)	2016/11/29		104	%	80 - 120
			Dissolved Vanadium (V)	2016/11/29		99	%	80 - 120
			Dissolved Zinc (Zn)	2016/11/29		99	%	80 - 120
4769458	MLB	Spiked Blank	Dissolved Aluminum (Al)	2016/11/29		105	%	80 - 120
			Dissolved Antimony (Sb)	2016/11/29		100	%	80 - 120
			Dissolved Arsenic (As)	2016/11/29		96	%	80 - 120
			Dissolved Barium (Ba)	2016/11/29		96	%	80 - 120
			Dissolved Beryllium (Be)	2016/11/29		95	%	80 - 120
			Dissolved Bismuth (Bi)	2016/11/29		102	%	80 - 120
			Dissolved Boron (B)	2016/11/29		98	%	80 - 120
			Dissolved Cadmium (Cd)	2016/11/29		101	%	80 - 120
			Dissolved Calcium (Ca)	2016/11/29		100	%	80 - 120
			Dissolved Chromium (Cr)	2016/11/29		97	%	80 - 120
			Dissolved Cobalt (Co)	2016/11/29		98	%	80 - 120
			Dissolved Copper (Cu)	2016/11/29		100	%	80 - 120
			Dissolved Iron (Fe)	2016/11/29		100	%	80 - 120
			Dissolved Lead (Pb)	2016/11/29		99	%	80 - 120
			Dissolved Magnesium (Mg)	2016/11/29		103	%	80 - 120
			Dissolved Manganese (Mn)	2016/11/29		100	%	80 - 120
			Dissolved Molybdenum (Mo)	2016/11/29		103	%	80 - 120
			Dissolved Nickel (Ni)	2016/11/29		100	%	80 - 120
			Dissolved Phosphorus (P)	2016/11/29		103	%	80 - 120
			Dissolved Potassium (K)	2016/11/29		104	%	80 - 120
			Dissolved Selenium (Se)	2016/11/29		96	%	80 - 120
			Dissolved Silver (Ag)	2016/11/29		95	%	80 - 120
			Dissolved Sodium (Na)	2016/11/29		100	%	80 - 120
			Dissolved Strontium (Sr)	2016/11/29		98	%	80 - 120
			Dissolved Thallium (Tl)	2016/11/29		101	%	80 - 120
			Dissolved Tin (Sn)	2016/11/29		99	%	80 - 120
			Dissolved Titanium (Ti)	2016/11/29		101	%	80 - 120
			Dissolved Uranium (U)	2016/11/29		103	%	80 - 120
			Dissolved Vanadium (V)	2016/11/29		98	%	80 - 120
			Dissolved Zinc (Zn)	2016/11/29		99	%	80 - 120
4769458	MLB	Method Blank	Dissolved Aluminum (Al)	2016/11/29	<5.0		ug/L	
			Dissolved Antimony (Sb)	2016/11/29	<1.0		ug/L	
			Dissolved Arsenic (As)	2016/11/29	<1.0		ug/L	
			Dissolved Barium (Ba)	2016/11/29	<1.0		ug/L	
			Dissolved Beryllium (Be)	2016/11/29	<1.0		ug/L	
			Dissolved Bismuth (Bi)	2016/11/29	<2.0		ug/L	
			Dissolved Boron (B)	2016/11/29	<50		ug/L	
			Dissolved Cadmium (Cd)	2016/11/29	<0.010		ug/L	
			Dissolved Calcium (Ca)	2016/11/29	<100		ug/L	
			Dissolved Chromium (Cr)	2016/11/29	<1.0		ug/L	
			Dissolved Cobalt (Co)	2016/11/29	<0.40		ug/L	
			Dissolved Copper (Cu)	2016/11/29	<2.0		ug/L	
			Dissolved Iron (Fe)	2016/11/29	<50		ug/L	
			Dissolved Lead (Pb)	2016/11/29	<0.50		ug/L	
			Dissolved Magnesium (Mg)	2016/11/29	<100		ug/L	
			Dissolved Manganese (Mn)	2016/11/29	<2.0		ug/L	
			Dissolved Molybdenum (Mo)	2016/11/29	<2.0		ug/L	
			Dissolved Nickel (Ni)	2016/11/29	<2.0		ug/L	
			Dissolved Phosphorus (P)	2016/11/29	<100		ug/L	
			Dissolved Potassium (K)	2016/11/29	<100		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 Selenium (Se)	2016/11/29	<1.0		ug/L	
			Dissolved Silver (Ag)	2016/11/29	<0.10		ug/L	
			Dissolved Sodium (Na)	2016/11/29	<100		ug/L	
			Dissolved Strontium (Sr)	2016/11/29	<2.0		ug/L	
			Dissolved Thallium (Tl)	2016/11/29	<0.10		ug/L	
			Dissolved Tin (Sn)	2016/11/29	<2.0		ug/L	
			Dissolved Titanium (Ti)	2016/11/29	<2.0		ug/L	
			Dissolved Uranium (U)	2016/11/29	<0.10		ug/L	
			Dissolved Vanadium (V)	2016/11/29	<2.0		ug/L	
			Dissolved Zinc (Zn)	2016/11/29	<5.0		ug/L	
4769458	MLB	RPD	Dissolved Arsenic (As)	2016/11/29	0.81		%	20
			Dissolved Calcium (Ca)	2016/11/29	0.025		%	20
			Dissolved Copper (Cu)	2016/11/29	NC		%	20
			Dissolved Iron (Fe)	2016/11/29	0.22		%	20
			Dissolved Magnesium (Mg)	2016/11/29	1.2		%	20
			Dissolved Manganese (Mn)	2016/11/29	0.18		%	20
			Dissolved Potassium (K)	2016/11/29	0.43		%	20
			Dissolved Sodium (Na)	2016/11/29	0.17		%	20
			Dissolved Zinc (Zn)	2016/11/29	NC		%	20
4769486	GTH	Matrix Spike [DMS296-01]	D10-Anthracene	2016/11/30		69	%	30 - 130
			D14-Terphenyl	2016/11/30		83	%	30 - 130
			D8-Acenaphthylene	2016/11/30		83	%	30 - 130
			1-Methylnaphthalene	2016/11/30		93	%	30 - 130
			2-Methylnaphthalene	2016/11/30		93	%	30 - 130
			Acenaphthene	2016/11/30		84	%	30 - 130
			Acenaphthylene	2016/11/30		NC	%	30 - 130
			Anthracene	2016/11/30		79	%	30 - 130
			Benzo(a)anthracene	2016/11/30		87	%	30 - 130
			Benzo(a)pyrene	2016/11/30		82	%	30 - 130
			Benzo(b)fluoranthene	2016/11/30		86	%	30 - 130
			Benzo(g,h,i)perylene	2016/11/30		91	%	30 - 130
			Benzo(j)fluoranthene	2016/11/30		77	%	30 - 130
			Benzo(k)fluoranthene	2016/11/30		79	%	30 - 130
			Chrysene	2016/11/30		80	%	30 - 130
			Dibenz(a,h)anthracene	2016/11/30		85	%	30 - 130
			Fluoranthene	2016/11/30		79	%	30 - 130
			Fluorene	2016/11/30		84	%	30 - 130
			Indeno(1,2,3-cd)pyrene	2016/11/30		87	%	30 - 130
			Naphthalene	2016/11/30		84	%	30 - 130
			Perylene	2016/11/30		79	%	30 - 130
			Phenanthrene	2016/11/30		86	%	30 - 130
			Pyrene	2016/11/30		77	%	30 - 130
4769486	GTH	Spiked Blank	D10-Anthracene	2016/11/30		80	%	30 - 130
			D14-Terphenyl	2016/11/30		95	%	30 - 130
			D8-Acenaphthylene	2016/11/30		86	%	30 - 130
			1-Methylnaphthalene	2016/11/30		99	%	30 - 130
			2-Methylnaphthalene	2016/11/30		103	%	30 - 130
			Acenaphthene	2016/11/30		103	%	30 - 130
			Acenaphthylene	2016/11/30		88	%	30 - 130
			Anthracene	2016/11/30		87	%	30 - 130
			Benzo(a)anthracene	2016/11/30		88	%	30 - 130
			Benzo(a)pyrene	2016/11/30		86	%	30 - 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	2016/11/30		86	%	30 - 130
			Benzo(g,h,i)perylene	2016/11/30		98	%	30 - 130
			Benzo(j)fluoranthene	2016/11/30		80	%	30 - 130
			Benzo(k)fluoranthene	2016/11/30		86	%	30 - 130
			Chrysene	2016/11/30		79	%	30 - 130
			Dibenz(a,h)anthracene	2016/11/30		86	%	30 - 130
			Fluoranthene	2016/11/30		90	%	30 - 130
			Fluorene	2016/11/30		95	%	30 - 130
			Indeno(1,2,3-cd)pyrene	2016/11/30		91	%	30 - 130
			Naphthalene	2016/11/30		98	%	30 - 130
			Perylene	2016/11/30		85	%	30 - 130
			Phenanthrene	2016/11/30		91	%	30 - 130
			Pyrene	2016/11/30		88	%	30 - 130
4769486	GTH	Method Blank	D10-Anthracene	2016/11/30		103	%	30 - 130
			D14-Terphenyl	2016/11/30		122	%	30 - 130
			D8-Acenaphthylene	2016/11/30		103	%	30 - 130
			1-Methylnaphthalene	2016/11/30	<0.050		ug/L	
			2-Methylnaphthalene	2016/11/30	<0.050		ug/L	
			Acenaphthene	2016/11/30	<0.010		ug/L	
			Acenaphthylene	2016/11/30	<0.010		ug/L	
			Anthracene	2016/11/30	<0.010		ug/L	
			Benzo(a)anthracene	2016/11/30	<0.010		ug/L	
			Benzo(a)pyrene	2016/11/30	<0.010		ug/L	
			Benzo(b)fluoranthene	2016/11/30	<0.010		ug/L	
			Benzo(g,h,i)perylene	2016/11/30	<0.010		ug/L	
			Benzo(j)fluoranthene	2016/11/30	<0.010		ug/L	
			Benzo(k)fluoranthene	2016/11/30	<0.010		ug/L	
			Chrysene	2016/11/30	<0.010		ug/L	
			Dibenz(a,h)anthracene	2016/11/30	<0.010		ug/L	
			Fluoranthene	2016/11/30	<0.010		ug/L	
			Fluorene	2016/11/30	<0.010		ug/L	
			Indeno(1,2,3-cd)pyrene	2016/11/30	<0.010		ug/L	
			Naphthalene	2016/11/30	<0.20		ug/L	
			Perylene	2016/11/30	<0.010		ug/L	
			Phenanthrene	2016/11/30	<0.010		ug/L	
			Pyrene	2016/11/30	<0.010		ug/L	
4769486	GTH	RPD [DMS295-01]	1-Methylnaphthalene	2016/11/30	NC		%	40
			2-Methylnaphthalene	2016/11/30	NC		%	40
			Acenaphthene	2016/11/30	NC		%	40
			Acenaphthylene	2016/11/30	NC		%	40
			Anthracene	2016/11/30	NC		%	40
			Benzo(a)anthracene	2016/11/30	NC		%	40
			Benzo(a)pyrene	2016/11/30	NC		%	40
			Benzo(b)fluoranthene	2016/11/30	NC		%	40
			Benzo(g,h,i)perylene	2016/11/30	NC		%	40
			Benzo(j)fluoranthene	2016/11/30	NC		%	40
			Benzo(k)fluoranthene	2016/11/30	NC		%	40
			Chrysene	2016/11/30	NC		%	40
			Dibenz(a,h)anthracene	2016/11/30	NC		%	40
			Fluoranthene	2016/11/30	NC		%	40
			Fluorene	2016/11/30	NC		%	40
			Indeno(1,2,3-cd)pyrene	2016/11/30	NC		%	40
			Naphthalene	2016/11/30	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
			Perylene	2016/11/30	NC		%	40
			Phenanthrene	2016/11/30	NC		%	40
			Pyrene	2016/11/30	NC		%	40
4771461	JMV	QC Standard	pH	2016/11/30		100	%	97 - 103
4771461	JMV	RPD	pH	2016/11/30	0.49		%	N/A
4771462	JMV	Spiked Blank	Conductivity	2016/11/30		103	%	80 - 120
4771462	JMV	Method Blank	Conductivity	2016/11/30	1.5, RDL=1.0		uS/cm	
4771462	JMV	RPD	Conductivity	2016/11/30	1.3		%	25
4771463	JMV	QC Standard	pH	2016/11/30		100	%	97 - 103
4771463	JMV	RPD	pH	2016/11/30	0.47		%	N/A
4771464	JMV	Spiked Blank	Conductivity	2016/11/30		103	%	80 - 120
4771464	JMV	Method Blank	Conductivity	2016/11/30	1.7, RDL=1.0		uS/cm	
4771464	JMV	RPD	Conductivity	2016/11/30	0.51		%	25
4771483	JMV	QC Standard	Turbidity	2016/11/30		97	%	80 - 120
4771483	JMV	Spiked Blank	Turbidity	2016/11/30		94	%	80 - 120
4771483	JMV	Method Blank	Turbidity	2016/11/30	<0.10		NTU	
4771483	JMV	RPD	Turbidity	2016/11/30	8.7		%	20
4771485	JMV	QC Standard	Turbidity	2016/11/30		97	%	80 - 120
4771485	JMV	Spiked Blank	Turbidity	2016/11/30		94	%	80 - 120
4771485	JMV	Method Blank	Turbidity	2016/11/30	<0.10		NTU	
4771485	JMV	RPD	Turbidity	2016/11/30	5.8		%	20
4771665	NRG	Matrix Spike	Total Alkalinity (Total as CaCO3)	2016/12/01		107	%	80 - 120
4771665	NRG	Spiked Blank	Total Alkalinity (Total as CaCO3)	2016/11/30		113	%	80 - 120
4771665	NRG	Method Blank	Total Alkalinity (Total as CaCO3)	2016/11/30	<5.0		mg/L	
4771665	NRG	RPD	Total Alkalinity (Total as CaCO3)	2016/12/01	NC		%	25
4771667	NRG	Matrix Spike	Dissolved Chloride (Cl)	2016/12/01		101	%	80 - 120
4771667	NRG	QC Standard	Dissolved Chloride (Cl)	2016/12/01		106	%	80 - 120
4771667	NRG	Spiked Blank	Dissolved Chloride (Cl)	2016/12/01		102	%	80 - 120
4771667	NRG	Method Blank	Dissolved Chloride (Cl)	2016/12/01	<1.0		mg/L	
4771667	NRG	RPD	Dissolved Chloride (Cl)	2016/12/01	2.3		%	25
4771668	MCN	Matrix Spike	Dissolved Sulphate (SO4)	2016/11/30		104	%	80 - 120
4771668	MCN	Spiked Blank	Dissolved Sulphate (SO4)	2016/11/30		100	%	80 - 120
4771668	MCN	Method Blank	Dissolved Sulphate (SO4)	2016/11/30	<2.0		mg/L	
4771668	MCN	RPD	Dissolved Sulphate (SO4)	2016/11/30	NC		%	25
4771669	NRG	Matrix Spike	Reactive Silica (SiO2)	2016/11/30		96	%	80 - 120
4771669	NRG	Spiked Blank	Reactive Silica (SiO2)	2016/11/30		100	%	80 - 120
4771669	NRG	Method Blank	Reactive Silica (SiO2)	2016/11/30	<0.50		mg/L	
4771671	NRG	Spiked Blank	Colour	2016/11/30		96	%	80 - 120
4771671	NRG	Method Blank	Colour	2016/11/30	<5.0		TCU	
4771671	NRG	RPD	Colour	2016/11/30	NC		%	20
4771672	NRG	Matrix Spike	Orthophosphate (P)	2016/11/30		90	%	80 - 120
4771672	NRG	Spiked Blank	Orthophosphate (P)	2016/11/30		97	%	80 - 120
4771672	NRG	Method Blank	Orthophosphate (P)	2016/11/30	<0.010		mg/L	
4771673	NRG	Matrix Spike	Nitrate + Nitrite (N)	2016/12/01		95	%	80 - 120
4771673	NRG	Spiked Blank	Nitrate + Nitrite (N)	2016/12/01		95	%	80 - 120
4771673	NRG	Method Blank	Nitrate + Nitrite (N)	2016/12/01	<0.050		mg/L	
4771674	NRG	Matrix Spike	Nitrite (N)	2016/12/01		88	%	80 - 120
4771674	NRG	Spiked Blank	Nitrite (N)	2016/12/01		93	%	80 - 120
4771674	NRG	Method Blank	Nitrite (N)	2016/12/01	<0.010		mg/L	
4771674	NRG	RPD	Nitrite (N)	2016/12/01	NC		%	25
4771716	SMT	Matrix Spike	Total Organic Carbon (C)	2016/11/30		NC	%	80 - 120

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Maxxam Job #: B6P5134
Report Date: 2016/12/01

Dillon Consulting Limited
Client Project #: 4104251070
Site Location: OHP/HE SITE

QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
4771716	SMT	Spiked Blank	Total Organic Carbon (C)	2016/11/30		102	%	80 - 120
4771716	SMT	Method Blank	Total Organic Carbon (C)	2016/11/30	<0.50		mg/L	
4771716	SMT	RPD	Total Organic Carbon (C)	2016/11/30	0.56		%	20
4771750	SMT	Matrix Spike	Total Organic Carbon (C)	2016/11/30		99	%	80 - 120
4771750	SMT	Spiked Blank	Total Organic Carbon (C)	2016/11/30		102	%	80 - 120
4771750	SMT	Method Blank	Total Organic Carbon (C)	2016/11/30	<0.50		mg/L	
4771750	SMT	RPD	Total Organic Carbon (C)	2016/11/30	0.071		%	20
4771910	NRG	Matrix Spike [DMS295-04]	Nitrogen (Ammonia Nitrogen)	2016/11/30		98	%	80 - 120
4771910	NRG	Spiked Blank	Nitrogen (Ammonia Nitrogen)	2016/11/30		101	%	80 - 120
4771910	NRG	Method Blank	Nitrogen (Ammonia Nitrogen)	2016/11/30	<0.050		mg/L	
4771910	NRG	RPD [DMS295-04]	Nitrogen (Ammonia Nitrogen)	2016/11/30	NC		%	20
4772120	ARS	Matrix Spike	Total Mercury (Hg)	2016/12/01		98	%	80 - 120
4772120	ARS	Spiked Blank	Total Mercury (Hg)	2016/12/01		99	%	80 - 120
4772120	ARS	Method Blank	Total Mercury (Hg)	2016/12/01	<0.013		ug/L	
4772120	ARS	RPD	Total Mercury (Hg)	2016/12/01	NC		%	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 spiked amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than 2x that of 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 (one or both samples < 5x RDL).

(1) Insufficient sample volume for repeat analysis.

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Maxxam Job #: B6P5134
Report Date: 2016/12/01

Dillon Consulting Limited
Client Project #: 4104251070
Site Location: OHP/HE SITE

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)

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Your Project #: 4104251070
Site Location: OHP/HE SITE
Your C.O.C. #: 586491

Attention:Nadine Wambolt

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

Report Date: 2016/12/06
Report #: R4276765
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B6P8249
Received: 2016/11/25, 16:35

Sample Matrix: Water
Samples Received: 12

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Reference
Carbonate, Bicarbonate and Hydroxide (1)	11	N/A	2016/12/01	N/A	SM 22 4500-CO2 D
Alkalinity (1)	9	N/A	2016/12/05	ATL SOP 00013	EPA 310.2 R1974 m
Alkalinity (1)	2	N/A	2016/12/06	ATL SOP 00013	EPA 310.2 R1974 m
Chloride (1)	11	N/A	2016/12/05	ATL SOP 00014	SM 22 4500-Cl- E m
Colour (1)	11	N/A	2016/12/05	ATL SOP 00020	SM 22 2120C m
Conductance - water (1)	11	N/A	2016/12/01	ATL SOP 00004	SM 22 2510B m
Hardness (calculated as CaCO3) (1)	11	N/A	2016/12/02	ATL SOP 00048	SM 22 2340 B
Mercury - Total (CVAA,LL) (1)	11	2016/12/01	2016/12/02	ATL SOP 00026	EPA 245.1 R3 m
Metals Water Diss. MS (as rec'd) (1)	6	N/A	2016/12/01	ATL SOP 00058	EPA 6020A R1 m
Metals Water Diss. MS (as rec'd) (1)	5	N/A	2016/12/02	ATL SOP 00058	EPA 6020A R1 m
Ion Balance (% Difference) (1)	11	N/A	2016/12/06	N/A	Auto Calc.
Anion and Cation Sum (1)	11	N/A	2016/12/02	N/A	Auto Calc.
Nitrogen Ammonia - water (1)	8	N/A	2016/12/01	ATL SOP 00015	EPA 350.1 R2 m
Nitrogen Ammonia - water (1)	3	N/A	2016/12/02	ATL SOP 00015	EPA 350.1 R2 m
Nitrogen - Nitrate + Nitrite (1)	11	N/A	2016/12/06	ATL SOP 00016	USGS SOPINCF0452.2 m
Nitrogen - Nitrite (1)	11	N/A	2016/12/05	ATL SOP 00017	SM 22 4500-NO2- B m
Nitrogen - Nitrate (as N) (1)	11	N/A	2016/12/06	ATL SOP 00018	ASTM D3867-16
PAH in Water by GC/MS (SIM) (1)	2	2016/12/01	2016/12/04	ATL SOP 00103	EPA 8270D 2007 m
PAH in Water by GC/MS (SIM) (1)	1	2016/12/05	2016/12/05	ATL SOP 00103	EPA 8270D 2007 m
PAH in Water by GC/MS (SIM) (1)	9	2016/12/05	2016/12/06	ATL SOP 00103	EPA 8270D 2007 m
pH (1, 2)	11	N/A	2016/12/01	ATL SOP 00003	SM 22 4500-H+ B m
Phosphorus - ortho (1)	11	N/A	2016/12/05	ATL SOP 00021	EPA 365.2 m
Sat. pH and Langelier Index (@ 20C) (1)	11	N/A	2016/12/06	ATL SOP 00049	Auto Calc.
Sat. pH and Langelier Index (@ 4C) (1)	11	N/A	2016/12/06	ATL SOP 00049	Auto Calc.
Reactive Silica (1)	11	N/A	2016/12/05	ATL SOP 00022	EPA 366.0 m
Sulphate (1)	11	N/A	2016/12/05	ATL SOP 00023	ASTMD516-11 m
Total Dissolved Solids (TDS calc) (1)	11	N/A	2016/12/06	N/A	Auto Calc.
Organic carbon - Total (TOC) (1, 3)	11	N/A	2016/12/02	ATL SOP 00037	SM 22 5310C m
Turbidity (1)	11	N/A	2016/12/01	ATL SOP 00011	EPA 180.1 R2 m

Remarks:

Your Project #: 4104251070
Site Location: OHP/HE SITE
Your C.O.C. #: 586491

Attention:Nadine Wambolt

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

Report Date: 2016/12/06
Report #: R4276765
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B6P8249
Received: 2016/11/25, 16:35

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.

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.

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.

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.
Candace Hillier, Cl Svc - Sydney
Email: chillier@maxxam.ca
Phone# (902) 567 1255

==========

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 #: B6P8249
Report Date: 2016/12/06

Dillon Consulting Limited
Client Project #: 4104251070
Site Location: OHP/HE SITE

RESULTS OF ANALYSES OF WATER

Maxxam ID		DNH802			DNH803		DNH804		
Sampling Date		2016/11/25			2016/11/25		2016/11/25		
COC Number		586491			586491		586491		
	UNITS	MCES-001-MWB	RDL	QC Batch	MCES-001-MWA	RDL	MSES-104-MWA	RDL	QC Batch
Calculated Parameters									
Anion Sum	me/L	328	N/A	4767877	11.4	N/A	25.2	N/A	4767877
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	1200	1.0	4767873	<1.0	1.0	35	1.0	4767873
Calculated TDS	mg/L	19000	1.0	4767882	730	1.0	1700	1.0	4767882
Carb. Alkalinity (calc. as CaCO3)	mg/L	3.1	1.0	4767873	<1.0	1.0	<1.0	1.0	4767873
Cation Sum	me/L	363	N/A	4767877	14.4	N/A	27.4	N/A	4767877
Hardness (CaCO3)	mg/L	4400	1.0	4769543	610	1.0	1300	1.0	4769543
Ion Balance (% Difference)	%	5.07	N/A	4767876	11.8	N/A	4.18	N/A	4767876
Langelier Index (@ 20C)	N/A	1.30		4767880	NC		0.0870		4767880
Langelier Index (@ 4C)	N/A	1.07		4767881	NC		-0.157		4767881
Nitrate (N)	mg/L	<0.050	0.050	4769546	<0.050	0.050	<0.050	0.050	4769546
Saturation pH (@ 20C)	N/A	6.11		4767880	NC		7.42		4767880
Saturation pH (@ 4C)	N/A	6.35		4767881	NC		7.66		4767881
Inorganics									
Total Alkalinity (Total as CaCO3)	mg/L	1200	75	4775684	280	25	35	5.0	4775684
Dissolved Chloride (Cl)	mg/L	11000	120	4775694	60	1.0	55	1.0	4775694
Colour	TCU	39	5.0	4775697	<5.0	5.0	<5.0	5.0	4775697
Nitrate + Nitrite (N)	mg/L	<0.050	0.050	4775699	0.39	0.050	<0.050	0.050	4775699
Nitrite (N)	mg/L	<0.010	0.010	4775701	0.47	0.010	<0.010	0.010	4775701
Nitrogen (Ammonia Nitrogen)	mg/L	36	2.5	4774153	1.1	0.050	0.55	0.050	4774153
Total Organic Carbon (C)	mg/L	20 (1)	5.0	4775875	<5.0 (1)	5.0	1.7	0.50	4775875
Orthophosphate (P)	mg/L	0.040	0.010	4775698	<0.010	0.010	0.013	0.010	4775698
pH	pH	7.42	N/A	4773478	11.9 (2)	N/A	7.50	N/A	4773478
Reactive Silica (SiO2)	mg/L	28	1.0	4775696	2.8	0.50	3.4	0.50	4775696
Dissolved Sulphate (SO4)	mg/L	<2.0	2.0	4775695	190	10	1100	100	4775695
Turbidity	NTU	140	1.0	4773494	10	0.10	13	0.10	4773492
Conductivity	uS/cm	32000	1.0	4773480	1900	1.0	2000	1.0	4773480

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

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Maxxam Job #: B6P8249
Report Date: 2016/12/06

Dillon Consulting Limited
Client Project #: 4104251070
Site Location: OHP/HE SITE

RESULTS OF ANALYSES OF WATER

Maxxam ID		DNH805			DNH806			DNH807		
Sampling Date		2016/11/25			2016/11/25			2016/11/25		
COC Number		586491			586491			586491		
	UNITS	MSES-104-MWB	RDL	QC Batch	COBC-004-MWA	RDL	QC Batch	MSES-008-MW	RDL	QC Batch
Calculated Parameters										
Anion Sum	me/L	37.2	N/A	4767877	9.13	N/A	4767877	30.6	N/A	4767877
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	570	1.0	4767873	130	1.0	4767873	210	1.0	4767873
Calculated TDS	mg/L	2300	1.0	4767882	570	1.0	4767882	2000	1.0	4767882
Carb. Alkalinity (calc. as CaCO3)	mg/L	<1.0	1.0	4767873	<1.0	1.0	4767873	<1.0	1.0	4767873
Cation Sum	me/L	37.9	N/A	4767877	8.86	N/A	4767877	30.5	N/A	4767877
Hardness (CaCO3)	mg/L	1500	1.0	4769543	360	1.0	4769543	1300	1.0	4769543
Ion Balance (% Difference)	%	0.930	N/A	4767876	1.50	N/A	4767876	0.150	N/A	4767876
Langelier Index (@ 20C)	N/A	0.622		4767880	0.519		4767880	0.417		4767880
Langelier Index (@ 4C)	N/A	0.379		4767881	0.272		4767881	0.174		4767881
Nitrate (N)	mg/L	<0.050	0.050	4769546	0.53	0.050	4769546	<0.050	0.050	4769546
Saturation pH (@ 20C)	N/A	6.34		4767880	7.30		4767880	6.67		4767880
Saturation pH (@ 4C)	N/A	6.59		4767881	7.54		4767881	6.92		4767881
Inorganics										
Total Alkalinity (Total as CaCO3)	mg/L	570	50	4775684	130	25	4775684	210	25	4775684
Dissolved Chloride (Cl)	mg/L	75	1.0	4775694	54	1.0	4775694	210	2.0	4775694
Colour	TCU	9.1	5.0	4775697	<5.0	5.0	4775697	<5.0	5.0	4775697
Nitrate + Nitrite (N)	mg/L	<0.050	0.050	4775699	0.53	0.050	4775699	<0.050	0.050	4775699
Nitrite (N)	mg/L	<0.010	0.010	4775701	<0.010	0.010	4775701	<0.010	0.010	4775701
Nitrogen (Ammonia Nitrogen)	mg/L	0.54	0.050	4774153	0.069	0.050	4774153	0.099	0.050	4774153
Total Organic Carbon (C)	mg/L	5.3 (1)	5.0	4775875	1.5	0.50	4775875	1.5	0.50	4775875
Orthophosphate (P)	mg/L	0.013	0.010	4775698	0.19	0.010	4775698	0.020	0.010	4775698
pH	pH	6.96	N/A	4773478	7.81	N/A	4773476	7.09	N/A	4773476
Reactive Silica (SiO2)	mg/L	11	0.50	4775696	21	0.50	4775696	29	1.0	4775696
Dissolved Sulphate (SO4)	mg/L	1100	100	4775695	240	40	4775695	990	60	4775695
Turbidity	NTU	33	0.10	4773493	8.0	0.10	4773492	150	1.0	4773493
Conductivity	uS/cm	2700	1.0	4773480	780	1.0	4773477	2400	1.0	4773477

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 #: B6P8249
Report Date: 2016/12/06

Dillon Consulting Limited
Client Project #: 4104251070
Site Location: OHP/HE SITE

RESULTS OF ANALYSES OF WATER

Maxxam ID		DNH808		DNH811			DNH812		
Sampling Date		2016/11/25		2016/11/25			2016/11/25		
COC Number		586491		586491			586491		
	UNITS	MSES-004-MW	RDL	MSES-006-MW	RDL	QC Batch	MCES-204-MW	RDL	QC Batch
Calculated Parameters									
Anion Sum	me/L	16.8	N/A	44.5	N/A	4767877	187	N/A	4767877
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	140	1.0	350	1.0	4767873	28	1.0	4767873
Calculated TDS	mg/L	1100	1.0	2900	1.0	4767882	12000	1.0	4767882
Carb. Alkalinity (calc. as CaCO3)	mg/L	<1.0	1.0	<1.0	1.0	4767873	1.4	1.0	4767873
Cation Sum	me/L	17.2	N/A	46.3	N/A	4767877	211	N/A	4767877
Hardness (CaCO3)	mg/L	830	1.0	2000	1.0	4769543	2200	1.0	4769543
Ion Balance (% Difference)	%	1.00	N/A	1.92	N/A	4767876	6.16	N/A	4767876
Langelier Index (@ 20C)	N/A	-0.444		0.327		4767880	1.02		4767880
Langelier Index (@ 4C)	N/A	-0.690		0.0850		4767881	0.784		4767881
Nitrate (N)	mg/L	<0.050	0.050	<0.050	0.050	4769546	<0.050	0.050	4769546
Saturation pH (@ 20C)	N/A	7.01		6.48		4767880	7.69		4767880
Saturation pH (@ 4C)	N/A	7.26		6.73		4767881	7.93		4767881
Inorganics									
Total Alkalinity (Total as CaCO3)	mg/L	140	25	350	25	4775684	30	5.0	4775684
Dissolved Chloride (Cl)	mg/L	17	1.0	99	1.0	4775694	5800	100	4775694
Colour	TCU	13	5.0	<5.0	5.0	4775697	<5.0	5.0	4775697
Nitrate + Nitrite (N)	mg/L	<0.050	0.050	<0.050	0.050	4775699	<0.050	0.050	4775699
Nitrite (N)	mg/L	<0.010	0.010	<0.010	0.010	4775701	<0.010	0.010	4775701
Nitrogen (Ammonia Nitrogen)	mg/L	0.21	0.050	0.22	0.050	4774155	3.4	0.25	4774155
Total Organic Carbon (C)	mg/L	2.3	0.50	2.6	0.50	4775875	1.3	0.50	4775875
Orthophosphate (P)	mg/L	<0.010	0.010	0.013	0.010	4775698	0.013	0.010	4775698
pH	pH	6.57	N/A	6.81	N/A	4773478	8.71	N/A	4773481
Reactive Silica (SiO2)	mg/L	4.9	0.50	13	0.50	4775696	<0.50	0.50	4775696
Dissolved Sulphate (SO4)	mg/L	650	60	1700	100	4775695	1100	60	4775695
Turbidity	NTU	15	0.10	9.1	0.10	4773493	0.22	0.10	4773493
Conductivity	uS/cm	1300	1.0	3200	1.0	4773480	20000	1.0	4773482

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

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Maxxam Job #: B6P8249
Report Date: 2016/12/06

Dillon Consulting Limited
Client Project #: 4104251070
Site Location: OHP/HE SITE

RESULTS OF ANALYSES OF WATER

Maxxam ID		DNH813			DNH814		
Sampling Date		2016/11/25			2016/11/25		
COC Number		586491			586491		
	UNITS	FD-020	RDL	QC Batch	FD-021	RDL	QC Batch
Calculated Parameters							
Anion Sum	me/L	199	N/A	4767877	31.0	N/A	4769545
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	27	1.0	4767873	200	1.0	4769542
Calculated TDS	mg/L	12000	1.0	4767882	2000	1.0	4769549
Carb. Alkalinity (calc. as CaCO3)	mg/L	2.0	1.0	4767873	<1.0	1.0	4769542
Cation Sum	me/L	213	N/A	4767877	30.5	N/A	4769545
Hardness (CaCO3)	mg/L	2200	1.0	4769543	1300	1.0	4769543
Ion Balance (% Difference)	%	3.34	N/A	4767876	0.780	N/A	4769544
Langelier Index (@ 20C)	N/A	1.18		4767880	0.424		4769547
Langelier Index (@ 4C)	N/A	0.940		4767881	0.181		4769548
Nitrate (N)	mg/L	<0.050	0.050	4769546	0.074	0.050	4769546
Saturation pH (@ 20C)	N/A	7.71		4767880	6.68		4769547
Saturation pH (@ 4C)	N/A	7.95		4767881	6.93		4769548
Inorganics							
Total Alkalinity (Total as CaCO3)	mg/L	29	5.0	4775684	200	25	4775684
Dissolved Chloride (Cl)	mg/L	6200	100	4775694	200	5.0	4775694
Colour	TCU	<5.0	5.0	4775697	<5.0	5.0	4775697
Nitrate + Nitrite (N)	mg/L	<0.050	0.050	4775699	0.074	0.050	4775699
Nitrite (N)	mg/L	<0.010	0.010	4775701	<0.010	0.010	4775701
Nitrogen (Ammonia Nitrogen)	mg/L	3.4	0.25	4774155	0.088	0.050	4774155
Total Organic Carbon (C)	mg/L	53 (1)	25	4775875	1.6	0.50	4775875
Orthophosphate (P)	mg/L	0.012	0.010	4775698	0.020	0.010	4775698
pH	pH	8.89	N/A	4773478	7.11	N/A	4773476
Reactive Silica (SiO2)	mg/L	<0.50	0.50	4775696	28	1.0	4775696
Dissolved Sulphate (SO4)	mg/L	1100	60	4775695	1000	60	4775695
Turbidity	NTU	0.15	0.10	4773493	180	1.0	4773492
Conductivity	uS/cm	20000	1.0	4773480	2400	1.0	4773477

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 #: B6P8249
Report Date: 2016/12/06

Dillon Consulting Limited
Client Project #: 4104251070
Site Location: OHP/HE SITE

MERCURY BY COLD VAPOUR AA (WATER)

Maxxam ID		DNH802	DNH803		DNH804	DNH805		
Sampling Date		2016/11/25	2016/11/25		2016/11/25	2016/11/25		
COC Number		586491	586491		586491	586491		
	UNITS	MCES-001-MWB	MCES-001-MWA	QC Batch	MSES-104-MWA	MSES-104-MWB	RDL	QC Batch
Metals								
Total Mercury (Hg)	ug/L	<0.013	<0.013	4774216	<0.013	<0.013	0.013	4774218

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam ID		DNH806	DNH807	DNH808	DNH811		DNH812		
Sampling Date		2016/11/25	2016/11/25	2016/11/25	2016/11/25		2016/11/25		
COC Number		586491	586491	586491	586491		586491		
	UNITS	COBC-004-MWA	MSES-008-MW	MSES-004-MW	MSES-006-MW	RDL	MCES-204-MW	RDL	QC Batch
Metals									
Total Mercury (Hg)	ug/L	<0.013	<0.013	<0.013	<0.013	0.013	<0.13 (1)	0.13	4774218

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
(1) Elevated RDL due to sample matrix.

Maxxam ID		DNH813		DNH814		
Sampling Date		2016/11/25		2016/11/25		
COC Number		586491		586491		
	UNITS	FD-020	RDL	FD-021	RDL	QC Batch
Metals						
Total Mercury (Hg)	ug/L	<0.13 (1)	0.13	<0.013	0.013	4774218

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
(1) Elevated RDL due to sample matrix.

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Maxxam Job #: B6P8249
Report Date: 2016/12/06

Dillon Consulting Limited
Client Project #: 4104251070
Site Location: OHP/HE SITE

ELEMENTS BY ICP/MS (WATER)

Maxxam ID		DNH802		DNH803	DNH804		DNH805		
Sampling Date		2016/11/25		2016/11/25	2016/11/25		2016/11/25		
COC Number		586491		586491	586491		586491		
	UNITS	MCES-001-MWB	RDL	MCES-001-MWA	MSES-104-MWA	RDL	MSES-104-MWB	RDL	QC Batch
Metals									
Dissolved Aluminum (Al)	ug/L	<50	50	79	33	5.0	42	5.0	4773486
Dissolved Antimony (Sb)	ug/L	<10	10	<1.0	<1.0	1.0	<1.0	1.0	4773486
Dissolved Arsenic (As)	ug/L	<10	10	<1.0	1.4	1.0	7.2	1.0	4773486
Dissolved Barium (Ba)	ug/L	7200	10	160	17	1.0	18	1.0	4773486
Dissolved Beryllium (Be)	ug/L	<10	10	<1.0	<1.0	1.0	<1.0	1.0	4773486
Dissolved Bismuth (Bi)	ug/L	<20	20	<2.0	<2.0	2.0	<2.0	2.0	4773486
Dissolved Boron (B)	ug/L	3700	500	<50	<50	50	210	50	4773486
Dissolved Cadmium (Cd)	ug/L	<0.10	0.10	<0.010	0.64	0.010	0.046	0.010	4773486
Dissolved Calcium (Ca)	ug/L	480000	1000	250000	470000	100	380000	100	4773486
Dissolved Chromium (Cr)	ug/L	<10	10	2.6	<1.0	1.0	<1.0	1.0	4773486
Dissolved Cobalt (Co)	ug/L	<4.0	4.0	<0.40	<0.40	0.40	2.4	0.40	4773486
Dissolved Copper (Cu)	ug/L	<20	20	4.3	<2.0	2.0	<2.0	2.0	4773486
Dissolved Iron (Fe)	ug/L	10000	500	<50	300	50	3500	50	4773486
Dissolved Lead (Pb)	ug/L	<5.0	5.0	5.1	<0.50	0.50	9.6	0.50	4773486
Dissolved Magnesium (Mg)	ug/L	790000	1000	<100	31000	100	140000	1000	4773486
Dissolved Manganese (Mn)	ug/L	1300	20	<2.0	100	2.0	37000	2.0	4773486
Dissolved Molybdenum (Mo)	ug/L	<20	20	9.3	6.3	2.0	<2.0	2.0	4773486
Dissolved Nickel (Ni)	ug/L	<20	20	<2.0	<2.0	2.0	12	2.0	4773486
Dissolved Phosphorus (P)	ug/L	<1000	1000	<100	<100	100	<100	100	4773486
Dissolved Potassium (K)	ug/L	150000	1000	19000	9300	100	14000	100	4773486
Dissolved Selenium (Se)	ug/L	<10	10	1.9	<1.0	1.0	<1.0	1.0	4773486
Dissolved Silver (Ag)	ug/L	<1.0	1.0	<0.10	<0.10	0.10	<0.10	0.10	4773486
Dissolved Sodium (Na)	ug/L	6200000	1000	36000	28000	100	160000	100	4773486
Dissolved Strontium (Sr)	ug/L	54000	200	1300	520	2.0	1600	2.0	4773486
Dissolved Thallium (Tl)	ug/L	<1.0	1.0	<0.10	<0.10	0.10	<0.10	0.10	4773486
Dissolved Tin (Sn)	ug/L	<20	20	<2.0	<2.0	2.0	<2.0	2.0	4773486
Dissolved Titanium (Ti)	ug/L	<20	20	<2.0	<2.0	2.0	<2.0	2.0	4773486
Dissolved Uranium (U)	ug/L	1.3	1.0	<0.10	<0.10	0.10	2.0	0.10	4773486
Dissolved Vanadium (V)	ug/L	<20	20	18	<2.0	2.0	<2.0	2.0	4773486
Dissolved Zinc (Zn)	ug/L	<50	50	<5.0	<5.0	5.0	<5.0	5.0	4773486

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B6P8249
Report Date: 2016/12/06

Dillon Consulting Limited
Client Project #: 4104251070
Site Location: OHP/HE SITE

ELEMENTS BY ICP/MS (WATER)

Maxxam ID		DNH806	DNH807	DNH808		DNH811		
Sampling Date		2016/11/25	2016/11/25	2016/11/25		2016/11/25		
COC Number		586491	586491	586491		586491		
	UNITS	COBC-004-MWA	MSES-008-MW	MSES-004-MW	RDL	MSES-006-MW	RDL	QC Batch
Metals								
Dissolved Aluminum (Al)	ug/L	9.4	6.2	61	5.0	<5.0	5.0	4773486
Dissolved Antimony (Sb)	ug/L	2.5	<1.0	<1.0	1.0	<1.0	1.0	4773486
Dissolved Arsenic (As)	ug/L	4.6	12	2.5	1.0	2.2	1.0	4773486
Dissolved Barium (Ba)	ug/L	41	8.7	8.6	1.0	13	1.0	4773486
Dissolved Beryllium (Be)	ug/L	<1.0	<1.0	<1.0	1.0	<1.0	1.0	4773486
Dissolved Bismuth (Bi)	ug/L	<2.0	<2.0	<2.0	2.0	<2.0	2.0	4773486
Dissolved Boron (B)	ug/L	80	66	81	50	330	50	4773486
Dissolved Cadmium (Cd)	ug/L	0.023	0.013	0.14	0.010	0.012	0.010	4773486
Dissolved Calcium (Ca)	ug/L	120000	450000	260000	100	470000	100	4773486
Dissolved Chromium (Cr)	ug/L	<1.0	<1.0	<1.0	1.0	<1.0	1.0	4773486
Dissolved Cobalt (Co)	ug/L	<0.40	<0.40	0.50	0.40	4.6	0.40	4773486
Dissolved Copper (Cu)	ug/L	6.6	<2.0	<2.0	2.0	<2.0	2.0	4773486
Dissolved Iron (Fe)	ug/L	<50	12000	1700	50	1900	50	4773486
Dissolved Lead (Pb)	ug/L	<0.50	<0.50	<0.50	0.50	<0.50	0.50	4773486
Dissolved Magnesium (Mg)	ug/L	18000	32000	44000	100	210000	1000	4773486
Dissolved Manganese (Mn)	ug/L	35	1000	1100	2.0	54000	20	4773486
Dissolved Molybdenum (Mo)	ug/L	3.8	3.0	<2.0	2.0	<2.0	2.0	4773486
Dissolved Nickel (Ni)	ug/L	<2.0	<2.0	<2.0	2.0	13	2.0	4773486
Dissolved Phosphorus (P)	ug/L	200	<100	<100	100	<100	100	4773486
Dissolved Potassium (K)	ug/L	4100	5400	2200	100	13000	100	4773486
Dissolved Selenium (Se)	ug/L	1.7	<1.0	<1.0	1.0	<1.0	1.0	4773486
Dissolved Silver (Ag)	ug/L	<0.10	<0.10	<0.10	0.10	<0.10	0.10	4773486
Dissolved Sodium (Na)	ug/L	34000	110000	12000	100	130000	100	4773486
Dissolved Strontium (Sr)	ug/L	400	600	280	2.0	3600	2.0	4773486
Dissolved Thallium (Tl)	ug/L	<0.10	<0.10	<0.10	0.10	<0.10	0.10	4773486
Dissolved Tin (Sn)	ug/L	<2.0	<2.0	<2.0	2.0	<2.0	2.0	4773486
Dissolved Titanium (Ti)	ug/L	<2.0	<2.0	<2.0	2.0	<2.0	2.0	4773486
Dissolved Uranium (U)	ug/L	0.59	0.74	0.16	0.10	4.4	0.10	4773486
Dissolved Vanadium (V)	ug/L	13	<2.0	<2.0	2.0	<2.0	2.0	4773486
Dissolved Zinc (Zn)	ug/L	41	110	140	5.0	250	5.0	4773486

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B6P8249
Report Date: 2016/12/06

Dillon Consulting Limited
Client Project #: 4104251070
Site Location: OHP/HE SITE

ELEMENTS BY ICP/MS (WATER)

Maxxam ID		DNH812	DNH813		DNH814		
Sampling Date		2016/11/25	2016/11/25		2016/11/25		
COC Number		586491	586491		586491		
	UNITS	MCES-204-MW	FD-020	RDL	FD-021	RDL	QC Batch
Metals							
Dissolved Aluminum (Al)	ug/L	<50	<50	50	6.8	5.0	4773486
Dissolved Antimony (Sb)	ug/L	<10	<10	10	<1.0	1.0	4773486
Dissolved Arsenic (As)	ug/L	<10	<10	10	11	1.0	4773486
Dissolved Barium (Ba)	ug/L	61	64	10	8.6	1.0	4773486
Dissolved Beryllium (Be)	ug/L	<10	<10	10	<1.0	1.0	4773486
Dissolved Bismuth (Bi)	ug/L	<20	<20	20	<2.0	2.0	4773486
Dissolved Boron (B)	ug/L	1200	1100	500	67	50	4773486
Dissolved Cadmium (Cd)	ug/L	<0.10	<0.10	0.10	0.027	0.010	4773486
Dissolved Calcium (Ca)	ug/L	560000	560000	1000	460000	100	4773486
Dissolved Chromium (Cr)	ug/L	<10	<10	10	<1.0	1.0	4773486
Dissolved Cobalt (Co)	ug/L	<4.0	<4.0	4.0	<0.40	0.40	4773486
Dissolved Copper (Cu)	ug/L	<20	<20	20	<2.0	2.0	4773486
Dissolved Iron (Fe)	ug/L	<500	<500	500	11000	50	4773486
Dissolved Lead (Pb)	ug/L	<5.0	<5.0	5.0	<0.50	0.50	4773486
Dissolved Magnesium (Mg)	ug/L	200000	200000	1000	31000	100	4773486
Dissolved Manganese (Mn)	ug/L	<20	<20	20	990	2.0	4773486
Dissolved Molybdenum (Mo)	ug/L	<20	<20	20	3.0	2.0	4773486
Dissolved Nickel (Ni)	ug/L	<20	<20	20	<2.0	2.0	4773486
Dissolved Phosphorus (P)	ug/L	<1000	<1000	1000	<100	100	4773486
Dissolved Potassium (K)	ug/L	180000	180000	1000	5400	100	4773486
Dissolved Selenium (Se)	ug/L	86	48	10	<1.0	1.0	4773486
Dissolved Silver (Ag)	ug/L	<1.0	<1.0	1.0	<0.10	0.10	4773486
Dissolved Sodium (Na)	ug/L	3700000	3700000	1000	110000	100	4773486
Dissolved Strontium (Sr)	ug/L	4800	4700	20	600	2.0	4773486
Dissolved Thallium (Tl)	ug/L	<1.0	<1.0	1.0	<0.10	0.10	4773486
Dissolved Tin (Sn)	ug/L	<20	<20	20	<2.0	2.0	4773486
Dissolved Titanium (Ti)	ug/L	<20	<20	20	<2.0	2.0	4773486
Dissolved Uranium (U)	ug/L	<1.0	<1.0	1.0	0.74	0.10	4773486
Dissolved Vanadium (V)	ug/L	<20	<20	20	<2.0	2.0	4773486
Dissolved Zinc (Zn)	ug/L	<50	<50	50	100	5.0	4773486

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B6P8249
Report Date: 2016/12/06

Dillon Consulting Limited
Client Project #: 4104251070
Site Location: OHP/HE SITE

SEMI-VOLATILE ORGANICS BY GC-MS (WATER)

Maxxam ID		DNH802	DNH803	DNH804		DNH804		
Sampling Date		2016/11/25	2016/11/25	2016/11/25		2016/11/25		
COC Number		586491	586491	586491		586491		
	UNITS	MCES-001-MWB	MCES-001-MWA	MSES-104-MWA	QC Batch	MSES-104-MWA REPEAT	RDL	QC Batch
Polyaromatic Hydrocarbons								
1-Methylnaphthalene	ug/L	<0.050	0.18	1.1	4773724	0.99	0.050	4778280
2-Methylnaphthalene	ug/L	<0.050	0.050	0.35	4773724	0.32	0.050	4778280
Acenaphthene	ug/L	<0.010	0.059	6.8	4773724	6.7	0.010	4778280
Acenaphthylene	ug/L	<0.010	0.098	6.2	4773724	6.4	0.010	4778280
Anthracene	ug/L	<0.010	0.019	0.55	4773724	0.41	0.010	4778280
Benzo(a)anthracene	ug/L	<0.010	0.021	0.26	4773724	0.26	0.010	4778280
Benzo(a)pyrene	ug/L	<0.010	<0.010	0.12	4773724	0.12	0.010	4778280
Benzo(b)fluoranthene	ug/L	<0.010	<0.010	0.085	4773724	0.081	0.010	4778280
Benzo(g,h,i)perylene	ug/L	<0.010	<0.010	0.055	4773724	0.051	0.010	4778280
Benzo(j)fluoranthene	ug/L	<0.010	<0.010	0.057	4773724	0.053	0.010	4778280
Benzo(k)fluoranthene	ug/L	<0.010	<0.010	0.054	4773724	0.053	0.010	4778280
Chrysene	ug/L	<0.010	0.025	0.23	4773724	0.23	0.010	4778280
Dibenz(a,h)anthracene	ug/L	<0.010	<0.010	0.018	4773724	0.018	0.010	4778280
Fluoranthene	ug/L	<0.010	0.13	3.1	4773724	2.8	0.010	4778280
Fluorene	ug/L	<0.010	0.10	1.3	4773724	1.2	0.010	4778280
Indeno(1,2,3-cd)pyrene	ug/L	<0.010	<0.010	0.051	4773724	0.053	0.010	4778280
Naphthalene	ug/L	<0.20	<0.20	6.5	4773724	6.0	0.20	4778280
Perylene	ug/L	<0.010	<0.010	0.023	4773724	0.024	0.010	4778280
Phenanthrene	ug/L	<0.010	0.040	0.44	4773724	0.44	0.010	4778280
Pyrene	ug/L	<0.010	0.16	1.9	4773724	1.8	0.010	4778280
Surrogate Recovery (%)								
D10-Anthracene	%	92	70	80	4773724	70		4778280
D14-Terphenyl	%	85	86	103	4773724	106		4778280
D8-Acenaphthylene	%	98	79	99	4773724	129		4778280

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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SEMI-VOLATILE ORGANICS BY GC-MS (WATER)

Maxxam ID		DNH805		DNH805			DNH806		
Sampling Date		2016/11/25		2016/11/25			2016/11/25		
COC Number		586491		586491			586491		
	UNITS	MSES-104-MWB	QC Batch	MSES-104-MWB REPEAT	RDL	QC Batch	COBC-004-MWA	RDL	QC Batch
Polyaromatic Hydrocarbons									
1-Methylnaphthalene	ug/L	64 (1)	4773724	66 (1)	0.50	4778280	<0.050	0.050	4773724
2-Methylnaphthalene	ug/L	0.080	4773724	0.079	0.050	4778280	<0.050	0.050	4773724
Acenaphthene	ug/L	25	4773724	24	0.010	4778280	<0.010	0.010	4773724
Acenaphthylene	ug/L	39	4773724	45 (1)	0.10	4778280	0.011	0.010	4773724
Anthracene	ug/L	1.4	4773724	1.1	0.010	4778280	<0.010	0.010	4773724
Benzo(a)anthracene	ug/L	0.034	4773724	0.032	0.010	4778280	<0.010	0.010	4773724
Benzo(a)pyrene	ug/L	<0.010	4773724	<0.010	0.010	4778280	<0.010	0.010	4773724
Benzo(b)fluoranthene	ug/L	<0.010	4773724	<0.010	0.010	4778280	<0.010	0.010	4773724
Benzo(g,h,i)perylene	ug/L	<0.010	4773724	<0.010	0.010	4778280	<0.010	0.010	4773724
Benzo(j)fluoranthene	ug/L	<0.010	4773724	<0.010	0.010	4778280	<0.010	0.010	4773724
Benzo(k)fluoranthene	ug/L	<0.010	4773724	<0.010	0.010	4778280	<0.010	0.010	4773724
Chrysene	ug/L	0.024	4773724	0.018	0.010	4778280	<0.010	0.010	4773724
Dibenz(a,h)anthracene	ug/L	<0.010	4773724	<0.010	0.010	4778280	<0.010	0.010	4773724
Fluoranthene	ug/L	0.80	4773724	0.71	0.010	4778280	0.012	0.010	4773724
Fluorene	ug/L	18	4773724	17	0.010	4778280	0.010	0.010	4773724
Indeno(1,2,3-cd)pyrene	ug/L	<0.010	4773724	<0.010	0.010	4778280	<0.010	0.010	4773724
Naphthalene	ug/L	12	4773724	11	0.20	4778280	<0.20	0.20	4773724
Perylene	ug/L	<0.010	4773724	<0.010	0.010	4778280	<0.010	0.010	4773724
Phenanthrene	ug/L	2.9	4773724	3.0	0.010	4778280	<0.010	0.010	4773724
Pyrene	ug/L	0.45	4773724	0.39	0.010	4778280	0.011	0.010	4773724
Surrogate Recovery (%)									
D10-Anthracene	%	111	4773724	91		4778280	87		4773724
D14-Terphenyl	%	110	4773724	100		4778280	101		4773724
D8-Acenaphthylene	%	112	4773724	130		4778280	87		4773724

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

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SEMI-VOLATILE ORGANICS BY GC-MS (WATER)

Maxxam ID		DNH806		DNH807		DNH807		
Sampling Date		2016/11/25		2016/11/25		2016/11/25		
COC Number		586491		586491		586491		
	UNITS	COBC-004-MWA REPEAT	QC Batch	MSES-008-MW	QC Batch	MSES-008-MW REPEAT	RDL	QC Batch
Polyaromatic Hydrocarbons								
1-Methylnaphthalene	ug/L	<0.050	4778280	0.40	4773724	0.39	0.050	4778280
2-Methylnaphthalene	ug/L	<0.050	4778280	<0.050	4773724	<0.050	0.050	4778280
Acenaphthene	ug/L	<0.010	4778280	1.4	4773724	1.4	0.010	4778280
Acenaphthylene	ug/L	<0.010	4778280	1.7	4773724	1.7	0.010	4778280
Anthracene	ug/L	<0.010	4778280	0.15	4773724	0.13	0.010	4778280
Benzo(a)anthracene	ug/L	<0.010	4778280	0.054	4773724	0.049	0.010	4778280
Benzo(a)pyrene	ug/L	<0.010	4778280	<0.010	4773724	<0.010	0.010	4778280
Benzo(b)fluoranthene	ug/L	<0.010	4778280	<0.010	4773724	<0.010	0.010	4778280
Benzo(g,h,i)perylene	ug/L	<0.010	4778280	<0.010	4773724	<0.010	0.010	4778280
Benzo(j)fluoranthene	ug/L	<0.010	4778280	<0.010	4773724	<0.010	0.010	4778280
Benzo(k)fluoranthene	ug/L	<0.010	4778280	<0.010	4773724	<0.010	0.010	4778280
Chrysene	ug/L	<0.010	4778280	0.045	4773724	0.036	0.010	4778280
Dibenz(a,h)anthracene	ug/L	<0.010	4778280	<0.010	4773724	<0.010	0.010	4778280
Fluoranthene	ug/L	0.011	4778280	1.0	4773724	0.96	0.010	4778280
Fluorene	ug/L	<0.010	4778280	3.1	4773724	3.1	0.010	4778280
Indeno(1,2,3-cd)pyrene	ug/L	<0.010	4778280	<0.010	4773724	<0.010	0.010	4778280
Naphthalene	ug/L	<0.20	4778280	<0.20	4773724	<0.20	0.20	4778280
Perylene	ug/L	<0.010	4778280	<0.010	4773724	<0.010	0.010	4778280
Phenanthrene	ug/L	<0.010	4778280	0.84	4773724	0.68	0.010	4778280
Pyrene	ug/L	<0.010	4778280	0.79	4773724	0.70	0.010	4778280
Surrogate Recovery (%)								
D10-Anthracene	%	78	4778280	84	4773724	68		4778280
D14-Terphenyl	%	105	4778280	99	4773724	99		4778280
D8-Acenaphthylene	%	133 (1)	4778280	91	4773724	124		4778280

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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SEMI-VOLATILE ORGANICS BY GC-MS (WATER)

Maxxam ID		DNH808		DNH808		DNH811		
Sampling Date		2016/11/25		2016/11/25		2016/11/25		
COC Number		586491		586491		586491		
	UNITS	MSES-004-MW	QC Batch	MSES-004-MW REPEAT	QC Batch	MSES-006-MW	RDL	QC Batch
Polyaromatic Hydrocarbons								
1-Methylnaphthalene	ug/L	<0.050	4773724	<0.050	4778280	0.21	0.050	4773724
2-Methylnaphthalene	ug/L	<0.050	4773724	<0.050	4778280	<0.050	0.050	4773724
Acenaphthene	ug/L	<0.010	4773724	<0.010	4778280	0.66	0.010	4773724
Acenaphthylene	ug/L	<0.010	4773724	<0.010	4778280	0.94	0.010	4773724
Anthracene	ug/L	<0.010	4773724	<0.010	4778280	<0.010	0.010	4773724
Benzo(a)anthracene	ug/L	<0.010	4773724	<0.010	4778280	<0.010	0.010	4773724
Benzo(a)pyrene	ug/L	<0.010	4773724	<0.010	4778280	<0.010	0.010	4773724
Benzo(b)fluoranthene	ug/L	<0.010	4773724	<0.010	4778280	<0.010	0.010	4773724
Benzo(g,h,i)perylene	ug/L	<0.010	4773724	<0.010	4778280	<0.010	0.010	4773724
Benzo(j)fluoranthene	ug/L	<0.010	4773724	<0.010	4778280	<0.010	0.010	4773724
Benzo(k)fluoranthene	ug/L	<0.010	4773724	<0.010	4778280	<0.010	0.010	4773724
Chrysene	ug/L	<0.010	4773724	<0.010	4778280	<0.010	0.010	4773724
Dibenz(a,h)anthracene	ug/L	<0.010	4773724	<0.010	4778280	<0.010	0.010	4773724
Fluoranthene	ug/L	0.011	4773724	0.012	4778280	0.035	0.010	4773724
Fluorene	ug/L	<0.010	4773724	<0.010	4778280	0.16	0.010	4773724
Indeno(1,2,3-cd)pyrene	ug/L	<0.010	4773724	<0.010	4778280	<0.010	0.010	4773724
Naphthalene	ug/L	<0.20	4773724	<0.20	4778280	<0.20	0.20	4773724
Perylene	ug/L	<0.010	4773724	<0.010	4778280	<0.010	0.010	4773724
Phenanthrene	ug/L	<0.010	4773724	<0.010	4778280	<0.010	0.010	4773724
Pyrene	ug/L	<0.010	4773724	<0.010	4778280	0.020	0.010	4773724
Surrogate Recovery (%)								
D10-Anthracene	%	89	4773724	79	4778280	85		4773724
D14-Terphenyl	%	106	4773724	110	4778280	103		4773724
D8-Acenaphthylene	%	91	4773724	129	4778280	101		4773724

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B6P8249
Report Date: 2016/12/06

Dillon Consulting Limited
Client Project #: 4104251070
Site Location: OHP/HE SITE

SEMI-VOLATILE ORGANICS BY GC-MS (WATER)

Maxxam ID		DNH811			DNH812		DNH812		
Sampling Date		2016/11/25			2016/11/25		2016/11/25		
COC Number		586491			586491		586491		
	UNITS	MSES-006-MW REPEAT	RDL	QC Batch	MCES-204-MW	QC Batch	MCES-204-MW REPEAT	RDL	QC Batch
Polyaromatic Hydrocarbons									
1-Methylnaphthalene	ug/L	0.20	0.050	4778280	4.8	4773724	4.9	0.050	4778280
2-Methylnaphthalene	ug/L	<0.050	0.050	4778280	7.3	4773724	7.4	0.050	4778280
Acenaphthene	ug/L	0.65	0.010	4778280	1.6	4773724	1.7	0.010	4778280
Acenaphthylene	ug/L	0.96	0.010	4778280	1.7	4773724	1.8	0.010	4778280
Anthracene	ug/L	<0.010	0.010	4778280	2.5	4773724	2.0	0.010	4778280
Benzo(a)anthracene	ug/L	<0.010	0.010	4778280	0.12	4773724	0.12	0.010	4778280
Benzo(a)pyrene	ug/L	<0.010	0.010	4778280	0.021	4773724	0.016	0.010	4778280
Benzo(b)fluoranthene	ug/L	<0.010	0.010	4778280	0.018	4773724	0.014	0.010	4778280
Benzo(g,h,i)perylene	ug/L	<0.010	0.010	4778280	<0.010	4773724	<0.010	0.010	4778280
Benzo(j)fluoranthene	ug/L	<0.010	0.010	4778280	0.014	4773724	0.011	0.010	4778280
Benzo(k)fluoranthene	ug/L	<0.010	0.010	4778280	0.012	4773724	<0.010	0.010	4778280
Chrysene	ug/L	<0.010	0.010	4778280	0.12	4773724	0.12	0.010	4778280
Dibenz(a,h)anthracene	ug/L	<0.010	0.010	4778280	<0.010	4773724	<0.010	0.010	4778280
Fluoranthene	ug/L	0.031	0.010	4778280	2.4	4773724	2.4	0.010	4778280
Fluorene	ug/L	0.16	0.010	4778280	4.2	4773724	4.4	0.010	4778280
Indeno(1,2,3-cd)pyrene	ug/L	<0.010	0.010	4778280	<0.010	4773724	<0.010	0.010	4778280
Naphthalene	ug/L	<0.20	0.20	4778280	47 (1)	4773724	49 (1)	2.0	4778280
Perylene	ug/L	<0.010	0.010	4778280	<0.010	4773724	<0.010	0.010	4778280
Phenanthrene	ug/L	<0.010	0.010	4778280	8.2	4773724	6.3	0.010	4778280
Pyrene	ug/L	0.020	0.010	4778280	1.5	4773724	1.4	0.010	4778280
Surrogate Recovery (%)									
D10-Anthracene	%	93		4778280	93	4773724	91		4778280
D14-Terphenyl	%	107		4778280	97	4773724	107		4778280
D8-Acenaphthylene	%	125		4778280	97	4773724	130		4778280

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

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Maxxam Job #: B6P8249
Report Date: 2016/12/06

Dillon Consulting Limited
Client Project #: 4104251070
Site Location: OHP/HE SITE

SEMI-VOLATILE ORGANICS BY GC-MS (WATER)

Maxxam ID		DNH813		DNH813			DNH814		DNH814		
Sampling Date		2016/11/25		2016/11/25			2016/11/25		2016/11/25		
COC Number		586491		586491			586491		586491		
	UNITS	FD-020	QC Batch	FD-020 REPEAT	RDL	QC Batch	FD-021	QC Batch	FD-021 REPEAT	RDL	QC Batch
Polyaromatic Hydrocarbons											
1-Methylnaphthalene	ug/L	4.8	4773724	4.1	0.050	4778280	0.42	4773724	0.45	0.050	4778280
2-Methylnaphthalene	ug/L	7.2	4773724	6.2	0.050	4778280	<0.050	4773724	<0.050	0.050	4778280
Acenaphthene	ug/L	1.6	4773724	1.4	0.010	4778280	1.4	4773724	1.6	0.010	4778280
Acenaphthylene	ug/L	1.7	4773724	1.6	0.010	4778280	1.8	4773724	2.0	0.010	4778280
Anthracene	ug/L	2.7	4773724	1.8	0.010	4778280	0.16	4773724	0.15	0.010	4778280
Benzo(a)anthracene	ug/L	0.14	4773724	0.11	0.010	4778280	0.049	4773724	0.063	0.010	4778280
Benzo(a)pyrene	ug/L	0.022	4773724	0.013	0.010	4778280	<0.010	4773724	<0.010	0.010	4778280
Benzo(b)fluoranthene	ug/L	0.015	4773724	0.012	0.010	4778280	<0.010	4773724	<0.010	0.010	4778280
Benzo(g,h,i)perylene	ug/L	<0.010	4773724	<0.010	0.010	4778280	<0.010	4773724	<0.010	0.010	4778280
Benzo(j)fluoranthene	ug/L	0.015	4773724	<0.010	0.010	4778280	<0.010	4773724	<0.010	0.010	4778280
Benzo(k)fluoranthene	ug/L	0.010	4773724	<0.010	0.010	4778280	<0.010	4773724	<0.010	0.010	4778280
Chrysene	ug/L	0.14	4773724	0.099	0.010	4778280	0.040	4773724	0.047	0.010	4778280
Dibenz(a,h)anthracene	ug/L	<0.010	4773724	<0.010	0.010	4778280	<0.010	4773724	<0.010	0.010	4778280
Fluoranthene	ug/L	2.9	4773724	2.1	0.010	4778280	1.0	4773724	1.3	0.010	4778280
Fluorene	ug/L	4.2	4773724	3.7	0.010	4778280	3.1	4773724	3.6	0.010	4778280
Indeno(1,2,3-cd)pyrene	ug/L	<0.010	4773724	<0.010	0.010	4778280	<0.010	4773724	<0.010	0.010	4778280
Naphthalene	ug/L	46 (1)	4773724	43 (1)	2.0	4778280	<0.20	4773724	<0.20	0.20	4778280
Perylene	ug/L	<0.010	4773724	<0.010	0.010	4778280	<0.010	4773724	<0.010	0.010	4778280
Phenanthrene	ug/L	9.5	4773724	7.1	0.010	4778280	0.80	4773724	0.88	0.010	4778280
Pyrene	ug/L	1.7	4773724	1.2	0.010	4778280	0.77	4773724	0.92	0.010	4778280
Surrogate Recovery (%)											
D10-Anthracene	%	93	4773724	78		4778280	93	4773724	119		4778280
D14-Terphenyl	%	115	4773724	94		4778280	102	4773724	133 (2)		4778280
D8-Acenaphthylene	%	95	4773724	109		4778280	96	4773724	153 (2)		4778280

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

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SEMI-VOLATILE ORGANICS BY GC-MS (WATER)

Maxxam ID		DNH815		DNH815		
Sampling Date		2016/11/25		2016/11/25		
COC Number		586491		586491		
	UNITS	TB-030	QC Batch	TB-030 REPEAT	RDL	QC Batch
Polyaromatic Hydrocarbons						
1-Methylnaphthalene	ug/L	<0.050	4773724	<0.050	0.050	4778280
2-Methylnaphthalene	ug/L	<0.050	4773724	<0.050	0.050	4778280
Acenaphthene	ug/L	<0.010	4773724	<0.010	0.010	4778280
Acenaphthylene	ug/L	<0.010	4773724	<0.010	0.010	4778280
Anthracene	ug/L	<0.010	4773724	<0.010	0.010	4778280
Benzo(a)anthracene	ug/L	<0.010	4773724	<0.010	0.010	4778280
Benzo(a)pyrene	ug/L	<0.010	4773724	<0.010	0.010	4778280
Benzo(b)fluoranthene	ug/L	<0.010	4773724	<0.010	0.010	4778280
Benzo(g,h,i)perylene	ug/L	<0.010	4773724	<0.010	0.010	4778280
Benzo(j)fluoranthene	ug/L	<0.010	4773724	<0.010	0.010	4778280
Benzo(k)fluoranthene	ug/L	<0.010	4773724	<0.010	0.010	4778280
Chrysene	ug/L	<0.010	4773724	<0.010	0.010	4778280
Dibenz(a,h)anthracene	ug/L	<0.010	4773724	<0.010	0.010	4778280
Fluoranthene	ug/L	<0.010	4773724	<0.010	0.010	4778280
Fluorene	ug/L	<0.010	4773724	<0.010	0.010	4778280
Indeno(1,2,3-cd)pyrene	ug/L	<0.010	4773724	<0.010	0.010	4778280
Naphthalene	ug/L	<0.20	4773724	<0.20	0.20	4778280
Perylene	ug/L	<0.010	4773724	<0.010	0.010	4778280
Phenanthrene	ug/L	<0.010	4773724	<0.010	0.010	4778280
Pyrene	ug/L	<0.010	4773724	<0.010	0.010	4778280
Surrogate Recovery (%)						
D10-Anthracene	%	91	4773724	89		4778280
D14-Terphenyl	%	106	4773724	115		4778280
D8-Acenaphthylene	%	97	4773724	127		4778280

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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GENERAL COMMENTS

PAH Worksheet 4778280: Samples DNH804, DNH805, DNH806, DNH807, DNH808, DNH811, DNH812, DNH813, DNH814 extracted past method recommended hold time due to lab error.

PAH Worksheet 4773724: Samples DNH802, DNH803 reported without Spike and Matrix Spike due to lab error.

Sample DNH802 [MCES-001-MWB] : Elevated reporting limits for trace metals due to sample matrix.

Poor RCAp Ion Balance due to sample matrix. Possibly due to fine particulate matter.

Sample DNH803 [MCES-001-MWA] : Poor RCAp Ion Balance due to sample matrix. Possibly due to fine particulate matter.

Sample DNH812 [MCES-204-MW] : Elevated reporting limits for trace metals due to sample matrix.

Poor RCAp Ion Balance due to sample matrix.

Sample DNH813 [FD-020] : Elevated reporting limits for trace metals due to sample matrix.

Results relate only to the items tested.

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Maxxam Job #: B6P8249
Report Date: 2016/12/06

Dillon Consulting Limited
Client Project #: 4104251070
Site Location: OHP/HE SITE

QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
4773476	JMV	QC Standard	pH	2016/12/01		101	%	97 - 103
4773476	JMV	RPD	pH	2016/12/01	0.99		%	N/A
4773477	JMV	Spiked Blank	Conductivity	2016/12/01		103	%	80 - 120
4773477	JMV	Method Blank	Conductivity	2016/12/01	1.1, RDL=1.0		uS/cm	
4773477	JMV	RPD	Conductivity	2016/12/01	0.27		%	25
4773478	JMV	QC Standard	pH	2016/12/01		101	%	97 - 103
4773478	JMV	RPD [DNH803-02]	pH	2016/12/01	0.15		%	N/A
4773480	JMV	Spiked Blank	Conductivity	2016/12/01		103	%	80 - 120
4773480	JMV	Method Blank	Conductivity	2016/12/01	1.6, RDL=1.0		uS/cm	
4773480	JMV	RPD [DNH803-02]	Conductivity	2016/12/01	14		%	25
4773481	JMV	QC Standard	pH	2016/12/01		101	%	97 - 103
4773481	JMV	RPD	pH	2016/12/01	0.090		%	N/A
4773482	JMV	Spiked Blank	Conductivity	2016/12/01		104	%	80 - 120
4773482	JMV	Method Blank	Conductivity	2016/12/01	1.7, RDL=1.0		uS/cm	
4773482	JMV	RPD	Conductivity	2016/12/01	0.88		%	25
4773486	BAN	Matrix Spike	Dissolved Aluminum (Al)	2016/12/01		97	%	80 - 120
			Dissolved Antimony (Sb)	2016/12/01		104	%	80 - 120
			Dissolved Arsenic (As)	2016/12/01		100	%	80 - 120
			Dissolved Barium (Ba)	2016/12/01		94	%	80 - 120
			Dissolved Beryllium (Be)	2016/12/01		99	%	80 - 120
			Dissolved Bismuth (Bi)	2016/12/01		96	%	80 - 120
			Dissolved Boron (B)	2016/12/01		104	%	80 - 120
			Dissolved Cadmium (Cd)	2016/12/01		102	%	80 - 120
			Dissolved Calcium (Ca)	2016/12/01		NC	%	80 - 120
			Dissolved Chromium (Cr)	2016/12/01		99	%	80 - 120
			Dissolved Cobalt (Co)	2016/12/01		95	%	80 - 120
			Dissolved Copper (Cu)	2016/12/01		92	%	80 - 120
			Dissolved Iron (Fe)	2016/12/01		NC	%	80 - 120
			Dissolved Lead (Pb)	2016/12/01		94	%	80 - 120
			Dissolved Magnesium (Mg)	2016/12/01		NC	%	80 - 120
			Dissolved Manganese (Mn)	2016/12/01		NC	%	80 - 120
			Dissolved Molybdenum (Mo)	2016/12/01		107	%	80 - 120
			Dissolved Nickel (Ni)	2016/12/01		95	%	80 - 120
			Dissolved Phosphorus (P)	2016/12/01		103	%	80 - 120
			Dissolved Potassium (K)	2016/12/01		NC	%	80 - 120
			Dissolved Selenium (Se)	2016/12/01		100	%	80 - 120
			Dissolved Silver (Ag)	2016/12/01		97	%	80 - 120
			Dissolved Sodium (Na)	2016/12/01		NC	%	80 - 120
			Dissolved Strontium (Sr)	2016/12/01		NC	%	80 - 120
			Dissolved Thallium (Tl)	2016/12/01		98	%	80 - 120
			Dissolved Tin (Sn)	2016/12/01		106	%	80 - 120
			Dissolved Titanium (Ti)	2016/12/01		101	%	80 - 120
			Dissolved Uranium (U)	2016/12/01		104	%	80 - 120
			Dissolved Vanadium (V)	2016/12/01		100	%	80 - 120
			Dissolved Zinc (Zn)	2016/12/01		95	%	80 - 120
4773486	BAN	Spiked Blank	Dissolved Aluminum (Al)	2016/12/01		104	%	80 - 120
			Dissolved Antimony (Sb)	2016/12/01		100	%	80 - 120
			Dissolved Arsenic (As)	2016/12/01		96	%	80 - 120
			Dissolved Barium (Ba)	2016/12/01		94	%	80 - 120
			Dissolved Beryllium (Be)	2016/12/01		94	%	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)	2016/12/01		102	%	80 - 120
			Dissolved Boron (B)	2016/12/01		98	%	80 - 120
			Dissolved Cadmium (Cd)	2016/12/01		100	%	80 - 120
			Dissolved Calcium (Ca)	2016/12/01		100	%	80 - 120
			Dissolved Chromium (Cr)	2016/12/01		98	%	80 - 120
			Dissolved Cobalt (Co)	2016/12/01		97	%	80 - 120
			Dissolved Copper (Cu)	2016/12/01		96	%	80 - 120
			Dissolved Iron (Fe)	2016/12/01		101	%	80 - 120
			Dissolved Lead (Pb)	2016/12/01		97	%	80 - 120
			Dissolved Magnesium (Mg)	2016/12/01		102	%	80 - 120
			Dissolved Manganese (Mn)	2016/12/01		99	%	80 - 120
			Dissolved Molybdenum (Mo)	2016/12/01		101	%	80 - 120
			Dissolved Nickel (Ni)	2016/12/01		98	%	80 - 120
			Dissolved Phosphorus (P)	2016/12/01		103	%	80 - 120
			Dissolved Potassium (K)	2016/12/01		103	%	80 - 120
			Dissolved Selenium (Se)	2016/12/01		98	%	80 - 120
			Dissolved Silver (Ag)	2016/12/01		98	%	80 - 120
			Dissolved Sodium (Na)	2016/12/01		99	%	80 - 120
			Dissolved Strontium (Sr)	2016/12/01		96	%	80 - 120
			Dissolved Thallium (Tl)	2016/12/01		102	%	80 - 120
			Dissolved Tin (Sn)	2016/12/01		101	%	80 - 120
			Dissolved Titanium (Ti)	2016/12/01		101	%	80 - 120
			Dissolved Uranium (U)	2016/12/01		105	%	80 - 120
			Dissolved Vanadium (V)	2016/12/01		97	%	80 - 120
			Dissolved Zinc (Zn)	2016/12/01		97	%	80 - 120
4773486	BAN	Method Blank	Dissolved Aluminum (Al)	2016/12/01	<5.0		ug/L	
			Dissolved Antimony (Sb)	2016/12/01	<1.0		ug/L	
			Dissolved Arsenic (As)	2016/12/01	<1.0		ug/L	
			Dissolved Barium (Ba)	2016/12/01	<1.0		ug/L	
			Dissolved Beryllium (Be)	2016/12/01	<1.0		ug/L	
			Dissolved Bismuth (Bi)	2016/12/01	<2.0		ug/L	
			Dissolved Boron (B)	2016/12/01	<50		ug/L	
			Dissolved Cadmium (Cd)	2016/12/01	<0.010		ug/L	
			Dissolved Calcium (Ca)	2016/12/01	<100		ug/L	
			Dissolved Chromium (Cr)	2016/12/01	<1.0		ug/L	
			Dissolved Cobalt (Co)	2016/12/01	<0.40		ug/L	
			Dissolved Copper (Cu)	2016/12/01	<2.0		ug/L	
			Dissolved Iron (Fe)	2016/12/01	<50		ug/L	
			Dissolved Lead (Pb)	2016/12/01	<0.50		ug/L	
			Dissolved Magnesium (Mg)	2016/12/01	<100		ug/L	
			Dissolved Manganese (Mn)	2016/12/01	<2.0		ug/L	
			Dissolved Molybdenum (Mo)	2016/12/01	<2.0		ug/L	
			Dissolved Nickel (Ni)	2016/12/01	<2.0		ug/L	
			Dissolved Phosphorus (P)	2016/12/01	<100		ug/L	
			Dissolved Potassium (K)	2016/12/01	<100		ug/L	
			Dissolved Selenium (Se)	2016/12/01	<1.0		ug/L	
			Dissolved Silver (Ag)	2016/12/01	<0.10		ug/L	
			Dissolved Sodium (Na)	2016/12/01	<100		ug/L	
			Dissolved Strontium (Sr)	2016/12/01	<2.0		ug/L	
			Dissolved Thallium (Tl)	2016/12/01	<0.10		ug/L	
			Dissolved Tin (Sn)	2016/12/01	<2.0		ug/L	
			Dissolved Titanium (Ti)	2016/12/01	<2.0		ug/L	
			Dissolved Uranium (U)	2016/12/01	<0.10		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 Vanadium (V)	2016/12/01	<2.0		ug/L	
			Dissolved Zinc (Zn)	2016/12/01	<5.0		ug/L	
4773486	BAN	RPD	Dissolved Aluminum (Al)	2016/12/01	NC		%	20
			Dissolved Antimony (Sb)	2016/12/01	NC		%	20
			Dissolved Arsenic (As)	2016/12/01	NC		%	20
			Dissolved Barium (Ba)	2016/12/01	0.87		%	20
			Dissolved Beryllium (Be)	2016/12/01	NC		%	20
			Dissolved Bismuth (Bi)	2016/12/01	NC		%	20
			Dissolved Boron (B)	2016/12/01	NC		%	20
			Dissolved Cadmium (Cd)	2016/12/01	NC		%	20
			Dissolved Calcium (Ca)	2016/12/01	0.46		%	20
			Dissolved Chromium (Cr)	2016/12/01	NC		%	20
			Dissolved Cobalt (Co)	2016/12/01	2.8		%	20
			Dissolved Copper (Cu)	2016/12/01	NC		%	20
			Dissolved Iron (Fe)	2016/12/01	0.42		%	20
			Dissolved Lead (Pb)	2016/12/01	NC		%	20
			Dissolved Magnesium (Mg)	2016/12/01	1.2		%	20
			Dissolved Manganese (Mn)	2016/12/01	2.3		%	20
			Dissolved Molybdenum (Mo)	2016/12/01	NC		%	20
			Dissolved Nickel (Ni)	2016/12/01	NC		%	20
			Dissolved Phosphorus (P)	2016/12/01	NC		%	20
			Dissolved Potassium (K)	2016/12/01	0.19		%	20
			Dissolved Selenium (Se)	2016/12/01	NC		%	20
			Dissolved Silver (Ag)	2016/12/01	NC		%	20
			Dissolved Sodium (Na)	2016/12/01	1.2		%	20
			Dissolved Strontium (Sr)	2016/12/01	2.6		%	20
			Dissolved Thallium (Tl)	2016/12/01	NC		%	20
			Dissolved Tin (Sn)	2016/12/01	NC		%	20
			Dissolved Titanium (Ti)	2016/12/01	NC		%	20
			Dissolved Uranium (U)	2016/12/01	NC		%	20
			Dissolved Vanadium (V)	2016/12/01	NC		%	20
			Dissolved Zinc (Zn)	2016/12/01	NC		%	20
4773492	JMV	QC Standard	Turbidity	2016/12/01		113	%	80 - 120
4773492	JMV	Spiked Blank	Turbidity	2016/12/01		100	%	80 - 120
4773492	JMV	Method Blank	Turbidity	2016/12/01	<0.10		NTU	
4773492	JMV	RPD [DNH803-02]	Turbidity	2016/12/01	4.0		%	20
4773493	JMV	QC Standard	Turbidity	2016/12/01		114	%	80 - 120
4773493	JMV	Spiked Blank	Turbidity	2016/12/01		100	%	80 - 120
4773493	JMV	Method Blank	Turbidity	2016/12/01	<0.10		NTU	
4773493	JMV	RPD	Turbidity	2016/12/01	4.6		%	20
4773494	JMV	QC Standard	Turbidity	2016/12/01		113	%	80 - 120
4773494	JMV	Spiked Blank	Turbidity	2016/12/01		99	%	80 - 120
4773494	JMV	Method Blank	Turbidity	2016/12/01	<0.10		NTU	
4773494	JMV	RPD	Turbidity	2016/12/01	2.6		%	20
4773724	GTH	Method Blank	D10-Anthracene	2016/12/04		79	%	30 - 130
			D14-Terphenyl	2016/12/04		93	%	30 - 130
			D8-Acenaphthylene	2016/12/04		100	%	30 - 130
			1-Methylnaphthalene	2016/12/04	<0.050		ug/L	
			2-Methylnaphthalene	2016/12/04	<0.050		ug/L	
			Acenaphthene	2016/12/04	<0.010		ug/L	
			Acenaphthylene	2016/12/04	<0.010		ug/L	
			Anthracene	2016/12/04	<0.010		ug/L	
			Benzo(a)anthracene	2016/12/04	<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)pyrene	2016/12/04	<0.010		ug/L	
			Benzo(b)fluoranthene	2016/12/04	<0.010		ug/L	
			Benzo(g,h,i)perylene	2016/12/04	<0.010		ug/L	
			Benzo(j)fluoranthene	2016/12/04	<0.010		ug/L	
			Benzo(k)fluoranthene	2016/12/04	<0.010		ug/L	
			Chrysene	2016/12/04	<0.010		ug/L	
			Dibenz(a,h)anthracene	2016/12/04	<0.010		ug/L	
			Fluoranthene	2016/12/04	<0.010		ug/L	
			Fluorene	2016/12/04	<0.010		ug/L	
			Indeno(1,2,3-cd)pyrene	2016/12/04	<0.010		ug/L	
			Naphthalene	2016/12/04	<0.20		ug/L	
			Perylene	2016/12/04	<0.010		ug/L	
			Phenanthrene	2016/12/04	<0.010		ug/L	
			Pyrene	2016/12/04	<0.010		ug/L	
4773724	GTH	RPD [DNH802-01]	1-Chloronaphthalene	2016/12/04	NC		%	40
			1-Methylnaphthalene	2016/12/04	NC		%	40
			2-Chloronaphthalene	2016/12/04	NC		%	40
			2-Methylnaphthalene	2016/12/04	NC		%	40
			Acenaphthene	2016/12/04	NC		%	40
			Acenaphthylene	2016/12/04	NC		%	40
			Anthracene	2016/12/04	NC		%	40
			Benzo(a)anthracene	2016/12/04	NC		%	40
			Benzo(a)pyrene	2016/12/04	NC		%	40
			Benzo(b)fluoranthene	2016/12/04	NC		%	40
			Benzo(g,h,i)perylene	2016/12/04	NC		%	40
			Benzo(j)fluoranthene	2016/12/04	NC		%	40
			Benzo(k)fluoranthene	2016/12/04	NC		%	40
			Chrysene	2016/12/04	NC		%	40
			Dibenz(a,h)anthracene	2016/12/04	NC		%	40
			Fluoranthene	2016/12/04	NC		%	40
			Fluorene	2016/12/04	NC		%	40
			Indeno(1,2,3-cd)pyrene	2016/12/04	NC		%	40
			Naphthalene	2016/12/04	NC		%	40
			Perylene	2016/12/04	NC		%	40
			Phenanthrene	2016/12/04	NC		%	40
			Pyrene	2016/12/04	NC		%	40
4774153	NRG	Matrix Spike [DNH807-04]	Nitrogen (Ammonia Nitrogen)	2016/12/01		89	%	80 - 120
4774153	NRG	Spiked Blank	Nitrogen (Ammonia Nitrogen)	2016/12/02		107	%	80 - 120
4774153	NRG	Method Blank	Nitrogen (Ammonia Nitrogen)	2016/12/02	<0.050		mg/L	
4774153	NRG	RPD [DNH807-04]	Nitrogen (Ammonia Nitrogen)	2016/12/01	NC		%	20
4774155	NRG	Matrix Spike	Nitrogen (Ammonia Nitrogen)	2016/12/01		98	%	80 - 120
4774155	NRG	Spiked Blank	Nitrogen (Ammonia Nitrogen)	2016/12/01		101	%	80 - 120
4774155	NRG	Method Blank	Nitrogen (Ammonia Nitrogen)	2016/12/01	<0.050		mg/L	
4774155	NRG	RPD	Nitrogen (Ammonia Nitrogen)	2016/12/01	NC		%	20
4774216	ARS	Matrix Spike	Total Mercury (Hg)	2016/12/02		100	%	80 - 120
4774216	ARS	Spiked Blank	Total Mercury (Hg)	2016/12/02		100	%	80 - 120
4774216	ARS	Method Blank	Total Mercury (Hg)	2016/12/02	<0.013		ug/L	
4774216	ARS	RPD	Total Mercury (Hg)	2016/12/02	NC		%	20
4774218	ARS	Matrix Spike	Total Mercury (Hg)	2016/12/02		95	%	80 - 120
4774218	ARS	Spiked Blank	Total Mercury (Hg)	2016/12/02		102	%	80 - 120
4774218	ARS	Method Blank	Total Mercury (Hg)	2016/12/02	<0.013		ug/L	
4774218	ARS	RPD	Total Mercury (Hg)	2016/12/02	NC		%	20

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QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
4775684	NRG	Matrix Spike	Total Alkalinity (Total as CaCO3)	2016/12/05		NC	%	80 - 120
4775684	NRG	Spiked Blank	Total Alkalinity (Total as CaCO3)	2016/12/05		109	%	80 - 120
4775684	NRG	Method Blank	Total Alkalinity (Total as CaCO3)	2016/12/05	<5.0		mg/L	
4775684	NRG	RPD	Total Alkalinity (Total as CaCO3)	2016/12/05	NC		%	25
4775694	KBT	Matrix Spike	Dissolved Chloride (Cl)	2016/12/05		NC	%	80 - 120
4775694	KBT	QC Standard	Dissolved Chloride (Cl)	2016/12/05		104	%	80 - 120
4775694	KBT	Spiked Blank	Dissolved Chloride (Cl)	2016/12/05		103	%	80 - 120
4775694	KBT	Method Blank	Dissolved Chloride (Cl)	2016/12/05	<1.0		mg/L	
4775694	KBT	RPD	Dissolved Chloride (Cl)	2016/12/05	3.3		%	25
4775695	MCN	Matrix Spike	Dissolved Sulphate (SO4)	2016/12/05		NC	%	80 - 120
4775695	MCN	Spiked Blank	Dissolved Sulphate (SO4)	2016/12/05		111	%	80 - 120
4775695	MCN	Method Blank	Dissolved Sulphate (SO4)	2016/12/05	<2.0		mg/L	
4775695	MCN	RPD	Dissolved Sulphate (SO4)	2016/12/05	7.0		%	25
4775696	NRG	Matrix Spike	Reactive Silica (SiO2)	2016/12/05		NC	%	80 - 120
4775696	NRG	Spiked Blank	Reactive Silica (SiO2)	2016/12/05		97	%	80 - 120
4775696	NRG	Method Blank	Reactive Silica (SiO2)	2016/12/05	<0.50		mg/L	
4775696	NRG	RPD	Reactive Silica (SiO2)	2016/12/05	0.50		%	25
4775697	MCN	Spiked Blank	Colour	2016/12/05		97	%	80 - 120
4775697	MCN	Method Blank	Colour	2016/12/05	<5.0		TCU	
4775697	MCN	RPD	Colour	2016/12/05	NC		%	20
4775698	MCN	Matrix Spike	Orthophosphate (P)	2016/12/05		91	%	80 - 120
4775698	MCN	Spiked Blank	Orthophosphate (P)	2016/12/05		96	%	80 - 120
4775698	MCN	Method Blank	Orthophosphate (P)	2016/12/05	<0.010		mg/L	
4775698	MCN	RPD	Orthophosphate (P)	2016/12/05	NC		%	25
4775699	MCN	Matrix Spike	Nitrate + Nitrite (N)	2016/12/06		101	%	80 - 120
4775699	MCN	Spiked Blank	Nitrate + Nitrite (N)	2016/12/06		103	%	80 - 120
4775699	MCN	Method Blank	Nitrate + Nitrite (N)	2016/12/06	<0.050		mg/L	
4775699	MCN	RPD	Nitrate + Nitrite (N)	2016/12/06	NC		%	25
4775701	KBT	Matrix Spike	Nitrite (N)	2016/12/05		99	%	80 - 120
4775701	KBT	Spiked Blank	Nitrite (N)	2016/12/05		94	%	80 - 120
4775701	KBT	Method Blank	Nitrite (N)	2016/12/05	<0.010		mg/L	
4775701	KBT	RPD	Nitrite (N)	2016/12/05	NC		%	25
4775875	SMT	Matrix Spike	Total Organic Carbon (C)	2016/12/02		104	%	80 - 120
4775875	SMT	Spiked Blank	Total Organic Carbon (C)	2016/12/02		107	%	80 - 120
4775875	SMT	Method Blank	Total Organic Carbon (C)	2016/12/02	<0.50		mg/L	
4775875	SMT	RPD	Total Organic Carbon (C)	2016/12/02	NC		%	20
4778280	GTH	Matrix Spike	D10-Anthracene	2016/12/05		64	%	30 - 130
			D14-Terphenyl	2016/12/05		90 (1)	%	30 - 130
			D8-Acenaphthylene	2016/12/05		95	%	30 - 130
			1-Methylnaphthalene	2016/12/05		87	%	30 - 130
			2-Methylnaphthalene	2016/12/05		91	%	30 - 130
			Acenaphthene	2016/12/05		94	%	30 - 130
			Acenaphthylene	2016/12/05		82	%	30 - 130
			Anthracene	2016/12/05		88	%	30 - 130
			Benzo(a)anthracene	2016/12/05		90	%	30 - 130
			Benzo(a)pyrene	2016/12/05		77	%	30 - 130
			Benzo(b)fluoranthene	2016/12/05		82	%	30 - 130
			Benzo(g,h,i)perylene	2016/12/05		84	%	30 - 130
			Benzo(j)fluoranthene	2016/12/05		74	%	30 - 130
			Benzo(k)fluoranthene	2016/12/05		77	%	30 - 130
			Chrysene	2016/12/05		87	%	30 - 130
			Dibenz(a,h)anthracene	2016/12/05		72	%	30 - 130
			Fluoranthene	2016/12/05		88	%	30 - 130

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Fluorene	2016/12/05		93	%	30 - 130
			Indeno(1,2,3-cd)pyrene	2016/12/05		77	%	30 - 130
			Naphthalene	2016/12/05		89	%	30 - 130
			Perylene	2016/12/05		78	%	30 - 130
			Phenanthrene	2016/12/05		80	%	30 - 130
			Pyrene	2016/12/05		87	%	30 - 130
4778280	GTH	Spiked Blank	D10-Anthracene	2016/12/05		91	%	30 - 130
			D14-Terphenyl	2016/12/05		99	%	30 - 130
			D8-Acenaphthylene	2016/12/05		111	%	30 - 130
			1-Methylnaphthalene	2016/12/05		95	%	30 - 130
			2-Methylnaphthalene	2016/12/05		99	%	30 - 130
			Acenaphthene	2016/12/05		104	%	30 - 130
			Acenaphthylene	2016/12/05		87	%	30 - 130
			Anthracene	2016/12/05		88	%	30 - 130
			Benzo(a)anthracene	2016/12/05		86	%	30 - 130
			Benzo(a)pyrene	2016/12/05		88	%	30 - 130
			Benzo(b)fluoranthene	2016/12/05		95	%	30 - 130
			Benzo(g,h,i)perylene	2016/12/05		94	%	30 - 130
			Benzo(j)fluoranthene	2016/12/05		85	%	30 - 130
			Benzo(k)fluoranthene	2016/12/05		90	%	30 - 130
			Chrysene	2016/12/05		78	%	30 - 130
			Dibenz(a,h)anthracene	2016/12/05		76	%	30 - 130
			Fluoranthene	2016/12/05		90	%	30 - 130
			Fluorene	2016/12/05		102	%	30 - 130
			Indeno(1,2,3-cd)pyrene	2016/12/05		85	%	30 - 130
			Naphthalene	2016/12/05		98	%	30 - 130
			Perylene	2016/12/05		88	%	30 - 130
			Phenanthrene	2016/12/05		95	%	30 - 130
			Pyrene	2016/12/05		90	%	30 - 130
4778280	GTH	Method Blank	D10-Anthracene	2016/12/05		94	%	30 - 130
			D14-Terphenyl	2016/12/05		102	%	30 - 130
			D8-Acenaphthylene	2016/12/05		110	%	30 - 130
			1-Methylnaphthalene	2016/12/05	<0.050		ug/L	
			2-Methylnaphthalene	2016/12/05	<0.050		ug/L	
			Acenaphthene	2016/12/05	<0.010		ug/L	
			Acenaphthylene	2016/12/05	<0.010		ug/L	
			Anthracene	2016/12/05	<0.010		ug/L	
			Benzo(a)anthracene	2016/12/05	<0.010		ug/L	
			Benzo(a)pyrene	2016/12/05	<0.010		ug/L	
			Benzo(b)fluoranthene	2016/12/05	<0.010		ug/L	
			Benzo(g,h,i)perylene	2016/12/05	<0.010		ug/L	
			Benzo(j)fluoranthene	2016/12/05	<0.010		ug/L	
			Benzo(k)fluoranthene	2016/12/05	<0.010		ug/L	
			Chrysene	2016/12/05	<0.010		ug/L	
			Dibenz(a,h)anthracene	2016/12/05	<0.010		ug/L	
			Fluoranthene	2016/12/05	<0.010		ug/L	
			Fluorene	2016/12/05	<0.010		ug/L	
			Indeno(1,2,3-cd)pyrene	2016/12/05	<0.010		ug/L	
			Naphthalene	2016/12/05	<0.20		ug/L	
			Perylene	2016/12/05	<0.010		ug/L	
			Phenanthrene	2016/12/05	<0.010		ug/L	
			Pyrene	2016/12/05	<0.010		ug/L	
4778280	GTH	RPD	1-Methylnaphthalene	2016/12/05	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
			2-Methylnaphthalene	2016/12/05	NC		%	40
			Acenaphthene	2016/12/05	NC		%	40
			Acenaphthylene	2016/12/05	NC		%	40
			Anthracene	2016/12/05	NC		%	40
			Benzo(a)anthracene	2016/12/05	NC		%	40
			Benzo(a)pyrene	2016/12/05	NC		%	40
			Benzo(b)fluoranthene	2016/12/05	NC		%	40
			Benzo(g,h,i)perylene	2016/12/05	NC		%	40
			Benzo(j)fluoranthene	2016/12/05	NC		%	40
			Benzo(k)fluoranthene	2016/12/05	NC		%	40
			Chrysene	2016/12/05	NC		%	40
			Dibenz(a,h)anthracene	2016/12/05	NC		%	40
			Fluoranthene	2016/12/05	NC		%	40
			Fluorene	2016/12/05	NC		%	40
			Indeno(1,2,3-cd)pyrene	2016/12/05	NC		%	40
			Naphthalene	2016/12/05	NC		%	40
			Perylene	2016/12/05	NC		%	40
			Phenanthrene	2016/12/05	NC		%	40
			Pyrene	2016/12/05	NC		%	40

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 spiked amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than 2x that of 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 (one or both samples < 5x RDL).

(1) PAH sample contained sediment.

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Maxxam Job #: B6P8249
Report Date: 2016/12/06

Dillon Consulting Limited
Client Project #: 4104251070
Site Location: OHP/HE SITE

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 #: 4104251070
Site Location: OHP/HE SITE
Your C.O.C. #: 586491

Attention:Nadine Wambolt

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

Report Date: 2016/12/07
Report #: R4278148
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B6P9071
Received: 2016/11/28, 16:11

Sample Matrix: Water
Samples Received: 10

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Reference
Carbonate, Bicarbonate and Hydroxide (1)	5	N/A	2016/12/01	N/A	SM 22 4500-CO2 D
Carbonate, Bicarbonate and Hydroxide (1)	4	N/A	2016/12/02	N/A	SM 22 4500-CO2 D
Alkalinity (1)	7	N/A	2016/12/06	ATL SOP 00013	EPA 310.2 R1974 m
Alkalinity (1)	2	N/A	2016/12/07	ATL SOP 00013	EPA 310.2 R1974 m
Chloride (1)	9	N/A	2016/12/07	ATL SOP 00014	SM 22 4500-Cl- E m
Colour (1)	9	N/A	2016/12/06	ATL SOP 00020	SM 22 2120C m
Conductance - water (1)	5	N/A	2016/12/01	ATL SOP 00004	SM 22 2510B m
Conductance - water (1)	4	N/A	2016/12/02	ATL SOP 00004	SM 22 2510B m
TEH in Water (PIRI) (1)	1	2016/12/01	2016/12/01	ATL SOP 00113	Atl. RBCA v3 m
Hardness (calculated as CaCO3) (1)	9	N/A	2016/12/02	ATL SOP 00048	SM 22 2340 B
Mercury - Total (CVAA,LL) (1)	9	2016/12/02	2016/12/05	ATL SOP 00026	EPA 245.1 R3 m
Metals Water Diss. MS (as rec'd) (1)	9	N/A	2016/12/01	ATL SOP 00058	EPA 6020A R1 m
Ion Balance (% Difference) (1)	9	N/A	2016/12/07	N/A	Auto Calc.
Anion and Cation Sum (1)	9	N/A	2016/12/06	N/A	Auto Calc.
Nitrogen Ammonia - water (1)	9	N/A	2016/12/05	ATL SOP 00015	EPA 350.1 R2 m
Nitrogen - Nitrate + Nitrite (1)	9	N/A	2016/12/07	ATL SOP 00016	USGS SOPINCF0452.2 m
Nitrogen - Nitrite (1)	9	N/A	2016/12/06	ATL SOP 00017	SM 22 4500-NO2- B m
Nitrogen - Nitrate (as N) (1)	9	N/A	2016/12/07	ATL SOP 00018	ASTM D3867-16
PAH in Water by GC/MS (SIM) (1)	8	2016/12/02	2016/12/05	ATL SOP 00103	EPA 8270D 2007 m
PAH in Water by GC/MS (SIM) (1)	1	2016/12/02	2016/12/06	ATL SOP 00103	EPA 8270D 2007 m
PAH in Water by GC/MS (SIM) (1)	1	2016/12/05	2016/12/06	ATL SOP 00103	EPA 8270D 2007 m
pH (1, 2)	5	N/A	2016/12/01	ATL SOP 00003	SM 22 4500-H+ B m
pH (1, 2)	4	N/A	2016/12/02	ATL SOP 00003	SM 22 4500-H+ B m
Phosphorus - ortho (1)	9	N/A	2016/12/06	ATL SOP 00021	EPA 365.2 m
VPH in Water (PIRI) (1)	1	N/A	2016/12/03	ATL SOP 00118	Atl. RBCA v3 m
Sat. pH and Langelier Index (@ 20C) (1)	9	N/A	2016/12/07	ATL SOP 00049	Auto Calc.
Sat. pH and Langelier Index (@ 4C) (1)	9	N/A	2016/12/07	ATL SOP 00049	Auto Calc.
Reactive Silica (1)	9	N/A	2016/12/06	ATL SOP 00022	EPA 366.0 m
Sulphate (1)	9	N/A	2016/12/06	ATL SOP 00023	ASTMD516-11 m
Total Dissolved Solids (TDS calc) (1)	9	N/A	2016/12/07	N/A	Auto Calc.

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Your Project #: 4104251070
Site Location: OHP/HE SITE
Your C.O.C. #: 586491

Attention:Nadine Wambolt

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

Report Date: 2016/12/07
Report #: R4278148
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B6P9071
Received: 2016/11/28, 16:11

Sample Matrix: Water
Samples Received: 10

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Reference
Organic carbon - Total (TOC) (1, 3)	9	N/A	2016/12/05	ATL SOP 00037	SM 22 5310C m
ModTPH (T1) Calc. for Water (1)	1	N/A	2016/12/05	N/A	Atl. RBCA v3 m
Turbidity (1)	1	N/A	2016/12/01	ATL SOP 00011	EPA 180.1 R2 m
Turbidity (1)	8	N/A	2016/12/02	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.

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.

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.

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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B1P 1C6

Report Date: 2016/12/07
Report #: R4278148
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B6P9071
Received: 2016/11/28, 16:11

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Candace Hillier, Cl Svc - Sydney
Email: chillier@maxxam.ca
Phone# (902) 567 1255
==========
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Maxxam Job #: B6P9071
Report Date: 2016/12/07

Dillon Consulting Limited
Client Project #: 4104251070
Site Location: OHP/HE SITE

RESULTS OF ANALYSES OF WATER

Maxxam ID		DNN004			DNN005			DNN006		
Sampling Date		2016/11/28			2016/11/28			2016/11/28		
COC Number		586491			586491			586491		
	UNITS	CODT-206-MW	RDL	QC Batch	CODT-201-MWA	RDL	QC Batch	CODT-201-MWC	RDL	QC Batch
Calculated Parameters										
Anion Sum	me/L	2.43	N/A	4769522	6.80	N/A	4769522	5.89	N/A	4769522
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	92	1.0	4769518	250	1.0	4769518	200	1.0	4769518
Calculated TDS	mg/L	140	1.0	4769527	380	1.0	4769527	320	1.0	4769527
Carb. Alkalinity (calc. as CaCO3)	mg/L	<1.0	1.0	4769518	<1.0	1.0	4769518	2.1	1.0	4769518
Cation Sum	me/L	2.47	N/A	4769522	6.58	N/A	4769522	5.38	N/A	4769522
Hardness (CaCO3)	mg/L	110	1.0	4769520	310	1.0	4769520	110	1.0	4769520
Ion Balance (% Difference)	%	0.820	N/A	4769521	1.64	N/A	4769521	4.53	N/A	4769521
Langelier Index (@ 20C)	N/A	-0.398		4769525	0.588		4769525	0.497		4769525
Langelier Index (@ 4C)	N/A	-0.648		4769526	0.339		4769526	0.248		4769526
Nitrate (N)	mg/L	0.24	0.050	4769523	3.7	0.050	4769523	0.054	0.050	4769523
Saturation pH (@ 20C)	N/A	7.79		4769525	7.02		4769525	7.56		4769525
Saturation pH (@ 4C)	N/A	8.04		4769526	7.27		4769526	7.81		4769526
Inorganics										
Total Alkalinity (Total as CaCO3)	mg/L	93	10	4778492	250	25	4778492	200	25	4778492
Dissolved Chloride (Cl)	mg/L	7.2	1.0	4778496	11	1.0	4778496	64	1.0	4778496
Colour	TCU	32	5.0	4778499	6.3	5.0	4778499	<5.0	5.0	4778499
Nitrate + Nitrite (N)	mg/L	0.24	0.050	4778501	3.7	0.050	4778501	0.054	0.050	4778501
Nitrite (N)	mg/L	<0.010	0.010	4778503	<0.010	0.010	4778503	<0.010	0.010	4778503
Nitrogen (Ammonia Nitrogen)	mg/L	0.093	0.050	4776077	<0.050	0.050	4776077	0.45	0.050	4776077
Total Organic Carbon (C)	mg/L	7.2	0.50	4778372	3.8	0.50	4778372	<5.0 (1)	5.0	4778372
Orthophosphate (P)	mg/L	0.037	0.010	4778500	0.027	0.010	4778500	0.019	0.010	4778500
pH	pH	7.39	N/A	4775780	7.61	N/A	4773481	8.05	N/A	4773481
Reactive Silica (SiO2)	mg/L	13	0.50	4778498	15	0.50	4778498	11	0.50	4778498
Dissolved Sulphate (SO4)	mg/L	17	2.0	4778497	58	10	4778497	6.7	2.0	4778497
Turbidity	NTU	76	0.10	4773495	75	0.10	4773494	4.0	0.10	4773495
Conductivity	uS/cm	210	1.0	4775785	560	1.0	4773482	510	1.0	4773482

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 #: B6P9071
Report Date: 2016/12/07

Dillon Consulting Limited
Client Project #: 4104251070
Site Location: OHP/HE SITE

RESULTS OF ANALYSES OF WATER

Maxxam ID		DNN007		DNN008			DNN009		
Sampling Date		2016/11/28		2016/11/28			2016/11/28		
COC Number		586491		586491			586491		
	UNITS	COSB-002-MWA	RDL	COCP-110-MW	RDL	QC Batch	COTS-001-MWB	RDL	QC Batch
Calculated Parameters									
Anion Sum	me/L	10.6	N/A	8.44	N/A	4769522	9.10	N/A	4769522
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	190	1.0	180	1.0	4769518	260	1.0	4769518
Calculated TDS	mg/L	670	1.0	520	1.0	4769527	500	1.0	4769527
Carb. Alkalinity (calc. as CaCO3)	mg/L	<1.0	1.0	1.1	1.0	4769518	<1.0	1.0	4769518
Cation Sum	me/L	11.3	N/A	8.08	N/A	4769522	8.38	N/A	4769522
Hardness (CaCO3)	mg/L	530	1.0	340	1.0	4769520	340	1.0	4769520
Ion Balance (% Difference)	%	3.24	N/A	2.18	N/A	4769521	4.12	N/A	4769521
Langelier Index (@ 20C)	N/A	-0.00300		0.677		4769525	0.603		4769525
Langelier Index (@ 4C)	N/A	-0.250		0.429		4769526	0.355		4769526
Nitrate (N)	mg/L	0.36	0.050	0.18	0.050	4769523	1.2	0.050	4769523
Saturation pH (@ 20C)	N/A	6.98		7.14		4769525	6.99		4769525
Saturation pH (@ 4C)	N/A	7.22		7.39		4769526	7.24		4769526
Inorganics									
Total Alkalinity (Total as CaCO3)	mg/L	190	25	180	25	4778492	260	25	4778492
Dissolved Chloride (Cl)	mg/L	16	1.0	55	1.0	4778496	53	1.0	4778496
Colour	TCU	84	25	10	5.0	4778499	<5.0	5.0	4778499
Nitrate + Nitrite (N)	mg/L	0.36	0.050	0.18	0.050	4778501	1.2	0.050	4778501
Nitrite (N)	mg/L	<0.010	0.010	<0.010	0.010	4778503	<0.010	0.010	4778503
Nitrogen (Ammonia Nitrogen)	mg/L	0.13	0.050	0.22	0.050	4776077	0.31	0.050	4776077
Total Organic Carbon (C)	mg/L	2.9	0.50	3.0	0.50	4778372	1.0	0.50	4778372
Orthophosphate (P)	mg/L	0.018	0.010	0.041	0.010	4778500	0.018	0.010	4778500
pH	pH	6.97	N/A	7.82	N/A	4773481	7.60	N/A	4775780
Reactive Silica (SiO2)	mg/L	20	0.50	35	1.0	4778498	13	0.50	4778498
Dissolved Sulphate (SO4)	mg/L	300	60	150	10	4778497	110	10	4778497
Turbidity	NTU	43	0.10	23	0.10	4773495	1.6	0.10	4773495
Conductivity	uS/cm	910	1.0	720	1.0	4773482	740	1.0	4775785

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

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Maxxam Job #: B6P9071
Report Date: 2016/12/07

Dillon Consulting Limited
Client Project #: 4104251070
Site Location: OHP/HE SITE

RESULTS OF ANALYSES OF WATER

Maxxam ID		DNN010		DNN011			DNN558		
Sampling Date		2016/11/28		2016/11/28			2016/11/28		
COC Number		586491		586491			586491		
	UNITS	COBP-006-MWA	RDL	FD-022	RDL	QC Batch	COBT-003-MWB	RDL	QC Batch
Calculated Parameters									
Anion Sum	me/L	8.78	N/A	2.42	N/A	4769522	11.9	N/A	4769522
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	280	1.0	91	1.0	4769518	220	1.0	4769518
Calculated TDS	mg/L	500	1.0	140	1.0	4769527	670	1.0	4769527
Carb. Alkalinity (calc. as CaCO3)	mg/L	<1.0	1.0	<1.0	1.0	4769518	<1.0	1.0	4769518
Cation Sum	me/L	8.64	N/A	2.48	N/A	4769522	11.3	N/A	4769522
Hardness (CaCO3)	mg/L	350	1.0	110	1.0	4769520	320	1.0	4769520
Ion Balance (% Difference)	%	0.800	N/A	1.22	N/A	4769521	2.33	N/A	4769521
Langelier Index (@ 20C)	N/A	0.104		-0.450		4769525	0.430		4769525
Langelier Index (@ 4C)	N/A	-0.144		-0.700		4769526	0.183		4769526
Nitrate (N)	mg/L	<0.050	0.050	0.59	0.050	4769523	0.052	0.050	4769523
Saturation pH (@ 20C)	N/A	6.96		7.80		4769525	7.12		4769525
Saturation pH (@ 4C)	N/A	7.20		8.05		4769526	7.37		4769526
Inorganics									
Total Alkalinity (Total as CaCO3)	mg/L	280	25	91	10	4778507	220	25	4778507
Dissolved Chloride (Cl)	mg/L	38	1.0	7.4	1.0	4778508	210	2.0	4778508
Colour	TCU	5.6	5.0	32	5.0	4778514	9.1	5.0	4778514
Nitrate + Nitrite (N)	mg/L	<0.050	0.050	0.59	0.050	4778516	0.052	0.050	4778516
Nitrite (N)	mg/L	<0.010	0.010	<0.010	0.010	4778518	<0.010	0.010	4778518
Nitrogen (Ammonia Nitrogen)	mg/L	1.4	0.050	0.094	0.050	4776077	0.073	0.050	4776077
Total Organic Carbon (C)	mg/L	12 (1)	5.0	7.5	0.50	4778372	0.72	0.50	4778372
Orthophosphate (P)	mg/L	0.016	0.010	0.038	0.010	4778515	0.015	0.010	4778515
pH	pH	7.06	N/A	7.35	N/A	4775780	7.55	N/A	4773481
Reactive Silica (SiO2)	mg/L	16	0.50	13	0.50	4778513	13	0.50	4778513
Dissolved Sulphate (SO4)	mg/L	98	10	17	2.0	4778512	74	10	4778512
Turbidity	NTU	280	1.0	71	0.10	4773495	1.6	0.10	4773495
Conductivity	uS/cm	720	1.0	210	1.0	4775785	1100	1.0	4773482

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 #: B6P9071
Report Date: 2016/12/07

Dillon Consulting Limited
Client Project #: 4104251070
Site Location: OHP/HE SITE

MERCURY BY COLD VAPOUR AA (WATER)

Maxxam ID		DNN004	DNN005	DNN006	DNN007	DNN008		
Sampling Date		2016/11/28	2016/11/28	2016/11/28	2016/11/28	2016/11/28		
COC Number		586491	586491	586491	586491	586491		
	UNITS	CODT-206-MW	CODT-201-MWA	CODT-201-MWC	COSB-002-MWA	COCP-110-MW	RDL	QC Batch
Metals								
Total Mercury (Hg)	ug/L	<0.013	<0.013	<0.013	<0.013	<0.013	0.013	4776122

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam ID		DNN009	DNN010		DNN011	DNN558		
Sampling Date		2016/11/28	2016/11/28		2016/11/28	2016/11/28		
COC Number		586491	586491		586491	586491		
	UNITS	COTS-001-MWB	COBP-006-MWA	QC Batch	FD-022	COBT-003-MWB	RDL	QC Batch
Metals								
Total Mercury (Hg)	ug/L	<0.013	<0.013	4776122	<0.013	<0.013	0.013	4776126

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B6P9071
Report Date: 2016/12/07

Dillon Consulting Limited
Client Project #: 4104251070
Site Location: OHP/HE SITE

ELEMENTS BY ICP/MS (WATER)

Maxxam ID		DNN004	DNN005	DNN006	DNN007	DNN008		
Sampling Date		2016/11/28	2016/11/28	2016/11/28	2016/11/28	2016/11/28		
COC Number		586491	586491	586491	586491	586491		
	UNITS	CODT-206-MW	CODT-201-MWA	CODT-201-MWC	COSB-002-MWA	COCP-110-MW	RDL	QC Batch
Metals								
Dissolved Aluminum (Al)	ug/L	31	8.2	7.6	16	10	5.0	4773487
Dissolved Antimony (Sb)	ug/L	<1.0	<1.0	<1.0	<1.0	2.1	1.0	4773487
Dissolved Arsenic (As)	ug/L	1.1	<1.0	3.7	<1.0	13	1.0	4773487
Dissolved Barium (Ba)	ug/L	39	24	380	21	96	1.0	4773487
Dissolved Beryllium (Be)	ug/L	<1.0	<1.0	<1.0	<1.0	<1.0	1.0	4773487
Dissolved Bismuth (Bi)	ug/L	<2.0	<2.0	<2.0	<2.0	<2.0	2.0	4773487
Dissolved Boron (B)	ug/L	<50	<50	77	54	68	50	4773487
Dissolved Cadmium (Cd)	ug/L	0.092	0.026	<0.010	0.097	0.050	0.010	4773487
Dissolved Calcium (Ca)	ug/L	40000	100000	38000	170000	120000	100	4773487
Dissolved Chromium (Cr)	ug/L	<1.0	<1.0	<1.0	<1.0	<1.0	1.0	4773487
Dissolved Cobalt (Co)	ug/L	<0.40	<0.40	<0.40	<0.40	<0.40	0.40	4773487
Dissolved Copper (Cu)	ug/L	11	9.6	<2.0	3.3	<2.0	2.0	4773487
Dissolved Iron (Fe)	ug/L	51	<50	<50	2800	800	50	4773487
Dissolved Lead (Pb)	ug/L	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	4773487
Dissolved Magnesium (Mg)	ug/L	2000	11000	4200	25000	11000	100	4773487
Dissolved Manganese (Mn)	ug/L	250	<2.0	670	580	110	2.0	4773487
Dissolved Molybdenum (Mo)	ug/L	<2.0	2.1	<2.0	<2.0	4.0	2.0	4773487
Dissolved Nickel (Ni)	ug/L	<2.0	<2.0	<2.0	4.5	<2.0	2.0	4773487
Dissolved Phosphorus (P)	ug/L	<100	<100	<100	<100	140	100	4773487
Dissolved Potassium (K)	ug/L	1700	3200	2500	3600	11000	100	4773487
Dissolved Selenium (Se)	ug/L	<1.0	4.0	<1.0	<1.0	1.7	1.0	4773487
Dissolved Silver (Ag)	ug/L	<0.10	<0.10	<0.10	<0.10	<0.10	0.10	4773487
Dissolved Sodium (Na)	ug/L	5300	8200	70000	11000	24000	100	4773487
Dissolved Strontium (Sr)	ug/L	170	280	520	420	500	2.0	4773487
Dissolved Thallium (Tl)	ug/L	<0.10	<0.10	<0.10	<0.10	<0.10	0.10	4773487
Dissolved Tin (Sn)	ug/L	<2.0	<2.0	<2.0	<2.0	<2.0	2.0	4773487
Dissolved Titanium (Ti)	ug/L	<2.0	<2.0	<2.0	<2.0	<2.0	2.0	4773487
Dissolved Uranium (U)	ug/L	0.71	0.60	<0.10	0.14	3.0	0.10	4773487
Dissolved Vanadium (V)	ug/L	<2.0	<2.0	<2.0	<2.0	4.7	2.0	4773487
Dissolved Zinc (Zn)	ug/L	87	50	<5.0	97	<5.0	5.0	4773487

RDL = Reportable Detection Limit
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Maxxam Job #: B6P9071
Report Date: 2016/12/07

Dillon Consulting Limited
Client Project #: 4104251070
Site Location: OHP/HE SITE

ELEMENTS BY ICP/MS (WATER)

Maxxam ID		DNN009	DNN010	DNN011	DNN558		
Sampling Date		2016/11/28	2016/11/28	2016/11/28	2016/11/28		
COC Number		586491	586491	586491	586491		
	UNITS	COTS-001-MWB	COBP-006-MWA	FD-022	COBT-003-MWB	RDL	QC Batch
Metals							
Dissolved Aluminum (Al)	ug/L	11	9.0	30	5.9	5.0	4773487
Dissolved Antimony (Sb)	ug/L	<1.0	<1.0	<1.0	<1.0	1.0	4773487
Dissolved Arsenic (As)	ug/L	<1.0	<1.0	1.1	2.5	1.0	4773487
Dissolved Barium (Ba)	ug/L	38	58	39	46	1.0	4773487
Dissolved Beryllium (Be)	ug/L	<1.0	<1.0	<1.0	<1.0	1.0	4773487
Dissolved Bismuth (Bi)	ug/L	<2.0	<2.0	<2.0	<2.0	2.0	4773487
Dissolved Boron (B)	ug/L	<50	62	<50	65	50	4773487
Dissolved Cadmium (Cd)	ug/L	0.20	<0.010	0.068	<0.010	0.010	4773487
Dissolved Calcium (Ca)	ug/L	110000	110000	41000	110000	100	4773487
Dissolved Chromium (Cr)	ug/L	<1.0	<1.0	<1.0	<1.0	1.0	4773487
Dissolved Cobalt (Co)	ug/L	<0.40	<0.40	<0.40	<0.40	0.40	4773487
Dissolved Copper (Cu)	ug/L	<2.0	<2.0	11	<2.0	2.0	4773487
Dissolved Iron (Fe)	ug/L	<50	16000	57	220	50	4773487
Dissolved Lead (Pb)	ug/L	<0.50	<0.50	<0.50	<0.50	0.50	4773487
Dissolved Magnesium (Mg)	ug/L	13000	15000	2000	12000	100	4773487
Dissolved Manganese (Mn)	ug/L	1400	5300	250	2200	2.0	4773487
Dissolved Molybdenum (Mo)	ug/L	<2.0	<2.0	<2.0	<2.0	2.0	4773487
Dissolved Nickel (Ni)	ug/L	<2.0	<2.0	<2.0	<2.0	2.0	4773487
Dissolved Phosphorus (P)	ug/L	<100	<100	<100	<100	100	4773487
Dissolved Potassium (K)	ug/L	2700	4200	1700	3100	100	4773487
Dissolved Selenium (Se)	ug/L	<1.0	<1.0	<1.0	<1.0	1.0	4773487
Dissolved Silver (Ag)	ug/L	<0.10	<0.10	<0.10	<0.10	0.10	4773487
Dissolved Sodium (Na)	ug/L	35000	21000	5400	110000	100	4773487
Dissolved Strontium (Sr)	ug/L	1500	450	170	1400	2.0	4773487
Dissolved Thallium (Tl)	ug/L	<0.10	<0.10	<0.10	<0.10	0.10	4773487
Dissolved Tin (Sn)	ug/L	<2.0	<2.0	<2.0	<2.0	2.0	4773487
Dissolved Titanium (Ti)	ug/L	<2.0	<2.0	<2.0	<2.0	2.0	4773487
Dissolved Uranium (U)	ug/L	0.62	<0.10	0.72	0.25	0.10	4773487
Dissolved Vanadium (V)	ug/L	<2.0	<2.0	<2.0	<2.0	2.0	4773487
Dissolved Zinc (Zn)	ug/L	<5.0	47	87	21	5.0	4773487

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Maxxam Job #: B6P9071
Report Date: 2016/12/07

Dillon Consulting Limited
Client Project #: 4104251070
Site Location: OHP/HE SITE

SEMI-VOLATILE ORGANICS BY GC-MS (WATER)

Maxxam ID		DNN004	DNN005		DNN006		DNN007		
Sampling Date		2016/11/28	2016/11/28		2016/11/28		2016/11/28		
COC Number		586491	586491		586491		586491		
	UNITS	CODT-206-MW	CODT-201-MWA	RDL	CODT-201-MWC	RDL	COSB-002-MWA	RDL	QC Batch
Polyaromatic Hydrocarbons									
1-Methylnaphthalene	ug/L	<0.050	0.050	0.050	660 (1)	25	2.5	0.050	4775556
2-Methylnaphthalene	ug/L	<0.050	0.053	0.050	430 (1)	25	1.6	0.050	4775556
Acenaphthene	ug/L	0.032	0.35	0.010	250 (1)	5.0	0.74	0.010	4775556
Acenaphthylene	ug/L	<0.010	0.033	0.010	11	0.010	0.053	0.010	4775556
Anthracene	ug/L	0.021	0.85	0.010	3.3	0.010	0.019	0.010	4775556
Benzo(a)anthracene	ug/L	0.038	2.1	0.010	0.044	0.010	<0.010	0.010	4775556
Benzo(a)pyrene	ug/L	0.054	1.8	0.010	<0.010	0.010	<0.010	0.010	4775556
Benzo(b)fluoranthene	ug/L	0.046	1.4	0.010	<0.010	0.010	<0.010	0.010	4775556
Benzo(g,h,i)perylene	ug/L	0.034	0.81	0.010	<0.010	0.010	<0.010	0.010	4775556
Benzo(j)fluoranthene	ug/L	0.022	0.88	0.010	<0.010	0.010	<0.010	0.010	4775556
Benzo(k)fluoranthene	ug/L	0.021	0.85	0.010	<0.010	0.010	<0.010	0.010	4775556
Chrysene	ug/L	0.058	2.1	0.010	0.036	0.010	<0.010	0.010	4775556
Dibenz(a,h)anthracene	ug/L	<0.010	0.26	0.010	<0.010	0.010	<0.010	0.010	4775556
Fluoranthene	ug/L	0.11	4.4	0.010	1.9	0.010	0.020	0.010	4775556
Fluorene	ug/L	0.029	0.38	0.010	120 (1)	5.0	0.32	0.010	4775556
Indeno(1,2,3-cd)pyrene	ug/L	0.028	0.78	0.010	<0.010	0.010	<0.010	0.010	4775556
Naphthalene	ug/L	<0.20	<0.20	0.20	7500 (1)	100	33	0.20	4775556
Perylene	ug/L	0.016	0.40	0.010	<0.010	0.010	<0.010	0.010	4775556
Phenanthrene	ug/L	0.084	3.2	0.010	78 (1)	5.0	0.21	0.010	4775556
Pyrene	ug/L	0.080	3.6	0.010	1.0	0.010	0.013	0.010	4775556
Surrogate Recovery (%)									
D10-Anthracene	%	90	65		115		75		4775556
D14-Terphenyl	%	94	89 (2)		84		95		4775556
D8-Acenaphthylene	%	83	86		103		82		4775556

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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Dillon Consulting Limited
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Site Location: OHP/HE SITE

SEMI-VOLATILE ORGANICS BY GC-MS (WATER)

Maxxam ID		DNN008		DNN009		DNN010	DNN011		
Sampling Date		2016/11/28		2016/11/28		2016/11/28	2016/11/28		
COC Number		586491		586491		586491	586491		
	UNITS	COCP-110-MW	QC Batch	COTS-001-MWB	QC Batch	COBP-006-MWA	FD-022	RDL	QC Batch
Polyaromatic Hydrocarbons									
1-Methylnaphthalene	ug/L	<0.050	4775556	0.49	4778124	4.0	<0.050	0.050	4775556
2-Methylnaphthalene	ug/L	<0.050	4775556	<0.050	4778124	0.69	<0.050	0.050	4775556
Acenaphthene	ug/L	0.014	4775556	0.19	4778124	14	0.059	0.010	4775556
Acenaphthylene	ug/L	<0.010	4775556	1.2	4778124	0.22	0.015	0.010	4775556
Anthracene	ug/L	0.013	4775556	0.027	4778124	0.020	0.041	0.010	4775556
Benzo(a)anthracene	ug/L	0.026	4775556	<0.010	4778124	0.011	0.066	0.010	4775556
Benzo(a)pyrene	ug/L	0.020	4775556	<0.010	4778124	<0.010	0.095	0.010	4775556
Benzo(b)fluoranthene	ug/L	0.016	4775556	<0.010	4778124	<0.010	0.092	0.010	4775556
Benzo(g,h,i)perylene	ug/L	0.015	4775556	<0.010	4778124	<0.010	0.057	0.010	4775556
Benzo(j)fluoranthene	ug/L	<0.010	4775556	<0.010	4778124	<0.010	0.042	0.010	4775556
Benzo(k)fluoranthene	ug/L	<0.010	4775556	<0.010	4778124	<0.010	0.039	0.010	4775556
Chrysene	ug/L	0.027	4775556	<0.010	4778124	0.010	0.095	0.010	4775556
Dibenz(a,h)anthracene	ug/L	<0.010	4775556	<0.010	4778124	<0.010	0.014	0.010	4775556
Fluoranthene	ug/L	0.054	4775556	0.013	4778124	0.029	0.19	0.010	4775556
Fluorene	ug/L	0.011	4775556	0.091	4778124	0.83	0.055	0.010	4775556
Indeno(1,2,3-cd)pyrene	ug/L	<0.010	4775556	<0.010	4778124	<0.010	0.045	0.010	4775556
Naphthalene	ug/L	<0.20	4775556	1.7	4778124	16	<0.20	0.20	4775556
Perylene	ug/L	<0.010	4775556	<0.010	4778124	<0.010	0.023	0.010	4775556
Phenanthrene	ug/L	0.040	4775556	0.017	4778124	0.12	0.13	0.010	4775556
Pyrene	ug/L	0.050	4775556	<0.010	4778124	0.027	0.14	0.010	4775556
Surrogate Recovery (%)									
D10-Anthracene	%	78	4775556	104	4778124	64	115		4775556
D14-Terphenyl	%	98	4775556	110	4778124	82	125		4775556
D8-Acenaphthylene	%	95	4775556	112	4778124	78	110		4775556

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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SEMI-VOLATILE ORGANICS BY GC-MS (WATER)

Maxxam ID		DNN012	DNN558		
Sampling Date		2016/11/28	2016/11/28		
COC Number		586491	586491		
	UNITS	TB-031	COBT-003-MWB	RDL	QC Batch
Polyaromatic Hydrocarbons					
1-Methylnaphthalene	ug/L	<0.050	1.4	0.050	4775556
2-Methylnaphthalene	ug/L	<0.050	0.86	0.050	4775556
Acenaphthene	ug/L	<0.010	0.41	0.010	4775556
Acenaphthylene	ug/L	<0.010	0.015	0.010	4775556
Anthracene	ug/L	<0.010	<0.010	0.010	4775556
Benzo(a)anthracene	ug/L	<0.010	<0.010	0.010	4775556
Benzo(a)pyrene	ug/L	<0.010	<0.010	0.010	4775556
Benzo(b)fluoranthene	ug/L	<0.010	<0.010	0.010	4775556
Benzo(g,h,i)perylene	ug/L	<0.010	<0.010	0.010	4775556
Benzo(j)fluoranthene	ug/L	<0.010	<0.010	0.010	4775556
Benzo(k)fluoranthene	ug/L	<0.010	<0.010	0.010	4775556
Chrysene	ug/L	<0.010	<0.010	0.010	4775556
Dibenz(a,h)anthracene	ug/L	<0.010	<0.010	0.010	4775556
Fluoranthene	ug/L	<0.010	<0.010	0.010	4775556
Fluorene	ug/L	<0.010	0.13	0.010	4775556
Indeno(1,2,3-cd)pyrene	ug/L	<0.010	<0.010	0.010	4775556
Naphthalene	ug/L	<0.20	15	0.20	4775556
Perylene	ug/L	<0.010	<0.010	0.010	4775556
Phenanthrene	ug/L	<0.010	0.066	0.010	4775556
Pyrene	ug/L	<0.010	<0.010	0.010	4775556
Surrogate Recovery (%)					
D10-Anthracene	%	89	106		4775556
D14-Terphenyl	%	90	106		4775556
D8-Acenaphthylene	%	75	111		4775556

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Report Date: 2016/12/07

Dillon Consulting Limited
Client Project #: 4104251070
Site Location: OHP/HE SITE

ATLANTIC RBCA HYDROCARBONS (WATER)

Maxxam ID		DNN006		
Sampling Date		2016/11/28		
COC Number		586491		
	UNITS	CODT-201-MWC	RDL	QC Batch
Petroleum Hydrocarbons				
Benzene	mg/L	0.072	0.010	4775702
Toluene	mg/L	0.16	0.010	4775702
Ethylbenzene	mg/L	0.14	0.010	4775702
Total Xylenes	mg/L	0.57	0.020	4775702
C6 - C10 (less BTEX)	mg/L	1.1	0.10	4775702
>C10-C16 Hydrocarbons	mg/L	18	0.050	4773524
>C16-C21 Hydrocarbons	mg/L	0.49	0.050	4773524
>C21-<C32 Hydrocarbons	mg/L	<0.10	0.10	4773524
Modified TPH (Tier1)	mg/L	20	0.10	4769752
Reached Baseline at C32	mg/L	Yes	N/A	4773524
Hydrocarbon Resemblance	mg/L	COMMENT (1)	N/A	4773524
Surrogate Recovery (%)				
Isobutylbenzene - Extractable	%	108		4773524
n-Dotriacontane - Extractable	%	114		4773524
Isobutylbenzene - Volatile	%	99		4775702

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable
(1) One product in the gas/fuel oil range. Unidentified compound(s) in fuel oil range.

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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
4773481	JMV	QC Standard	pH	2016/12/01		101	%	97 - 103
4773481	JMV	RPD	pH	2016/12/01	0.090		%	N/A
4773482	JMV	Spiked Blank	Conductivity	2016/12/01		104	%	80 - 120
4773482	JMV	Method Blank	Conductivity	2016/12/01	1.7, RDL=1.0		uS/cm	
4773482	JMV	RPD	Conductivity	2016/12/01	0.88		%	25
4773487	BAN	Matrix Spike	Dissolved Aluminum (Al)	2016/12/01		102	%	80 - 120
			Dissolved Antimony (Sb)	2016/12/01		103	%	80 - 120
			Dissolved Arsenic (As)	2016/12/01		96	%	80 - 120
			Dissolved Barium (Ba)	2016/12/01		97	%	80 - 120
			Dissolved Beryllium (Be)	2016/12/01		97	%	80 - 120
			Dissolved Bismuth (Bi)	2016/12/01		104	%	80 - 120
			Dissolved Boron (B)	2016/12/01		98	%	80 - 120
			Dissolved Cadmium (Cd)	2016/12/01		102	%	80 - 120
			Dissolved Calcium (Ca)	2016/12/01		99	%	80 - 120
			Dissolved Chromium (Cr)	2016/12/01		97	%	80 - 120
			Dissolved Cobalt (Co)	2016/12/01		97	%	80 - 120
			Dissolved Copper (Cu)	2016/12/01		95	%	80 - 120
			Dissolved Iron (Fe)	2016/12/01		101	%	80 - 120
			Dissolved Lead (Pb)	2016/12/01		99	%	80 - 120
			Dissolved Magnesium (Mg)	2016/12/01		100	%	80 - 120
			Dissolved Manganese (Mn)	2016/12/01		98	%	80 - 120
			Dissolved Molybdenum (Mo)	2016/12/01		102	%	80 - 120
			Dissolved Nickel (Ni)	2016/12/01		98	%	80 - 120
			Dissolved Phosphorus (P)	2016/12/01		102	%	80 - 120
			Dissolved Potassium (K)	2016/12/01		107	%	80 - 120
			Dissolved Selenium (Se)	2016/12/01		96	%	80 - 120
			Dissolved Silver (Ag)	2016/12/01		98	%	80 - 120
			Dissolved Sodium (Na)	2016/12/01		97	%	80 - 120
			Dissolved Strontium (Sr)	2016/12/01		98	%	80 - 120
			Dissolved Thallium (Tl)	2016/12/01		104	%	80 - 120
			Dissolved Tin (Sn)	2016/12/01		105	%	80 - 120
			Dissolved Titanium (Ti)	2016/12/01		98	%	80 - 120
			Dissolved Uranium (U)	2016/12/01		107	%	80 - 120
			Dissolved Vanadium (V)	2016/12/01		97	%	80 - 120
			Dissolved Zinc (Zn)	2016/12/01		100	%	80 - 120
4773487	BAN	Spiked Blank	Dissolved Aluminum (Al)	2016/12/01		101	%	80 - 120
			Dissolved Antimony (Sb)	2016/12/01		101	%	80 - 120
			Dissolved Arsenic (As)	2016/12/01		97	%	80 - 120
			Dissolved Barium (Ba)	2016/12/01		97	%	80 - 120
			Dissolved Beryllium (Be)	2016/12/01		97	%	80 - 120
			Dissolved Bismuth (Bi)	2016/12/01		103	%	80 - 120
			Dissolved Boron (B)	2016/12/01		100	%	80 - 120
			Dissolved Cadmium (Cd)	2016/12/01		100	%	80 - 120
			Dissolved Calcium (Ca)	2016/12/01		101	%	80 - 120
			Dissolved Chromium (Cr)	2016/12/01		98	%	80 - 120
			Dissolved Cobalt (Co)	2016/12/01		97	%	80 - 120
			Dissolved Copper (Cu)	2016/12/01		96	%	80 - 120
			Dissolved Iron (Fe)	2016/12/01		100	%	80 - 120
			Dissolved Lead (Pb)	2016/12/01		98	%	80 - 120
			Dissolved Magnesium (Mg)	2016/12/01		101	%	80 - 120
			Dissolved Manganese (Mn)	2016/12/01		99	%	80 - 120
			Dissolved Molybdenum (Mo)	2016/12/01		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 Nickel (Ni)	2016/12/01		99	%	80 - 120
			Dissolved Phosphorus (P)	2016/12/01		102	%	80 - 120
			Dissolved Potassium (K)	2016/12/01		105	%	80 - 120
			Dissolved Selenium (Se)	2016/12/01		94	%	80 - 120
			Dissolved Silver (Ag)	2016/12/01		97	%	80 - 120
			Dissolved Sodium (Na)	2016/12/01		98	%	80 - 120
			Dissolved Strontium (Sr)	2016/12/01		98	%	80 - 120
			Dissolved Thallium (Tl)	2016/12/01		102	%	80 - 120
			Dissolved Tin (Sn)	2016/12/01		104	%	80 - 120
			Dissolved Titanium (Ti)	2016/12/01		101	%	80 - 120
			Dissolved Uranium (U)	2016/12/01		106	%	80 - 120
			Dissolved Vanadium (V)	2016/12/01		97	%	80 - 120
			Dissolved Zinc (Zn)	2016/12/01		100	%	80 - 120
4773487	BAN	Method Blank	Dissolved Aluminum (Al)	2016/12/01	<5.0		ug/L	
			Dissolved Antimony (Sb)	2016/12/01	<1.0		ug/L	
			Dissolved Arsenic (As)	2016/12/01	<1.0		ug/L	
			Dissolved Barium (Ba)	2016/12/01	<1.0		ug/L	
			Dissolved Beryllium (Be)	2016/12/01	<1.0		ug/L	
			Dissolved Bismuth (Bi)	2016/12/01	<2.0		ug/L	
			Dissolved Boron (B)	2016/12/01	<50		ug/L	
			Dissolved Cadmium (Cd)	2016/12/01	<0.010		ug/L	
			Dissolved Calcium (Ca)	2016/12/01	<100		ug/L	
			Dissolved Chromium (Cr)	2016/12/01	<1.0		ug/L	
			Dissolved Cobalt (Co)	2016/12/01	<0.40		ug/L	
			Dissolved Copper (Cu)	2016/12/01	<2.0		ug/L	
			Dissolved Iron (Fe)	2016/12/01	<50		ug/L	
			Dissolved Lead (Pb)	2016/12/01	<0.50		ug/L	
			Dissolved Magnesium (Mg)	2016/12/01	<100		ug/L	
			Dissolved Manganese (Mn)	2016/12/01	<2.0		ug/L	
			Dissolved Molybdenum (Mo)	2016/12/01	<2.0		ug/L	
			Dissolved Nickel (Ni)	2016/12/01	<2.0		ug/L	
			Dissolved Phosphorus (P)	2016/12/01	<100		ug/L	
			Dissolved Potassium (K)	2016/12/01	<100		ug/L	
			Dissolved Selenium (Se)	2016/12/01	<1.0		ug/L	
			Dissolved Silver (Ag)	2016/12/01	<0.10		ug/L	
			Dissolved Sodium (Na)	2016/12/01	<100		ug/L	
			Dissolved Strontium (Sr)	2016/12/01	<2.0		ug/L	
			Dissolved Thallium (Tl)	2016/12/01	<0.10		ug/L	
			Dissolved Tin (Sn)	2016/12/01	<2.0		ug/L	
			Dissolved Titanium (Ti)	2016/12/01	<2.0		ug/L	
			Dissolved Uranium (U)	2016/12/01	<0.10		ug/L	
			Dissolved Vanadium (V)	2016/12/01	<2.0		ug/L	
			Dissolved Zinc (Zn)	2016/12/01	<5.0		ug/L	
4773487	BAN	RPD	Dissolved Aluminum (Al)	2016/12/01	NC		%	20
			Dissolved Antimony (Sb)	2016/12/01	NC		%	20
			Dissolved Arsenic (As)	2016/12/01	NC		%	20
			Dissolved Barium (Ba)	2016/12/01	NC		%	20
			Dissolved Beryllium (Be)	2016/12/01	NC		%	20
			Dissolved Bismuth (Bi)	2016/12/01	NC		%	20
			Dissolved Boron (B)	2016/12/01	NC		%	20
			Dissolved Cadmium (Cd)	2016/12/01	NC		%	20
			Dissolved Calcium (Ca)	2016/12/01	0.15		%	20
			Dissolved Chromium (Cr)	2016/12/01	NC		%	20

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QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Dissolved Cobalt (Co)	2016/12/01	NC		%	20
			Dissolved Copper (Cu)	2016/12/01	NC		%	20
			Dissolved Iron (Fe)	2016/12/01	NC		%	20
			Dissolved Lead (Pb)	2016/12/01	NC		%	20
			Dissolved Magnesium (Mg)	2016/12/01	NC		%	20
			Dissolved Manganese (Mn)	2016/12/01	NC		%	20
			Dissolved Molybdenum (Mo)	2016/12/01	NC		%	20
			Dissolved Nickel (Ni)	2016/12/01	NC		%	20
			Dissolved Phosphorus (P)	2016/12/01	NC		%	20
			Dissolved Potassium (K)	2016/12/01	2.3		%	20
			Dissolved Selenium (Se)	2016/12/01	NC		%	20
			Dissolved Silver (Ag)	2016/12/01	NC		%	20
			Dissolved Sodium (Na)	2016/12/01	0.56		%	20
			Dissolved Strontium (Sr)	2016/12/01	2.5		%	20
			Dissolved Thallium (Tl)	2016/12/01	NC		%	20
			Dissolved Tin (Sn)	2016/12/01	NC		%	20
			Dissolved Titanium (Ti)	2016/12/01	NC		%	20
			Dissolved Uranium (U)	2016/12/01	NC		%	20
			Dissolved Vanadium (V)	2016/12/01	NC		%	20
			Dissolved Zinc (Zn)	2016/12/01	NC		%	20
4773494	JMV	QC Standard	Turbidity	2016/12/01		113	%	80 - 120
4773494	JMV	Spiked Blank	Turbidity	2016/12/01		99	%	80 - 120
4773494	JMV	Method Blank	Turbidity	2016/12/01	<0.10		NTU	
4773494	JMV	RPD	Turbidity	2016/12/01	2.6		%	20
4773495	JMV	QC Standard	Turbidity	2016/12/02		113	%	80 - 120
4773495	JMV	Spiked Blank	Turbidity	2016/12/02		97	%	80 - 120
4773495	JMV	Method Blank	Turbidity	2016/12/02	<0.10		NTU	
4773495	JMV	RPD	Turbidity	2016/12/02	2.8		%	20
4773524	KBK	Matrix Spike	Isobutylbenzene - Extractable	2016/12/01		105	%	30 - 130
			n-Dotriacontane - Extractable	2016/12/01		103	%	30 - 130
			>C10-C16 Hydrocarbons	2016/12/01		93	%	70 - 130
			>C16-C21 Hydrocarbons	2016/12/01		86	%	70 - 130
			>C21-<C32 Hydrocarbons	2016/12/01		82	%	70 - 130
4773524	KBK	Spiked Blank	Isobutylbenzene - Extractable	2016/12/01		109	%	30 - 130
			n-Dotriacontane - Extractable	2016/12/01		111	%	30 - 130
			>C10-C16 Hydrocarbons	2016/12/01		100	%	70 - 130
			>C16-C21 Hydrocarbons	2016/12/01		95	%	70 - 130
			>C21-<C32 Hydrocarbons	2016/12/01		89	%	70 - 130
4773524	KBK	Method Blank	Isobutylbenzene - Extractable	2016/12/01		106	%	30 - 130
			n-Dotriacontane - Extractable	2016/12/01		110	%	30 - 130
			>C10-C16 Hydrocarbons	2016/12/01	<0.050		mg/L	
			>C16-C21 Hydrocarbons	2016/12/01	<0.050		mg/L	
			>C21-<C32 Hydrocarbons	2016/12/01	<0.10		mg/L	
4773524	KBK	RPD	>C10-C16 Hydrocarbons	2016/12/01	NC		%	40
			>C16-C21 Hydrocarbons	2016/12/01	NC		%	40
			>C21-<C32 Hydrocarbons	2016/12/01	NC		%	40
4775556	GTH	Matrix Spike [DNN005-01]	D10-Anthracene	2016/12/05		74	%	30 - 130
			D14-Terphenyl	2016/12/05		95 (1)	%	30 - 130
			D8-Acenaphthylene	2016/12/05		81	%	30 - 130
			1-Methylnaphthalene	2016/12/05		78	%	30 - 130
			2-Methylnaphthalene	2016/12/05		82	%	30 - 130
			Acenaphthene	2016/12/05		73	%	30 - 130

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Acenaphthylene	2016/12/05		78	%	30 - 130
			Anthracene	2016/12/05		NC	%	30 - 130
			Benzo(a)anthracene	2016/12/05		NC	%	30 - 130
			Benzo(a)pyrene	2016/12/05		NC	%	30 - 130
			Benzo(b)fluoranthene	2016/12/05		NC	%	30 - 130
			Benzo(g,h,i)perylene	2016/12/05		NC	%	30 - 130
			Benzo(j)fluoranthene	2016/12/05		NC	%	30 - 130
			Benzo(k)fluoranthene	2016/12/05		NC	%	30 - 130
			Chrysene	2016/12/05		NC	%	30 - 130
			Dibenz(a,h)anthracene	2016/12/05		72	%	30 - 130
			Fluoranthene	2016/12/05		NC	%	30 - 130
			Fluorene	2016/12/05		83	%	30 - 130
			Indeno(1,2,3-cd)pyrene	2016/12/05		NC	%	30 - 130
			Naphthalene	2016/12/05		77	%	30 - 130
			Perylene	2016/12/05		76	%	30 - 130
			Phenanthrene	2016/12/05		NC	%	30 - 130
			Pyrene	2016/12/05		NC	%	30 - 130
4775556	GTH	Spiked Blank	D10-Anthracene	2016/12/05		103	%	30 - 130
			D14-Terphenyl	2016/12/05		104	%	30 - 130
			D8-Acenaphthylene	2016/12/05		105	%	30 - 130
			1-Methylnaphthalene	2016/12/05		92	%	30 - 130
			2-Methylnaphthalene	2016/12/05		94	%	30 - 130
			Acenaphthene	2016/12/05		100	%	30 - 130
			Acenaphthylene	2016/12/05		82	%	30 - 130
			Anthracene	2016/12/05		86	%	30 - 130
			Benzo(a)anthracene	2016/12/05		90	%	30 - 130
			Benzo(a)pyrene	2016/12/05		84	%	30 - 130
			Benzo(b)fluoranthene	2016/12/05		88	%	30 - 130
			Benzo(g,h,i)perylene	2016/12/05		95	%	30 - 130
			Benzo(j)fluoranthene	2016/12/05		82	%	30 - 130
			Benzo(k)fluoranthene	2016/12/05		84	%	30 - 130
			Chrysene	2016/12/05		80	%	30 - 130
			Dibenz(a,h)anthracene	2016/12/05		81	%	30 - 130
			Fluoranthene	2016/12/05		101	%	30 - 130
			Fluorene	2016/12/05		99	%	30 - 130
			Indeno(1,2,3-cd)pyrene	2016/12/05		84	%	30 - 130
			Naphthalene	2016/12/05		95	%	30 - 130
			Perylene	2016/12/05		88	%	30 - 130
			Phenanthrene	2016/12/05		90	%	30 - 130
			Pyrene	2016/12/05		99	%	30 - 130
4775556	GTH	Method Blank	D10-Anthracene	2016/12/04		125	%	30 - 130
			D14-Terphenyl	2016/12/04		129	%	30 - 130
			D8-Acenaphthylene	2016/12/04		130	%	30 - 130
			1-Methylnaphthalene	2016/12/04	<0.050		ug/L	
			2-Methylnaphthalene	2016/12/04	<0.050		ug/L	
			Acenaphthene	2016/12/04	<0.010		ug/L	
			Acenaphthylene	2016/12/04	<0.010		ug/L	
			Anthracene	2016/12/04	<0.010		ug/L	
			Benzo(a)anthracene	2016/12/04	<0.010		ug/L	
			Benzo(a)pyrene	2016/12/04	<0.010		ug/L	
			Benzo(b)fluoranthene	2016/12/04	<0.010		ug/L	
			Benzo(g,h,i)perylene	2016/12/04	<0.010		ug/L	
			Benzo(j)fluoranthene	2016/12/04	<0.010		ug/L	

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QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Benzo(k)fluoranthene	2016/12/04	<0.010		ug/L	
			Chrysene	2016/12/04	<0.010		ug/L	
			Dibenz(a,h)anthracene	2016/12/04	<0.010		ug/L	
			Fluoranthene	2016/12/04	<0.010		ug/L	
			Fluorene	2016/12/04	<0.010		ug/L	
			Indeno(1,2,3-cd)pyrene	2016/12/04	<0.010		ug/L	
			Naphthalene	2016/12/04	<0.20		ug/L	
			Perylene	2016/12/04	<0.010		ug/L	
			Phenanthrene	2016/12/04	<0.010		ug/L	
			Pyrene	2016/12/04	<0.010		ug/L	
4775556	GTH	RPD [DNN004-01]	1-Methylnaphthalene	2016/12/05	NC		%	40
			2-Methylnaphthalene	2016/12/05	NC		%	40
			Acenaphthene	2016/12/05	NC		%	40
			Acenaphthylene	2016/12/05	NC		%	40
			Anthracene	2016/12/05	NC		%	40
			Benzo(a)anthracene	2016/12/05	NC		%	40
			Benzo(a)pyrene	2016/12/05	10		%	40
			Benzo(b)fluoranthene	2016/12/05	NC		%	40
			Benzo(g,h,i)perylene	2016/12/05	NC		%	40
			Benzo(j)fluoranthene	2016/12/05	NC		%	40
			Benzo(k)fluoranthene	2016/12/05	NC		%	40
			Chrysene	2016/12/05	26		%	40
			Dibenz(a,h)anthracene	2016/12/05	NC		%	40
			Fluoranthene	2016/12/05	16		%	40
			Fluorene	2016/12/05	NC		%	40
			Indeno(1,2,3-cd)pyrene	2016/12/05	NC		%	40
			Naphthalene	2016/12/05	NC		%	40
			Perylene	2016/12/05	NC		%	40
			Phenanthrene	2016/12/05	17		%	40
			Pyrene	2016/12/05	16		%	40
4775702	HWH	Matrix Spike	Isobutylbenzene - Volatile	2016/12/03		102	%	70 - 130
			Benzene	2016/12/03		107	%	70 - 130
			Toluene	2016/12/03		107	%	70 - 130
			Ethylbenzene	2016/12/03		109	%	70 - 130
			Total Xylenes	2016/12/03		108	%	70 - 130
4775702	HWH	Spiked Blank	Isobutylbenzene - Volatile	2016/12/02		103	%	70 - 130
			Benzene	2016/12/02		108	%	70 - 130
			Toluene	2016/12/02		106	%	70 - 130
			Ethylbenzene	2016/12/02		108	%	70 - 130
			Total Xylenes	2016/12/02		108	%	70 - 130
4775702	HWH	Method Blank	Isobutylbenzene - Volatile	2016/12/02		103	%	70 - 130
			Benzene	2016/12/02	<0.0010		mg/L	
			Toluene	2016/12/02	<0.0010		mg/L	
			Ethylbenzene	2016/12/02	<0.0010		mg/L	
			Total Xylenes	2016/12/02	<0.0020		mg/L	
			C6 - C10 (less BTEX)	2016/12/02	<0.010		mg/L	
4775702	HWH	RPD	Benzene	2016/12/02	NC		%	40
			Toluene	2016/12/02	NC		%	40
			Ethylbenzene	2016/12/02	NC		%	40
			Total Xylenes	2016/12/02	NC		%	40
			C6 - C10 (less BTEX)	2016/12/02	NC		%	40
4775780	JMV	QC Standard	pH	2016/12/02		101	%	97 - 103
4775780	JMV	RPD	pH	2016/12/02	1.4		%	N/A

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QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
4775785	JMV	Spiked Blank	Conductivity	2016/12/02		104	%	80 - 120
4775785	JMV	Method Blank	Conductivity	2016/12/02	1.5, RDL=1.0		uS/cm	
4775785	JMV	RPD	Conductivity	2016/12/02	0.0077		%	25
4776077	NRG	Matrix Spike	Nitrogen (Ammonia Nitrogen)	2016/12/05		100	%	80 - 120
4776077	NRG	Spiked Blank	Nitrogen (Ammonia Nitrogen)	2016/12/05		99	%	80 - 120
4776077	NRG	Method Blank	Nitrogen (Ammonia Nitrogen)	2016/12/05	<0.050		mg/L	
4776077	NRG	RPD	Nitrogen (Ammonia Nitrogen)	2016/12/05	NC		%	20
4776122	ARS	Matrix Spike	Total Mercury (Hg)	2016/12/05		100	%	80 - 120
4776122	ARS	Spiked Blank	Total Mercury (Hg)	2016/12/05		99	%	80 - 120
4776122	ARS	Method Blank	Total Mercury (Hg)	2016/12/05	<0.013		ug/L	
4776122	ARS	RPD	Total Mercury (Hg)	2016/12/05	NC		%	20
4776126	ARS	Matrix Spike [DNN558-05]	Total Mercury (Hg)	2016/12/05		102	%	80 - 120
4776126	ARS	Spiked Blank	Total Mercury (Hg)	2016/12/05		99	%	80 - 120
4776126	ARS	Method Blank	Total Mercury (Hg)	2016/12/05	<0.013		ug/L	
4776126	ARS	RPD [DNN011-05]	Total Mercury (Hg)	2016/12/05	NC		%	20
4778124	GTH	Matrix Spike	D10-Anthracene	2016/12/06		81	%	30 - 130
			D14-Terphenyl	2016/12/06		83 (1)	%	30 - 130
			D8-Acenaphthylene	2016/12/06		90	%	30 - 130
			1-Methylnaphthalene	2016/12/06		81	%	30 - 130
			2-Methylnaphthalene	2016/12/06		83	%	30 - 130
			Acenaphthene	2016/12/06		85	%	30 - 130
			Acenaphthylene	2016/12/06		80	%	30 - 130
			Anthracene	2016/12/06		82	%	30 - 130
			Benzo(a)anthracene	2016/12/06		91	%	30 - 130
			Benzo(a)pyrene	2016/12/06		72	%	30 - 130
			Benzo(b)fluoranthene	2016/12/06		78	%	30 - 130
			Benzo(g,h,i)perylene	2016/12/06		75	%	30 - 130
			Benzo(j)fluoranthene	2016/12/06		61	%	30 - 130
			Benzo(k)fluoranthene	2016/12/06		69	%	30 - 130
			Chrysene	2016/12/06		87	%	30 - 130
			Dibenz(a,h)anthracene	2016/12/06		61	%	30 - 130
			Fluoranthene	2016/12/06		85	%	30 - 130
			Fluorene	2016/12/06		87	%	30 - 130
			Indeno(1,2,3-cd)pyrene	2016/12/06		61	%	30 - 130
			Naphthalene	2016/12/06		NC	%	30 - 130
			Perylene	2016/12/06		58	%	30 - 130
			Phenanthrene	2016/12/06		76	%	30 - 130
			Pyrene	2016/12/06		84	%	30 - 130
4778124	GTH	Spiked Blank	D10-Anthracene	2016/12/06		87	%	30 - 130
			D14-Terphenyl	2016/12/06		89	%	30 - 130
			D8-Acenaphthylene	2016/12/06		90	%	30 - 130
			1-Methylnaphthalene	2016/12/06		85	%	30 - 130
			2-Methylnaphthalene	2016/12/06		89	%	30 - 130
			Acenaphthene	2016/12/06		91	%	30 - 130
			Acenaphthylene	2016/12/06		81	%	30 - 130
			Anthracene	2016/12/06		91	%	30 - 130
			Benzo(a)anthracene	2016/12/06		88	%	30 - 130
			Benzo(a)pyrene	2016/12/06		78	%	30 - 130
			Benzo(b)fluoranthene	2016/12/06		82	%	30 - 130
			Benzo(g,h,i)perylene	2016/12/06		81	%	30 - 130
			Benzo(j)fluoranthene	2016/12/06		74	%	30 - 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	2016/12/06		78	%	30 - 130
			Chrysene	2016/12/06		81	%	30 - 130
			Dibenz(a,h)anthracene	2016/12/06		68	%	30 - 130
			Fluoranthene	2016/12/06		89	%	30 - 130
			Fluorene	2016/12/06		91	%	30 - 130
			Indeno(1,2,3-cd)pyrene	2016/12/06		75	%	30 - 130
			Naphthalene	2016/12/06		86	%	30 - 130
			Perylene	2016/12/06		78	%	30 - 130
			Phenanthrene	2016/12/06		95	%	30 - 130
			Pyrene	2016/12/06		90	%	30 - 130
4778124	GTH	Method Blank	D10-Anthracene	2016/12/06		88	%	30 - 130
			D14-Terphenyl	2016/12/06		108	%	30 - 130
			D8-Acenaphthylene	2016/12/06		122	%	30 - 130
			1-Methylnaphthalene	2016/12/06	<0.050		ug/L	
			2-Methylnaphthalene	2016/12/06	<0.050		ug/L	
			Acenaphthene	2016/12/06	<0.010		ug/L	
			Acenaphthylene	2016/12/06	<0.010		ug/L	
			Anthracene	2016/12/06	<0.010		ug/L	
			Benzo(a)anthracene	2016/12/06	<0.010		ug/L	
			Benzo(a)pyrene	2016/12/06	<0.010		ug/L	
			Benzo(b)fluoranthene	2016/12/06	<0.010		ug/L	
			Benzo(g,h,i)perylene	2016/12/06	<0.010		ug/L	
			Benzo(j)fluoranthene	2016/12/06	<0.010		ug/L	
			Benzo(k)fluoranthene	2016/12/06	<0.010		ug/L	
			Chrysene	2016/12/06	<0.010		ug/L	
			Dibenz(a,h)anthracene	2016/12/06	<0.010		ug/L	
			Fluoranthene	2016/12/06	<0.010		ug/L	
			Fluorene	2016/12/06	<0.010		ug/L	
			Indeno(1,2,3-cd)pyrene	2016/12/06	<0.010		ug/L	
			Naphthalene	2016/12/06	<0.20		ug/L	
			Perylene	2016/12/06	<0.010		ug/L	
			Phenanthrene	2016/12/06	<0.010		ug/L	
			Pyrene	2016/12/06	<0.010		ug/L	
4778124	GTH	RPD	Acenaphthylene	2016/12/06	NC		%	40
			Anthracene	2016/12/06	NC		%	40
			Fluorene	2016/12/06	NC		%	40
			Naphthalene	2016/12/06	NC		%	40
			Phenanthrene	2016/12/06	NC		%	40
			Pyrene	2016/12/06	NC		%	40
4778372	SMT	Matrix Spike [DNN011-04]	Total Organic Carbon (C)	2016/12/05		NC	%	80 - 120
4778372	SMT	Spiked Blank	Total Organic Carbon (C)	2016/12/05		94	%	80 - 120
4778372	SMT	Method Blank	Total Organic Carbon (C)	2016/12/05	<0.50		mg/L	
4778372	SMT	RPD [DNN011-04]	Total Organic Carbon (C)	2016/12/05	0.96		%	20
4778492	NRG	Matrix Spike [DNN005-02]	Total Alkalinity (Total as CaCO3)	2016/12/06		NC	%	80 - 120
4778492	NRG	Spiked Blank	Total Alkalinity (Total as CaCO3)	2016/12/06		111	%	80 - 120
4778492	NRG	Method Blank	Total Alkalinity (Total as CaCO3)	2016/12/06	<5.0		mg/L	
4778492	NRG	RPD [DNN005-02]	Total Alkalinity (Total as CaCO3)	2016/12/06	3.1		%	25
4778496	MCN	Matrix Spike [DNN005-02]	Dissolved Chloride (Cl)	2016/12/07		NC	%	80 - 120
4778496	MCN	QC Standard	Dissolved Chloride (Cl)	2016/12/07		112	%	80 - 120
4778496	MCN	Spiked Blank	Dissolved Chloride (Cl)	2016/12/07		105	%	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
4778496	MCN	Method Blank	Dissolved Chloride (Cl)	2016/12/07	<1.0		mg/L	
4778496	MCN	RPD [DNN005-02]	Dissolved Chloride (Cl)	2016/12/07	4.3		%	25
4778497	MCN	Matrix Spike [DNN005-02]	Dissolved Sulphate (SO4)	2016/12/06		NC	%	80 - 120
4778497	MCN	Spiked Blank	Dissolved Sulphate (SO4)	2016/12/06		106	%	80 - 120
4778497	MCN	Method Blank	Dissolved Sulphate (SO4)	2016/12/06	<2.0		mg/L	
4778497	MCN	RPD [DNN005-02]	Dissolved Sulphate (SO4)	2016/12/06	0.0021		%	25
4778498	NRG	Matrix Spike [DNN005-02]	Reactive Silica (SiO2)	2016/12/06		NC	%	80 - 120
4778498	NRG	Spiked Blank	Reactive Silica (SiO2)	2016/12/06		96	%	80 - 120
4778498	NRG	Method Blank	Reactive Silica (SiO2)	2016/12/06	<0.50		mg/L	
4778498	NRG	RPD [DNN005-02]	Reactive Silica (SiO2)	2016/12/06	0.46		%	25
4778499	NRG	Spiked Blank	Colour	2016/12/06		101	%	80 - 120
4778499	NRG	Method Blank	Colour	2016/12/06	<5.0		TCU	
4778499	NRG	RPD [DNN005-02]	Colour	2016/12/06	NC		%	20
4778500	KBT	Matrix Spike [DNN005-02]	Orthophosphate (P)	2016/12/06		98	%	80 - 120
4778500	KBT	Spiked Blank	Orthophosphate (P)	2016/12/06		100	%	80 - 120
4778500	KBT	Method Blank	Orthophosphate (P)	2016/12/06	<0.010		mg/L	
4778500	KBT	RPD [DNN005-02]	Orthophosphate (P)	2016/12/06	NC		%	25
4778501	MCN	Matrix Spike [DNN005-02]	Nitrate + Nitrite (N)	2016/12/07		NC	%	80 - 120
4778501	MCN	Spiked Blank	Nitrate + Nitrite (N)	2016/12/07		101	%	80 - 120
4778501	MCN	Method Blank	Nitrate + Nitrite (N)	2016/12/07	0.052, RDL=0.050		mg/L	
4778501	MCN	RPD [DNN005-02]	Nitrate + Nitrite (N)	2016/12/07	0.62		%	25
4778503	KBT	Matrix Spike [DNN005-02]	Nitrite (N)	2016/12/06		97	%	80 - 120
4778503	KBT	Spiked Blank	Nitrite (N)	2016/12/06		100	%	80 - 120
4778503	KBT	Method Blank	Nitrite (N)	2016/12/06	<0.010		mg/L	
4778503	KBT	RPD [DNN005-02]	Nitrite (N)	2016/12/06	NC		%	25
4778507	NRG	Matrix Spike	Total Alkalinity (Total as CaCO3)	2016/12/07		NC	%	80 - 120
4778507	NRG	Spiked Blank	Total Alkalinity (Total as CaCO3)	2016/12/06		110	%	80 - 120
4778507	NRG	Method Blank	Total Alkalinity (Total as CaCO3)	2016/12/06	<5.0		mg/L	
4778507	NRG	RPD	Total Alkalinity (Total as CaCO3)	2016/12/07	NC		%	25
4778508	MCN	Matrix Spike	Dissolved Chloride (Cl)	2016/12/07		NC	%	80 - 120
4778508	MCN	QC Standard	Dissolved Chloride (Cl)	2016/12/07		111	%	80 - 120
4778508	MCN	Spiked Blank	Dissolved Chloride (Cl)	2016/12/07		105	%	80 - 120
4778508	MCN	Method Blank	Dissolved Chloride (Cl)	2016/12/07	<1.0		mg/L	
4778508	MCN	RPD	Dissolved Chloride (Cl)	2016/12/07	0.29		%	25
4778512	MCN	Matrix Spike	Dissolved Sulphate (SO4)	2016/12/06		NC	%	80 - 120
4778512	MCN	Spiked Blank	Dissolved Sulphate (SO4)	2016/12/06		102	%	80 - 120
4778512	MCN	Method Blank	Dissolved Sulphate (SO4)	2016/12/06	<2.0		mg/L	
4778512	MCN	RPD	Dissolved Sulphate (SO4)	2016/12/06	2.7		%	25
4778513	NRG	Matrix Spike	Reactive Silica (SiO2)	2016/12/06		NC	%	80 - 120
4778513	NRG	Spiked Blank	Reactive Silica (SiO2)	2016/12/06		97	%	80 - 120
4778513	NRG	Method Blank	Reactive Silica (SiO2)	2016/12/06	<0.50		mg/L	
4778513	NRG	RPD	Reactive Silica (SiO2)	2016/12/06	0.39		%	25
4778514	NRG	Spiked Blank	Colour	2016/12/06		96	%	80 - 120
4778514	NRG	Method Blank	Colour	2016/12/06	<5.0		TCU	
4778514	NRG	RPD	Colour	2016/12/06	NC		%	20
4778515	KBT	Matrix Spike	Orthophosphate (P)	2016/12/06		92	%	80 - 120
4778515	KBT	Spiked Blank	Orthophosphate (P)	2016/12/06		99	%	80 - 120

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Maxxam Job #: B6P9071
Report Date: 2016/12/07

Dillon Consulting Limited
Client Project #: 4104251070
Site Location: OHP/HE SITE

QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
4778515	KBT	Method Blank	Orthophosphate (P)	2016/12/06	<0.010		mg/L	
4778515	KBT	RPD	Orthophosphate (P)	2016/12/06	NC		%	25
4778516	MCN	Matrix Spike	Nitrate + Nitrite (N)	2016/12/07		93	%	80 - 120
4778516	MCN	Spiked Blank	Nitrate + Nitrite (N)	2016/12/07		96	%	80 - 120
4778516	MCN	Method Blank	Nitrate + Nitrite (N)	2016/12/07	<0.050		mg/L	
4778516	MCN	RPD	Nitrate + Nitrite (N)	2016/12/07	NC		%	25
4778518	KBT	Matrix Spike	Nitrite (N)	2016/12/06		98	%	80 - 120
4778518	KBT	Spiked Blank	Nitrite (N)	2016/12/06		99	%	80 - 120
4778518	KBT	Method Blank	Nitrite (N)	2016/12/06	<0.010		mg/L	
4778518	KBT	RPD	Nitrite (N)	2016/12/06	NC		%	25

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 spiked amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than 2x that of 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 (one or both samples < 5x RDL).

(1) PAH sample contained sediment.

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Maxxam Job #: B6P9071
Report Date: 2016/12/07

Dillon Consulting Limited
Client Project #: 4104251070
Site Location: OHP/HE SITE

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 #: 4104251070
Site Location: OHP/HE SITE
Your C.O.C. #: 586491

Attention:Nadine Wambolt

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

Report Date: 2016/12/08
Report #: R4279988
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B6Q0833
Received: 2016/11/30, 16:15

Sample Matrix: Water
Samples Received: 5

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Reference
Carbonate, Bicarbonate and Hydroxide (1)	4	N/A	2016/12/05	N/A	SM 22 4500-CO2 D
Alkalinity (1)	3	N/A	2016/12/07	ATL SOP 00013	EPA 310.2 R1974 m
Alkalinity (1)	1	N/A	2016/12/08	ATL SOP 00013	EPA 310.2 R1974 m
Chloride (1)	4	N/A	2016/12/07	ATL SOP 00014	SM 22 4500-Cl- E m
Colour (1)	4	N/A	2016/12/08	ATL SOP 00020	SM 22 2120C m
Conductance - water (1)	4	N/A	2016/12/05	ATL SOP 00004	SM 22 2510B m
Hardness (calculated as CaCO3) (1)	4	N/A	2016/12/06	ATL SOP 00048	SM 22 2340 B
Mercury - Total (CVAA,LL) (1)	4	2016/12/05	2016/12/06	ATL SOP 00026	EPA 245.1 R3 m
Metals Water Diss. MS (as rec'd) (1)	4	N/A	2016/12/05	ATL SOP 00058	EPA 6020A R1 m
Ion Balance (% Difference) (1)	4	N/A	2016/12/08	N/A	Auto Calc.
Anion and Cation Sum (1)	4	N/A	2016/12/07	N/A	Auto Calc.
Nitrogen Ammonia - water (1)	4	N/A	2016/12/06	ATL SOP 00015	EPA 350.1 R2 m
Nitrogen - Nitrate + Nitrite (1)	4	N/A	2016/12/08	ATL SOP 00016	USGS SOPINCF0452.2 m
Nitrogen - Nitrite (1)	4	N/A	2016/12/08	ATL SOP 00017	SM 22 4500-NO2- B m
Nitrogen - Nitrate (as N) (1)	4	N/A	2016/12/08	ATL SOP 00018	ASTM D3867-16
PAH in Water by GC/MS (SIM) (1)	1	2016/12/05	2016/12/06	ATL SOP 00103	EPA 8270D 2007 m
PAH in Water by GC/MS (SIM) (1)	1	2016/12/05	2016/12/07	ATL SOP 00103	EPA 8270D 2007 m
PAH in Water by GC/MS (SIM) (1)	2	2016/12/05	2016/12/08	ATL SOP 00103	EPA 8270D 2007 m
PAH in Water by GC/MS (SIM) (1)	1	2016/12/07	2016/12/07	ATL SOP 00103	EPA 8270D 2007 m
pH (1, 2)	4	N/A	2016/12/05	ATL SOP 00003	SM 22 4500-H+ B m
Phosphorus - ortho (1)	4	N/A	2016/12/08	ATL SOP 00021	EPA 365.2 m
Sat. pH and Langelier Index (@ 20C) (1)	4	N/A	2016/12/08	ATL SOP 00049	Auto Calc.
Sat. pH and Langelier Index (@ 4C) (1)	4	N/A	2016/12/08	ATL SOP 00049	Auto Calc.
Reactive Silica (1)	4	N/A	2016/12/07	ATL SOP 00022	EPA 366.0 m
Sulphate (1)	4	N/A	2016/12/07	ATL SOP 00023	ASTMD516-11 m
Total Dissolved Solids (TDS calc) (1)	4	N/A	2016/12/08	N/A	Auto Calc.
Organic carbon - Total (TOC) (1, 3)	4	N/A	2016/12/07	ATL SOP 00037	SM 22 5310C m
Turbidity (1)	4	N/A	2016/12/05	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,

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Your Project #: 4104251070
Site Location: OHP/HE SITE
Your C.O.C. #: 586491

Attention:Nadine Wambolt

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

Report Date: 2016/12/08
Report #: R4279988
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B6Q0833
Received: 2016/11/30, 16:15

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.

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.

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.

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.
Candace Hillier, Cl Svc - Sydney
Email: chillier@maxxam.ca
Phone# (902) 567 1255

==========

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Maxxam Job #: B6Q0833
Report Date: 2016/12/08

Dillon Consulting Limited
Client Project #: 4104251070
Site Location: OHP/HE SITE

RESULTS OF ANALYSES OF WATER

Maxxam ID		DNV886		DNV888		DNV889		DNV891		
Sampling Date		2016/11/30		2016/11/30		2016/11/30		2016/11/30		
COC Number		586491		586491		586491		586491		
	UNITS	SCU7-003-MW	RDL	CODT-008-MWB	RDL	MCWS-306-MWB	RDL	MCWS-113MWB	RDL	QC Batch
Calculated Parameters										
Anion Sum	me/L	11.9	N/A	4.76	N/A	9.72	N/A	8.66	N/A	4772599
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	170	1.0	100	1.0	270	1.0	300	1.0	4772630
Calculated TDS	mg/L	700	1.0	250	1.0	560	1.0	460	1.0	4772600
Carb. Alkalinity (calc. as CaCO3)	mg/L	<1.0	1.0	<1.0	1.0	1.0	1.0	1.7	1.0	4772630
Cation Sum	me/L	11.4	N/A	4.04	N/A	9.65	N/A	8.22	N/A	4772599
Hardness (CaCO3)	mg/L	380	1.0	110	1.0	430	1.0	240	1.0	4772597
Ion Balance (% Difference)	%	2.06	N/A	8.18	N/A	0.360	N/A	2.61	N/A	4772598
Langelier Index (@ 20C)	N/A	-0.173		-0.267		0.678		0.677		4772631
Langelier Index (@ 4C)	N/A	-0.420		-0.517		0.431		0.429		4772632
Nitrate (N)	mg/L	0.18	0.050	<0.050	0.050	<0.050	0.050	<0.050	0.050	4772448
Saturation pH (@ 20C)	N/A	7.16		7.82		6.93		7.11		4772631
Saturation pH (@ 4C)	N/A	7.41		8.07		7.18		7.35		4772632
Inorganics										
Total Alkalinity (Total as CaCO3)	mg/L	170	25	100	10	270	25	300	25	4780222
Dissolved Chloride (Cl)	mg/L	160	1.0	87	1.0	16	1.0	91	1.0	4780231
Colour	TCU	18	5.0	37	5.0	<5.0	5.0	12	5.0	4780236
Nitrate + Nitrite (N)	mg/L	0.20	0.050	<0.050	0.050	<0.050	0.050	<0.050	0.050	4780238
Nitrite (N)	mg/L	0.021	0.010	0.011	0.010	<0.010	0.010	0.010	0.010	4780240
Nitrogen (Ammonia Nitrogen)	mg/L	0.89	0.050	0.50	0.050	0.12	0.050	1.7	0.050	4779824
Total Organic Carbon (C)	mg/L	1.3	0.50	<5.0 (1)	5.0	1.5	0.50	5.2 (1)	5.0	4780561
Orthophosphate (P)	mg/L	0.011	0.010	0.067	0.010	0.015	0.010	0.012	0.010	4780237
pH	pH	6.99	N/A	7.55	N/A	7.61	N/A	7.78	N/A	4778089
Reactive Silica (SiO2)	mg/L	9.6	0.50	6.1	0.50	13	0.50	9.9	0.50	4780235
Dissolved Sulphate (SO4)	mg/L	190	10	12	2.0	190	40	<2.0	2.0	4780234
Turbidity	NTU	86	0.10	16	0.10	22	0.10	16	0.10	4778174
Conductivity	uS/cm	1100	1.0	470	1.0	850	1.0	780	1.0	4778091

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 #: B6Q0833
Report Date: 2016/12/08

Dillon Consulting Limited
Client Project #: 4104251070
Site Location: OHP/HE SITE

MERCURY BY COLD VAPOUR AA (WATER)

Maxxam ID		DNV886	DNV888	DNV889	DNV891		
Sampling Date		2016/11/30	2016/11/30	2016/11/30	2016/11/30		
COC Number		586491	586491	586491	586491		
	UNITS	SCU7-003-MW	CODT-008-MWB	MCWS-306-MWB	MCWS-113MWB	RDL	QC Batch
Metals							
Total Mercury (Hg)	ug/L	<0.013	<0.013	<0.013	<0.013	0.013	4778502

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B6Q0833
Report Date: 2016/12/08

Dillon Consulting Limited
Client Project #: 4104251070
Site Location: OHP/HE SITE

ELEMENTS BY ICP/MS (WATER)

Maxxam ID		DNV886	DNV888	DNV889	DNV891		
Sampling Date		2016/11/30	2016/11/30	2016/11/30	2016/11/30		
COC Number		586491	586491	586491	586491		
	UNITS	SCU7-003-MW	CODT-008-MWB	MCWS-306-MWB	MCWS-113MWB	RDL	QC Batch
Metals							
Dissolved Aluminum (Al)	ug/L	6.6	41	16	7.7	5.0	4778099
Dissolved Antimony (Sb)	ug/L	<1.0	<1.0	<1.0	<1.0	1.0	4778099
Dissolved Arsenic (As)	ug/L	1.1	1.4	<1.0	<1.0	1.0	4778099
Dissolved Barium (Ba)	ug/L	22	190	58	150	1.0	4778099
Dissolved Beryllium (Be)	ug/L	<1.0	<1.0	<1.0	<1.0	1.0	4778099
Dissolved Bismuth (Bi)	ug/L	<2.0	<2.0	<2.0	<2.0	2.0	4778099
Dissolved Boron (B)	ug/L	98	<50	84	330	50	4778099
Dissolved Cadmium (Cd)	ug/L	0.10	0.15	0.038	0.046	0.010	4778099
Dissolved Calcium (Ca)	ug/L	130000	38000	130000	74000	100	4778099
Dissolved Chromium (Cr)	ug/L	<1.0	<1.0	<1.0	<1.0	1.0	4778099
Dissolved Cobalt (Co)	ug/L	1.2	<0.40	0.98	<0.40	0.40	4778099
Dissolved Copper (Cu)	ug/L	<2.0	<2.0	<2.0	<2.0	2.0	4778099
Dissolved Iron (Fe)	ug/L	1100	69	320	1300	50	4778099
Dissolved Lead (Pb)	ug/L	<0.50	<0.50	<0.50	<0.50	0.50	4778099
Dissolved Magnesium (Mg)	ug/L	13000	3500	24000	13000	100	4778099
Dissolved Manganese (Mn)	ug/L	2900	430	2900	3500	2.0	4778099
Dissolved Molybdenum (Mo)	ug/L	<2.0	<2.0	2.3	<2.0	2.0	4778099
Dissolved Nickel (Ni)	ug/L	<2.0	<2.0	2.0	<2.0	2.0	4778099
Dissolved Phosphorus (P)	ug/L	<100	<100	<100	160	100	4778099
Dissolved Potassium (K)	ug/L	6000	2300	3900	7200	100	4778099
Dissolved Selenium (Se)	ug/L	<1.0	<1.0	<1.0	<1.0	1.0	4778099
Dissolved Silver (Ag)	ug/L	<0.10	<0.10	<0.10	<0.10	0.10	4778099
Dissolved Sodium (Na)	ug/L	81000	40000	23000	72000	100	4778099
Dissolved Strontium (Sr)	ug/L	560	280	340	350	2.0	4778099
Dissolved Thallium (Tl)	ug/L	<0.10	<0.10	<0.10	<0.10	0.10	4778099
Dissolved Tin (Sn)	ug/L	<2.0	<2.0	<2.0	<2.0	2.0	4778099
Dissolved Titanium (Ti)	ug/L	<2.0	<2.0	<2.0	<2.0	2.0	4778099
Dissolved Uranium (U)	ug/L	0.26	0.31	1.9	<0.10	0.10	4778099
Dissolved Vanadium (V)	ug/L	<2.0	<2.0	<2.0	<2.0	2.0	4778099
Dissolved Zinc (Zn)	ug/L	11	<5.0	5.3	97	5.0	4778099

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B6Q0833
Report Date: 2016/12/08

Dillon Consulting Limited
Client Project #: 4104251070
Site Location: OHP/HE SITE

SEMI-VOLATILE ORGANICS BY GC-MS (WATER)

Maxxam ID		DNV886		DNV888		DNV889		DNV891		
Sampling Date		2016/11/30		2016/11/30		2016/11/30		2016/11/30		
COC Number		586491		586491		586491		586491		
	UNITS	SCU7-003-MW	RDL	CODT-008-MWB	RDL	MCWS-306-MWB	QC Batch	MCWS-113MWB	RDL	QC Batch
Polyaromatic Hydrocarbons										
1-Methylnaphthalene	ug/L	0.11	0.050	970	25	<0.050	4778124	<0.050	0.050	4781754
2-Methylnaphthalene	ug/L	0.19	0.050	1000	25	<0.050	4778124	<0.050	0.050	4781754
Acenaphthene	ug/L	0.096	0.010	410	5.0	<0.010	4778124	<0.010	0.010	4781754
Acenaphthylene	ug/L	0.013	0.010	5.3	5.0	<0.010	4778124	0.013	0.010	4781754
Anthracene	ug/L	0.027	0.010	43	5.0	<0.010	4778124	0.030	0.010	4781754
Benzo(a)anthracene	ug/L	<0.010	0.010	7.6	5.0	<0.010	4778124	0.024	0.010	4781754
Benzo(a)pyrene	ug/L	<0.010	0.010	<5.0	5.0	<0.010	4778124	0.038	0.010	4781754
Benzo(b)fluoranthene	ug/L	<0.010	0.010	<5.0	5.0	<0.010	4778124	0.034	0.010	4781754
Benzo(g,h,i)perylene	ug/L	<0.010	0.010	<5.0	5.0	<0.010	4778124	0.025	0.010	4781754
Benzo(j)fluoranthene	ug/L	<0.010	0.010	<5.0	5.0	<0.010	4778124	0.033	0.010	4781754
Benzo(k)fluoranthene	ug/L	<0.010	0.010	<5.0	5.0	<0.010	4778124	0.028	0.010	4781754
Chrysene	ug/L	<0.010	0.010	6.0	5.0	<0.010	4778124	0.044	0.010	4781754
Dibenz(a,h)anthracene	ug/L	<0.010	0.010	<5.0	5.0	<0.010	4778124	<0.010	0.010	4781754
Fluoranthene	ug/L	0.035	0.010	34	5.0	<0.010	4778124	0.067	0.010	4781754
Fluorene	ug/L	0.087	0.010	200	5.0	<0.010	4778124	0.011	0.010	4781754
Indeno(1,2,3-cd)pyrene	ug/L	<0.010	0.010	<5.0	5.0	<0.010	4778124	0.016	0.010	4781754
Naphthalene	ug/L	0.68	0.20	4100	100	<0.20	4778124	<0.20	0.20	4781754
Perylene	ug/L	<0.010	0.010	<5.0	5.0	<0.010	4778124	<0.010	0.010	4781754
Phenanthrene	ug/L	0.10	0.010	180	5.0	<0.010	4778124	0.023	0.010	4781754
Pyrene	ug/L	0.022	0.010	21	5.0	<0.010	4778124	0.16	0.010	4781754
Surrogate Recovery (%)										
D10-Anthracene	%	62		785 (1)		73	4778124	60		4781754
D14-Terphenyl	%	75 (2)		276 (3)		84	4778124	67		4781754
D8-Acenaphthylene	%	83		220 (1)		87	4778124	63		4781754

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
(1) PAH surrogate(s) not within acceptance limits due to sample dilution / product interference.
(2) PAH sample contained sediment.
(3) Elevated PAH RDL(s) due to sample dilution. PAH surrogate(s) not within acceptance limits due to sample dilution / product interference.

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Maxxam Job #: B6Q0833
Report Date: 2016/12/08

Dillon Consulting Limited
Client Project #: 4104251070
Site Location: OHP/HE SITE

SEMI-VOLATILE ORGANICS BY GC-MS (WATER)

Maxxam ID		DNV898		
Sampling Date		2016/11/30		
COC Number		586491		
	UNITS	TB-032	RDL	QC Batch
Polyaromatic Hydrocarbons				
1-Methylnaphthalene	ug/L	<0.050	0.050	4778124
2-Methylnaphthalene	ug/L	<0.050	0.050	4778124
Acenaphthene	ug/L	<0.010	0.010	4778124
Acenaphthylene	ug/L	<0.010	0.010	4778124
Anthracene	ug/L	<0.010	0.010	4778124
Benzo(a)anthracene	ug/L	<0.010	0.010	4778124
Benzo(a)pyrene	ug/L	<0.010	0.010	4778124
Benzo(b)fluoranthene	ug/L	<0.010	0.010	4778124
Benzo(g,h,i)perylene	ug/L	<0.010	0.010	4778124
Benzo(j)fluoranthene	ug/L	<0.010	0.010	4778124
Benzo(k)fluoranthene	ug/L	<0.010	0.010	4778124
Chrysene	ug/L	<0.010	0.010	4778124
Dibenz(a,h)anthracene	ug/L	<0.010	0.010	4778124
Fluoranthene	ug/L	<0.010	0.010	4778124
Fluorene	ug/L	<0.010	0.010	4778124
Indeno(1,2,3-cd)pyrene	ug/L	<0.010	0.010	4778124
Naphthalene	ug/L	<0.20	0.20	4778124
Perylene	ug/L	<0.010	0.010	4778124
Phenanthrene	ug/L	<0.010	0.010	4778124
Pyrene	ug/L	<0.010	0.010	4778124
Surrogate Recovery (%)				
D10-Anthracene	%	95		4778124
D14-Terphenyl	%	98		4778124
D8-Acenaphthylene	%	92		4778124

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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GENERAL COMMENTS

Sample DNV888 [CODT-008-MWB] : Poor RCAp Ion Balance due to sample matrix.

Results relate only to the items tested.

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Report Date: 2016/12/08

Dillon Consulting Limited
Client Project #: 4104251070
Site Location: OHP/HE SITE

QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
4778089	JMV	QC Standard	pH	2016/12/05		100	%	97 - 103
4778089	JMV	RPD	pH	2016/12/05	0.64		%	N/A
4778091	JMV	Spiked Blank	Conductivity	2016/12/05		100	%	80 - 120
4778091	JMV	Method Blank	Conductivity	2016/12/05	1.6, RDL=1.0		uS/cm	
4778091	JMV	RPD	Conductivity	2016/12/05	2.2		%	25
4778099	BAN	Matrix Spike	Dissolved Aluminum (Al)	2016/12/05		108	%	80 - 120
			Dissolved Antimony (Sb)	2016/12/05		105	%	80 - 120
			Dissolved Arsenic (As)	2016/12/05		98	%	80 - 120
			Dissolved Barium (Ba)	2016/12/05		NC	%	80 - 120
			Dissolved Beryllium (Be)	2016/12/05		95	%	80 - 120
			Dissolved Bismuth (Bi)	2016/12/05		95	%	80 - 120
			Dissolved Boron (B)	2016/12/05		93	%	80 - 120
			Dissolved Cadmium (Cd)	2016/12/05		98	%	80 - 120
			Dissolved Calcium (Ca)	2016/12/05		NC	%	80 - 120
			Dissolved Chromium (Cr)	2016/12/05		99	%	80 - 120
			Dissolved Cobalt (Co)	2016/12/05		96	%	80 - 120
			Dissolved Copper (Cu)	2016/12/05		93	%	80 - 120
			Dissolved Iron (Fe)	2016/12/05		101	%	80 - 120
			Dissolved Lead (Pb)	2016/12/05		96	%	80 - 120
			Dissolved Magnesium (Mg)	2016/12/05		NC	%	80 - 120
			Dissolved Manganese (Mn)	2016/12/05		NC	%	80 - 120
			Dissolved Molybdenum (Mo)	2016/12/05		100	%	80 - 120
			Dissolved Nickel (Ni)	2016/12/05		96	%	80 - 120
			Dissolved Phosphorus (P)	2016/12/05		108	%	80 - 120
			Dissolved Potassium (K)	2016/12/05		100	%	80 - 120
			Dissolved Selenium (Se)	2016/12/05		100	%	80 - 120
			Dissolved Silver (Ag)	2016/12/05		74 (1)	%	80 - 120
			Dissolved Sodium (Na)	2016/12/05		NC	%	80 - 120
			Dissolved Strontium (Sr)	2016/12/05		NC	%	80 - 120
			Dissolved Thallium (Tl)	2016/12/05		98	%	80 - 120
			Dissolved Tin (Sn)	2016/12/05		104	%	80 - 120
			Dissolved Titanium (Ti)	2016/12/05		103	%	80 - 120
			Dissolved Uranium (U)	2016/12/05		103	%	80 - 120
			Dissolved Vanadium (V)	2016/12/05		102	%	80 - 120
			Dissolved Zinc (Zn)	2016/12/05		95	%	80 - 120
4778099	BAN	Spiked Blank	Dissolved Aluminum (Al)	2016/12/05		104	%	80 - 120
			Dissolved Antimony (Sb)	2016/12/05		105	%	80 - 120
			Dissolved Arsenic (As)	2016/12/05		97	%	80 - 120
			Dissolved Barium (Ba)	2016/12/05		97	%	80 - 120
			Dissolved Beryllium (Be)	2016/12/05		97	%	80 - 120
			Dissolved Bismuth (Bi)	2016/12/05		102	%	80 - 120
			Dissolved Boron (B)	2016/12/05		100	%	80 - 120
			Dissolved Cadmium (Cd)	2016/12/05		98	%	80 - 120
			Dissolved Calcium (Ca)	2016/12/05		101	%	80 - 120
			Dissolved Chromium (Cr)	2016/12/05		99	%	80 - 120
			Dissolved Cobalt (Co)	2016/12/05		100	%	80 - 120
			Dissolved Copper (Cu)	2016/12/05		99	%	80 - 120
			Dissolved Iron (Fe)	2016/12/05		102	%	80 - 120
			Dissolved Lead (Pb)	2016/12/05		97	%	80 - 120
			Dissolved Magnesium (Mg)	2016/12/05		105	%	80 - 120
			Dissolved Manganese (Mn)	2016/12/05		100	%	80 - 120
			Dissolved Molybdenum (Mo)	2016/12/05		105	%	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 Nickel (Ni)	2016/12/05		101	%	80 - 120
			Dissolved Phosphorus (P)	2016/12/05		104	%	80 - 120
			Dissolved Potassium (K)	2016/12/05		101	%	80 - 120
			Dissolved Selenium (Se)	2016/12/05		99	%	80 - 120
			Dissolved Silver (Ag)	2016/12/05		99	%	80 - 120
			Dissolved Sodium (Na)	2016/12/05		100	%	80 - 120
			Dissolved Strontium (Sr)	2016/12/05		100	%	80 - 120
			Dissolved Thallium (Tl)	2016/12/05		103	%	80 - 120
			Dissolved Tin (Sn)	2016/12/05		106	%	80 - 120
			Dissolved Titanium (Ti)	2016/12/05		103	%	80 - 120
			Dissolved Uranium (U)	2016/12/05		103	%	80 - 120
			Dissolved Vanadium (V)	2016/12/05		101	%	80 - 120
			Dissolved Zinc (Zn)	2016/12/05		102	%	80 - 120
4778099	BAN	Method Blank	Dissolved Aluminum (Al)	2016/12/05	<5.0		ug/L	
			Dissolved Antimony (Sb)	2016/12/05	<1.0		ug/L	
			Dissolved Arsenic (As)	2016/12/05	<1.0		ug/L	
			Dissolved Barium (Ba)	2016/12/05	<1.0		ug/L	
			Dissolved Beryllium (Be)	2016/12/05	<1.0		ug/L	
			Dissolved Bismuth (Bi)	2016/12/05	<2.0		ug/L	
			Dissolved Boron (B)	2016/12/05	<50		ug/L	
			Dissolved Cadmium (Cd)	2016/12/05	<0.010		ug/L	
			Dissolved Calcium (Ca)	2016/12/05	<100		ug/L	
			Dissolved Chromium (Cr)	2016/12/05	<1.0		ug/L	
			Dissolved Cobalt (Co)	2016/12/05	<0.40		ug/L	
			Dissolved Copper (Cu)	2016/12/05	<2.0		ug/L	
			Dissolved Iron (Fe)	2016/12/05	<50		ug/L	
			Dissolved Lead (Pb)	2016/12/05	<0.50		ug/L	
			Dissolved Magnesium (Mg)	2016/12/05	<100		ug/L	
			Dissolved Manganese (Mn)	2016/12/05	<2.0		ug/L	
			Dissolved Molybdenum (Mo)	2016/12/05	<2.0		ug/L	
			Dissolved Nickel (Ni)	2016/12/05	<2.0		ug/L	
			Dissolved Phosphorus (P)	2016/12/05	<100		ug/L	
			Dissolved Potassium (K)	2016/12/05	<100		ug/L	
			Dissolved Selenium (Se)	2016/12/05	<1.0		ug/L	
			Dissolved Silver (Ag)	2016/12/05	<0.10		ug/L	
			Dissolved Sodium (Na)	2016/12/05	<100		ug/L	
			Dissolved Strontium (Sr)	2016/12/05	<2.0		ug/L	
			Dissolved Thallium (Tl)	2016/12/05	<0.10		ug/L	
			Dissolved Tin (Sn)	2016/12/05	<2.0		ug/L	
			Dissolved Titanium (Ti)	2016/12/05	<2.0		ug/L	
			Dissolved Uranium (U)	2016/12/05	<0.10		ug/L	
			Dissolved Vanadium (V)	2016/12/05	<2.0		ug/L	
			Dissolved Zinc (Zn)	2016/12/05	<5.0		ug/L	
4778099	BAN	RPD	Dissolved Aluminum (Al)	2016/12/05	NC		%	20
			Dissolved Antimony (Sb)	2016/12/05	NC		%	20
			Dissolved Arsenic (As)	2016/12/05	NC		%	20
			Dissolved Barium (Ba)	2016/12/05	0.93		%	20
			Dissolved Beryllium (Be)	2016/12/05	NC		%	20
			Dissolved Bismuth (Bi)	2016/12/05	NC		%	20
			Dissolved Boron (B)	2016/12/05	NC		%	20
			Dissolved Cadmium (Cd)	2016/12/05	NC		%	20
			Dissolved Calcium (Ca)	2016/12/05	0.48		%	20
			Dissolved Chromium (Cr)	2016/12/05	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 Cobalt (Co)	2016/12/05	NC		%	20
			Dissolved Copper (Cu)	2016/12/05	NC		%	20
			Dissolved Iron (Fe)	2016/12/05	NC		%	20
			Dissolved Lead (Pb)	2016/12/05	NC		%	20
			Dissolved Magnesium (Mg)	2016/12/05	1.1		%	20
			Dissolved Manganese (Mn)	2016/12/05	0.51		%	20
			Dissolved Molybdenum (Mo)	2016/12/05	NC		%	20
			Dissolved Nickel (Ni)	2016/12/05	NC		%	20
			Dissolved Phosphorus (P)	2016/12/05	NC		%	20
			Dissolved Potassium (K)	2016/12/05	2.4		%	20
			Dissolved Selenium (Se)	2016/12/05	NC		%	20
			Dissolved Silver (Ag)	2016/12/05	NC		%	20
			Dissolved Sodium (Na)	2016/12/05	0.83		%	20
			Dissolved Strontium (Sr)	2016/12/05	0.52		%	20
			Dissolved Thallium (Tl)	2016/12/05	NC		%	20
			Dissolved Tin (Sn)	2016/12/05	NC		%	20
			Dissolved Titanium (Ti)	2016/12/05	NC		%	20
			Dissolved Uranium (U)	2016/12/05	0.016		%	20
			Dissolved Vanadium (V)	2016/12/05	NC		%	20
			Dissolved Zinc (Zn)	2016/12/05	NC		%	20
4778124	GTH	Matrix Spike [DNV886-01]	D10-Anthracene	2016/12/06		81	%	30 - 130
			D14-Terphenyl	2016/12/06		83 (2)	%	30 - 130
			D8-Acenaphthylene	2016/12/06		90	%	30 - 130
			1-Methylnaphthalene	2016/12/06		81	%	30 - 130
			2-Methylnaphthalene	2016/12/06		83	%	30 - 130
			Acenaphthene	2016/12/06		85	%	30 - 130
			Acenaphthylene	2016/12/06		80	%	30 - 130
			Anthracene	2016/12/06		82	%	30 - 130
			Benzo(a)anthracene	2016/12/06		91	%	30 - 130
			Benzo(a)pyrene	2016/12/06		72	%	30 - 130
			Benzo(b)fluoranthene	2016/12/06		78	%	30 - 130
			Benzo(g,h,i)perylene	2016/12/06		75	%	30 - 130
			Benzo(j)fluoranthene	2016/12/06		61	%	30 - 130
			Benzo(k)fluoranthene	2016/12/06		69	%	30 - 130
			Chrysene	2016/12/06		87	%	30 - 130
			Dibenz(a,h)anthracene	2016/12/06		61	%	30 - 130
			Fluoranthene	2016/12/06		85	%	30 - 130
			Fluorene	2016/12/06		87	%	30 - 130
			Indeno(1,2,3-cd)pyrene	2016/12/06		61	%	30 - 130
			Naphthalene	2016/12/06		NC	%	30 - 130
			Perylene	2016/12/06		58	%	30 - 130
			Phenanthrene	2016/12/06		76	%	30 - 130
			Pyrene	2016/12/06		84	%	30 - 130
4778124	GTH	Spiked Blank	D10-Anthracene	2016/12/06		87	%	30 - 130
			D14-Terphenyl	2016/12/06		89	%	30 - 130
			D8-Acenaphthylene	2016/12/06		90	%	30 - 130
			1-Methylnaphthalene	2016/12/06		85	%	30 - 130
			2-Methylnaphthalene	2016/12/06		89	%	30 - 130
			Acenaphthene	2016/12/06		91	%	30 - 130
			Acenaphthylene	2016/12/06		81	%	30 - 130
			Anthracene	2016/12/06		91	%	30 - 130
			Benzo(a)anthracene	2016/12/06		88	%	30 - 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(a)pyrene	2016/12/06		78	%	30 - 130
			Benzo(b)fluoranthene	2016/12/06		82	%	30 - 130
			Benzo(g,h,i)perylene	2016/12/06		81	%	30 - 130
			Benzo(j)fluoranthene	2016/12/06		74	%	30 - 130
			Benzo(k)fluoranthene	2016/12/06		78	%	30 - 130
			Chrysene	2016/12/06		81	%	30 - 130
			Dibenz(a,h)anthracene	2016/12/06		68	%	30 - 130
			Fluoranthene	2016/12/06		89	%	30 - 130
			Fluorene	2016/12/06		91	%	30 - 130
			Indeno(1,2,3-cd)pyrene	2016/12/06		75	%	30 - 130
			Naphthalene	2016/12/06		86	%	30 - 130
			Perylene	2016/12/06		78	%	30 - 130
			Phenanthrene	2016/12/06		95	%	30 - 130
			Pyrene	2016/12/06		90	%	30 - 130
4778124	GTH	Method Blank	D10-Anthracene	2016/12/06		88	%	30 - 130
			D14-Terphenyl	2016/12/06		108	%	30 - 130
			D8-Acenaphthylene	2016/12/06		122	%	30 - 130
			1-Methylnaphthalene	2016/12/06	<0.050		ug/L	
			2-Methylnaphthalene	2016/12/06	<0.050		ug/L	
			Acenaphthene	2016/12/06	<0.010		ug/L	
			Acenaphthylene	2016/12/06	<0.010		ug/L	
			Anthracene	2016/12/06	<0.010		ug/L	
			Benzo(a)anthracene	2016/12/06	<0.010		ug/L	
			Benzo(a)pyrene	2016/12/06	<0.010		ug/L	
			Benzo(b)fluoranthene	2016/12/06	<0.010		ug/L	
			Benzo(g,h,i)perylene	2016/12/06	<0.010		ug/L	
			Benzo(j)fluoranthene	2016/12/06	<0.010		ug/L	
			Benzo(k)fluoranthene	2016/12/06	<0.010		ug/L	
			Chrysene	2016/12/06	<0.010		ug/L	
			Dibenz(a,h)anthracene	2016/12/06	<0.010		ug/L	
			Fluoranthene	2016/12/06	<0.010		ug/L	
			Fluorene	2016/12/06	<0.010		ug/L	
			Indeno(1,2,3-cd)pyrene	2016/12/06	<0.010		ug/L	
			Naphthalene	2016/12/06	<0.20		ug/L	
			Perylene	2016/12/06	<0.010		ug/L	
			Phenanthrene	2016/12/06	<0.010		ug/L	
			Pyrene	2016/12/06	<0.010		ug/L	
4778124	GTH	RPD	Acenaphthylene	2016/12/06	NC		%	40
			Anthracene	2016/12/06	NC		%	40
			Fluorene	2016/12/06	NC		%	40
			Naphthalene	2016/12/06	NC		%	40
			Phenanthrene	2016/12/06	NC		%	40
			Pyrene	2016/12/06	NC		%	40
4778174	JMV	QC Standard	Turbidity	2016/12/05		112	%	80 - 120
4778174	JMV	Spiked Blank	Turbidity	2016/12/05		97	%	80 - 120
4778174	JMV	Method Blank	Turbidity	2016/12/05	<0.10		NTU	
4778174	JMV	RPD	Turbidity	2016/12/05	2.9		%	20
4778502	ARS	Matrix Spike	Total Mercury (Hg)	2016/12/06		99	%	80 - 120
4778502	ARS	Spiked Blank	Total Mercury (Hg)	2016/12/06		100	%	80 - 120
4778502	ARS	Method Blank	Total Mercury (Hg)	2016/12/06	<0.013		ug/L	
4778502	ARS	RPD	Total Mercury (Hg)	2016/12/06	NC		%	20
4779824	NRG	Matrix Spike	Nitrogen (Ammonia Nitrogen)	2016/12/06		90	%	80 - 120
4779824	NRG	Spiked Blank	Nitrogen (Ammonia Nitrogen)	2016/12/06		99	%	80 - 120

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Maxxam Job #: B6Q0833
Report Date: 2016/12/08

Dillon Consulting Limited
Client Project #: 4104251070
Site Location: OHP/HE SITE

QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
4779824	NRG	Method Blank	Nitrogen (Ammonia Nitrogen)	2016/12/06	<0.050		mg/L	
4779824	NRG	RPD	Nitrogen (Ammonia Nitrogen)	2016/12/06	NC		%	20
4780222	NRG	Matrix Spike	Total Alkalinity (Total as CaCO3)	2016/12/07		106	%	80 - 120
4780222	NRG	Spiked Blank	Total Alkalinity (Total as CaCO3)	2016/12/07		105	%	80 - 120
4780222	NRG	Method Blank	Total Alkalinity (Total as CaCO3)	2016/12/07	<5.0		mg/L	
4780222	NRG	RPD	Total Alkalinity (Total as CaCO3)	2016/12/07	NC		%	25
4780231	MCN	Matrix Spike	Dissolved Chloride (Cl)	2016/12/07		107	%	80 - 120
4780231	MCN	QC Standard	Dissolved Chloride (Cl)	2016/12/07		110	%	80 - 120
4780231	MCN	Spiked Blank	Dissolved Chloride (Cl)	2016/12/07		104	%	80 - 120
4780231	MCN	Method Blank	Dissolved Chloride (Cl)	2016/12/07	<1.0		mg/L	
4780231	MCN	RPD	Dissolved Chloride (Cl)	2016/12/07	NC		%	25
4780234	MCN	Matrix Spike	Dissolved Sulphate (SO4)	2016/12/07		108	%	80 - 120
4780234	MCN	Spiked Blank	Dissolved Sulphate (SO4)	2016/12/07		108	%	80 - 120
4780234	MCN	Method Blank	Dissolved Sulphate (SO4)	2016/12/07	<2.0		mg/L	
4780234	MCN	RPD	Dissolved Sulphate (SO4)	2016/12/07	NC		%	25
4780235	NRG	Matrix Spike	Reactive Silica (SiO2)	2016/12/07		98	%	80 - 120
4780235	NRG	Spiked Blank	Reactive Silica (SiO2)	2016/12/07		97	%	80 - 120
4780235	NRG	Method Blank	Reactive Silica (SiO2)	2016/12/07	<0.50		mg/L	
4780236	MCN	Spiked Blank	Colour	2016/12/08		98	%	80 - 120
4780236	MCN	Method Blank	Colour	2016/12/08	<5.0		TCU	
4780236	MCN	RPD	Colour	2016/12/08	NC		%	20
4780237	KBT	Matrix Spike	Orthophosphate (P)	2016/12/08		95	%	80 - 120
4780237	KBT	Spiked Blank	Orthophosphate (P)	2016/12/08		96	%	80 - 120
4780237	KBT	Method Blank	Orthophosphate (P)	2016/12/08	<0.010		mg/L	
4780238	KBT	Matrix Spike	Nitrate + Nitrite (N)	2016/12/08		102	%	80 - 120
4780238	KBT	Spiked Blank	Nitrate + Nitrite (N)	2016/12/08		100	%	80 - 120
4780238	KBT	Method Blank	Nitrate + Nitrite (N)	2016/12/08	<0.050		mg/L	
4780240	MCN	Matrix Spike	Nitrite (N)	2016/12/08		97	%	80 - 120
4780240	MCN	Spiked Blank	Nitrite (N)	2016/12/08		96	%	80 - 120
4780240	MCN	Method Blank	Nitrite (N)	2016/12/08	<0.010		mg/L	
4780240	MCN	RPD	Nitrite (N)	2016/12/08	NC		%	25
4780561	SMT	Matrix Spike	Total Organic Carbon (C)	2016/12/07		98	%	80 - 120
4780561	SMT	Spiked Blank	Total Organic Carbon (C)	2016/12/07		103	%	80 - 120
4780561	SMT	Method Blank	Total Organic Carbon (C)	2016/12/07	<0.50		mg/L	
4780561	SMT	RPD	Total Organic Carbon (C)	2016/12/07	NC		%	20
4781754	RST	Matrix Spike	D10-Anthracene	2016/12/07		87	%	30 - 130
			D14-Terphenyl	2016/12/07		89 (2)	%	30 - 130
			D8-Acenaphthylene	2016/12/07		98	%	30 - 130
			1-Methylnaphthalene	2016/12/07		96	%	30 - 130
			2-Methylnaphthalene	2016/12/07		99	%	30 - 130
			Acenaphthene	2016/12/07		83	%	30 - 130
			Acenaphthylene	2016/12/07		78	%	30 - 130
			Anthracene	2016/12/07		101	%	30 - 130
			Benzo(a)anthracene	2016/12/07		93	%	30 - 130
			Benzo(a)pyrene	2016/12/07		72	%	30 - 130
			Benzo(b)fluoranthene	2016/12/07		62	%	30 - 130
			Benzo(g,h,i)perylene	2016/12/07		63	%	30 - 130
			Benzo(j)fluoranthene	2016/12/07		78	%	30 - 130
			Benzo(k)fluoranthene	2016/12/07		75	%	30 - 130
			Chrysene	2016/12/07		92	%	30 - 130
			Dibenz(a,h)anthracene	2016/12/07		58	%	30 - 130
			Fluoranthene	2016/12/07		98	%	30 - 130
			Fluorene	2016/12/07		85	%	30 - 130

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Indeno(1,2,3-cd)pyrene	2016/12/07		61	%	30 - 130
			Naphthalene	2016/12/07		97	%	30 - 130
			Perylene	2016/12/07		72	%	30 - 130
			Phenanthrene	2016/12/07		66	%	30 - 130
			Pyrene	2016/12/07		97	%	30 - 130
4781754	RST	Spiked Blank	D10-Anthracene	2016/12/07		78	%	30 - 130
			D14-Terphenyl	2016/12/07		108	%	30 - 130
			D8-Acenaphthylene	2016/12/07		108	%	30 - 130
			1-Methylnaphthalene	2016/12/07		95	%	30 - 130
			2-Methylnaphthalene	2016/12/07		98	%	30 - 130
			Acenaphthene	2016/12/07		99	%	30 - 130
			Acenaphthylene	2016/12/07		87	%	30 - 130
			Anthracene	2016/12/07		108	%	30 - 130
			Benzo(a)anthracene	2016/12/07		111	%	30 - 130
			Benzo(a)pyrene	2016/12/07		85	%	30 - 130
			Benzo(b)fluoranthene	2016/12/07		78	%	30 - 130
			Benzo(g,h,i)perylene	2016/12/07		89	%	30 - 130
			Benzo(j)fluoranthene	2016/12/07		86	%	30 - 130
			Benzo(k)fluoranthene	2016/12/07		89	%	30 - 130
			Chrysene	2016/12/07		97	%	30 - 130
			Dibenz(a,h)anthracene	2016/12/07		73	%	30 - 130
			Fluoranthene	2016/12/07		118	%	30 - 130
			Fluorene	2016/12/07		87	%	30 - 130
			Indeno(1,2,3-cd)pyrene	2016/12/07		80	%	30 - 130
			Naphthalene	2016/12/07		97	%	30 - 130
			Perylene	2016/12/07		87	%	30 - 130
			Phenanthrene	2016/12/07		94	%	30 - 130
			Pyrene	2016/12/07		120	%	30 - 130
4781754	RST	Method Blank	D10-Anthracene	2016/12/07		107	%	30 - 130
			D14-Terphenyl	2016/12/07		129	%	30 - 130
			D8-Acenaphthylene	2016/12/07		103	%	30 - 130
			1-Methylnaphthalene	2016/12/07	<0.050		ug/L	
			2-Methylnaphthalene	2016/12/07	<0.050		ug/L	
			Acenaphthene	2016/12/07	<0.010		ug/L	
			Acenaphthylene	2016/12/07	<0.010		ug/L	
			Anthracene	2016/12/07	<0.010		ug/L	
			Benzo(a)anthracene	2016/12/07	<0.010		ug/L	
			Benzo(a)pyrene	2016/12/07	<0.010		ug/L	
			Benzo(b)fluoranthene	2016/12/07	<0.010		ug/L	
			Benzo(g,h,i)perylene	2016/12/07	<0.010		ug/L	
			Benzo(j)fluoranthene	2016/12/07	<0.010		ug/L	
			Benzo(k)fluoranthene	2016/12/07	<0.010		ug/L	
			Chrysene	2016/12/07	<0.010		ug/L	
			Dibenz(a,h)anthracene	2016/12/07	<0.010		ug/L	
			Fluoranthene	2016/12/07	<0.010		ug/L	
			Fluorene	2016/12/07	<0.010		ug/L	
			Indeno(1,2,3-cd)pyrene	2016/12/07	<0.010		ug/L	
			Naphthalene	2016/12/07	<0.20		ug/L	
			Perylene	2016/12/07	<0.010		ug/L	
			Phenanthrene	2016/12/07	<0.010		ug/L	
			Pyrene	2016/12/07	<0.010		ug/L	
4781754	RST	RPD	1-Methylnaphthalene	2016/12/07	NC		%	40
			2-Methylnaphthalene	2016/12/07	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
			Acenaphthene	2016/12/07	NC		%	40
			Acenaphthylene	2016/12/07	NC		%	40
			Anthracene	2016/12/07	NC		%	40
			Benzo(a)anthracene	2016/12/07	NC		%	40
			Benzo(a)pyrene	2016/12/07	NC		%	40
			Benzo(b)fluoranthene	2016/12/07	NC		%	40
			Benzo(g,h,i)perylene	2016/12/07	NC		%	40
			Benzo(j)fluoranthene	2016/12/07	NC		%	40
			Benzo(k)fluoranthene	2016/12/07	NC		%	40
			Chrysene	2016/12/07	NC		%	40
			Dibenz(a,h)anthracene	2016/12/07	NC		%	40
			Fluoranthene	2016/12/07	NC		%	40
			Fluorene	2016/12/07	NC		%	40
			Indeno(1,2,3-cd)pyrene	2016/12/07	NC		%	40
			Naphthalene	2016/12/07	NC		%	40
			Perylene	2016/12/07	NC		%	40
			Phenanthrene	2016/12/07	NC		%	40
			Pyrene	2016/12/07	NC		%	40

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 spiked amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than 2x that of 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 (one or both samples < 5x RDL).

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

(2) PAH sample contained sediment.

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Maxxam Job #: B6Q0833
Report Date: 2016/12/08

Dillon Consulting Limited
Client Project #: 4104251070
Site Location: OHP/HE SITE

VALIDATION SIGNATURE PAGE

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

Alan Stewart, Organics Manager, Bedford

Mike MacGillivray, Scientific Specialist (Inorganics)

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 #: 4104251070
Site Location: OHP/HE SITE
Your C.O.C. #: 586491

Attention:Nadine Wambolt

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

Report Date: 2016/12/13
Report #: R4285362
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B6Q3940
Received: 2016/12/02, 15:49

Sample Matrix: Water
Samples Received: 8

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Reference
Carbonate, Bicarbonate and Hydroxide (1)	7	N/A	2016/12/07	N/A	SM 22 4500-CO2 D
Alkalinity (1)	7	N/A	2016/12/12	ATL SOP 00013	EPA 310.2 R1974 m
Chloride (1)	3	N/A	2016/12/12	ATL SOP 00014	SM 22 4500-Cl- E m
Chloride (1)	4	N/A	2016/12/13	ATL SOP 00014	SM 22 4500-Cl- E m
Colour (1)	7	N/A	2016/12/09	ATL SOP 00020	SM 22 2120C m
Conductance - water (1)	7	N/A	2016/12/07	ATL SOP 00004	SM 22 2510B m
Hardness (calculated as CaCO3) (1)	7	N/A	2016/12/08	ATL SOP 00048	SM 22 2340 B
Mercury - Total (CVAA,LL) (1)	7	2016/12/07	2016/12/08	ATL SOP 00026	EPA 245.1 R3 m
Metals Water Diss. MS (as rec'd) (1)	5	N/A	2016/12/07	ATL SOP 00058	EPA 6020A R1 m
Metals Water Diss. MS (as rec'd) (1)	2	N/A	2016/12/08	ATL SOP 00058	EPA 6020A R1 m
Ion Balance (% Difference) (1)	7	N/A	2016/12/13	N/A	Auto Calc.
Anion and Cation Sum (1)	7	N/A	2016/12/09	N/A	Auto Calc.
Nitrogen Ammonia - water (1)	7	N/A	2016/12/08	ATL SOP 00015	EPA 350.1 R2 m
Nitrogen - Nitrate + Nitrite (1)	7	N/A	2016/12/12	ATL SOP 00016	USGS SOPINCF0452.2 m
Nitrogen - Nitrite (1)	7	N/A	2016/12/12	ATL SOP 00017	SM 22 4500-NO2- B m
Nitrogen - Nitrate (as N) (1)	7	N/A	2016/12/12	ATL SOP 00018	ASTM D3867-16
PAH in Water by GC/MS (SIM) (1)	2	2016/12/08	2016/12/09	ATL SOP 00103	EPA 8270D 2007 m
PAH in Water by GC/MS (SIM) (1)	6	2016/12/08	2016/12/10	ATL SOP 00103	EPA 8270D 2007 m
pH (1, 2)	7	N/A	2016/12/07	ATL SOP 00003	SM 22 4500-H+ B m
Phosphorus - ortho (1)	7	N/A	2016/12/12	ATL SOP 00021	EPA 365.2 m
Sat. pH and Langelier Index (@ 20C) (1)	7	N/A	2016/12/13	ATL SOP 00049	Auto Calc.
Sat. pH and Langelier Index (@ 4C) (1)	7	N/A	2016/12/13	ATL SOP 00049	Auto Calc.
Reactive Silica (1)	1	N/A	2016/12/12	ATL SOP 00022	EPA 366.0 m
Reactive Silica (1)	6	N/A	2016/12/13	ATL SOP 00022	EPA 366.0 m
Sulphate (1)	7	N/A	2016/12/09	ATL SOP 00023	ASTMD516-11 m
Total Dissolved Solids (TDS calc) (1)	7	N/A	2016/12/13	N/A	Auto Calc.
Organic carbon - Total (TOC) (1, 3)	7	N/A	2016/12/09	ATL SOP 00037	SM 22 5310C m
Turbidity (1)	6	N/A	2016/12/07	ATL SOP 00011	EPA 180.1 R2 m
Turbidity (1)	1	N/A	2016/12/09	ATL SOP 00011	EPA 180.1 R2 m

Remarks:

Your Project #: 4104251070
Site Location: OHP/HE SITE
Your C.O.C. #: 586491

Attention:Nadine Wambolt

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

Report Date: 2016/12/13
Report #: R4285362
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B6Q3940
Received: 2016/12/02, 15:49

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.

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.

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.

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.
Candace Hillier, Cl Svc - Sydney
Email: chillier@maxxam.ca
Phone# (902) 567 1255

==========

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 #: B6Q3940
Report Date: 2016/12/13

Dillon Consulting Limited
Client Project #: 4104251070
Site Location: OHP/HE SITE

RESULTS OF ANALYSES OF WATER

Maxxam ID		DOL668			DOL669			DOL670		
Sampling Date		2016/12/02			2016/12/02			2016/12/02		
COC Number		586491			586491			586491		
	UNITS	COBB-004-MWA	RDL	QC Batch	MCES-006-MW	RDL	QC Batch	MCWS-307-MWB	RDL	QC Batch
Calculated Parameters										
Anion Sum	me/L	9.72	N/A	4778958	3.58	N/A	4778958	14.5	N/A	4778958
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	140	1.0	4778178	100	1.0	4778178	350	1.0	4778178
Calculated TDS	mg/L	630	1.0	4778960	220	1.0	4778960	790	1.0	4778960
Carb. Alkalinity (calc. as CaCO3)	mg/L	<1.0	1.0	4778178	<1.0	1.0	4778178	1.7	1.0	4778178
Cation Sum	me/L	9.77	N/A	4778958	3.74	N/A	4778958	13.1	N/A	4778958
Hardness (CaCO3)	mg/L	460	1.0	4778956	170	1.0	4778956	220	1.0	4778956
Ion Balance (% Difference)	%	0.260	N/A	4778957	2.19	N/A	4778957	5.10	N/A	4778957
Langelier Index (@ 20C)	N/A	0.424		4778185	0.334		4778185	0.582		4778185
Langelier Index (@ 4C)	N/A	0.177		4778186	0.0840		4778186	0.335		4778186
Nitrate (N)	mg/L	<0.050	0.050	4778959	0.52	0.050	4778959	<0.050	0.050	4778959
Saturation pH (@ 20C)	N/A	7.09		4778185	7.62		4778185	7.12		4778185
Saturation pH (@ 4C)	N/A	7.34		4778186	7.87		4778186	7.37		4778186
Inorganics										
Total Alkalinity (Total as CaCO3)	mg/L	140	25	4784220	100	25	4784220	360	25	4784220
Dissolved Chloride (Cl)	mg/L	20	1.0	4784221	17	1.0	4784221	200	1.0	4784221
Colour	TCU	10	5.0	4784224	13	5.0	4784224	<5.0	5.0	4784224
Nitrate + Nitrite (N)	mg/L	<0.050	0.050	4784226	0.58	0.050	4784226	<0.050	0.050	4784226
Nitrite (N)	mg/L	<0.010	0.010	4784227	0.062	0.010	4784227	<0.010	0.010	4784227
Nitrogen (Ammonia Nitrogen)	mg/L	0.052	0.050	4783750	0.14	0.050	4783750	0.10	0.050	4783750
Total Organic Carbon (C)	mg/L	5.6	0.50	4785975	5.4 (1)	5.0	4785975	0.94	0.50	4785975
Orthophosphate (P)	mg/L	0.023	0.010	4784225	0.015	0.010	4784225	0.016	0.010	4784225
pH	pH	7.52	N/A	4781673	7.95	N/A	4781675	7.70	N/A	4781671
Reactive Silica (SiO2)	mg/L	26	1.0	4784223	14	0.50	4784223	11	0.50	4784223
Dissolved Sulphate (SO4)	mg/L	300	40	4784222	48	10	4784222	90	10	4784222
Turbidity	NTU	3.8	0.10	4781687	7.9	0.10	4781684	0.40	0.10	4781687
Conductivity	uS/cm	830	1.0	4781674	320	1.0	4781676	1200	1.0	4781672

RDL = Reportable Detection Limit
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(1) Elevated reporting limit due to sample matrix.

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Maxxam Job #: B6Q3940
Report Date: 2016/12/13

Dillon Consulting Limited
Client Project #: 4104251070
Site Location: OHP/HE SITE

RESULTS OF ANALYSES OF WATER

Maxxam ID		DOL671			DOL673			DOL674		
Sampling Date		2016/12/02			2016/12/02			2016/12/02		
COC Number		586491			586491			586491		
	UNITS	MCWS-309-MW	RDL	QC Batch	MCWS-310-MW	RDL	QC Batch	COBC-001-MWA	RDL	QC Batch
Calculated Parameters										
Anion Sum	me/L	9.42	N/A	4778958	1.41	N/A	4778958	16.9	N/A	4778958
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	310	1.0	4778178	49	1.0	4778178	170	1.0	4778178
Calculated TDS	mg/L	530	1.0	4778960	76	1.0	4778960	1100	1.0	4778960
Carb. Alkalinity (calc. as CaCO3)	mg/L	1.2	1.0	4778178	<1.0	1.0	4778178	<1.0	1.0	4778178
Cation Sum	me/L	8.28	N/A	4778958	1.25	N/A	4778958	16.9	N/A	4778958
Hardness (CaCO3)	mg/L	30	1.0	4778956	42	1.0	4778956	730	1.0	4778956
Ion Balance (% Difference)	%	6.44	N/A	4778957	6.02	N/A	4778957	0.210	N/A	4778957
Langelier Index (@ 20C)	N/A	-0.453		4778185	-1.33		4778185	0.402		4778185
Langelier Index (@ 4C)	N/A	-0.701		4778186	-1.58		4778186	0.157		4778186
Nitrate (N)	mg/L	<0.050	0.050	4778959	<0.050	0.050	4778959	<0.050	0.050	4778959
Saturation pH (@ 20C)	N/A	8.07		4778185	8.48		4778185	6.90		4778185
Saturation pH (@ 4C)	N/A	8.32		4778186	8.73		4778186	7.15		4778186
Inorganics										
Total Alkalinity (Total as CaCO3)	mg/L	310	25	4784220	49	5.0	4784220	170	25	4784220
Dissolved Chloride (Cl)	mg/L	49	1.0	4784221	11	1.0	4784221	68	1.0	4784221
Colour	TCU	18	5.0	4784224	14	5.0	4784224	<5.0	5.0	4784224
Nitrate + Nitrite (N)	mg/L	<0.050	0.050	4784226	<0.050	0.050	4784226	<0.050	0.050	4784226
Nitrite (N)	mg/L	<0.010	0.010	4784227	0.013	0.010	4784227	0.013	0.010	4784227
Nitrogen (Ammonia Nitrogen)	mg/L	0.14	0.050	4783750	0.053	0.050	4783750	0.66	0.050	4783750
Total Organic Carbon (C)	mg/L	9.8 (1)	5.0	4785975	1.7	0.50	4785975	3.1	0.50	4785975
Orthophosphate (P)	mg/L	0.067	0.010	4784225	0.011	0.010	4784225	0.012	0.010	4784225
pH	pH	7.62	N/A	4781675	7.15	N/A	4781675	7.30	N/A	4781677
Reactive Silica (SiO2)	mg/L	10	0.50	4784223	3.4	0.50	4784223	8.6	0.50	4784223
Dissolved Sulphate (SO4)	mg/L	88	10	4784222	6.4	2.0	4784222	560	40	4784222
Turbidity	NTU	130	1.0	4781688	3.2	0.10	4781684	31	0.10	4785696
Conductivity	uS/cm	800	1.0	4781676	120	1.0	4781676	1400	1.0	4781678

RDL = Reportable Detection Limit
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Maxxam Job #: B6Q3940
Report Date: 2016/12/13

Dillon Consulting Limited
Client Project #: 4104251070
Site Location: OHP/HE SITE

RESULTS OF ANALYSES OF WATER

Maxxam ID		DOL675		
Sampling Date		2016/12/02		
COC Number		586491		
	UNITS	SCU7-001-MW	RDL	QC Batch
Calculated Parameters				
Anion Sum	me/L	23.3	N/A	4778958
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	230	1.0	4778178
Calculated TDS	mg/L	1500	1.0	4778960
Carb. Alkalinity (calc. as CaCO3)	mg/L	<1.0	1.0	4778178
Cation Sum	me/L	23.0	N/A	4778958
Hardness (CaCO3)	mg/L	1100	1.0	4778956
Ion Balance (% Difference)	%	0.630	N/A	4778957
Langelier Index (@ 20C)	N/A	0.588		4778185
Langelier Index (@ 4C)	N/A	0.344		4778186
Nitrate (N)	mg/L	<0.050	0.050	4778959
Saturation pH (@ 20C)	N/A	6.62		4778185
Saturation pH (@ 4C)	N/A	6.86		4778186
Inorganics				
Total Alkalinity (Total as CaCO3)	mg/L	230	25	4784220
Dissolved Chloride (Cl)	mg/L	92	1.0	4784221
Colour	TCU	<5.0	5.0	4784224
Nitrate + Nitrite (N)	mg/L	<0.050	0.050	4784226
Nitrite (N)	mg/L	<0.010	0.010	4784227
Nitrogen (Ammonia Nitrogen)	mg/L	0.11	0.050	4783750
Total Organic Carbon (C)	mg/L	1.6	0.50	4785975
Orthophosphate (P)	mg/L	0.020	0.010	4784225
pH	pH	7.21	N/A	4781675
Reactive Silica (SiO2)	mg/L	18	0.50	4784223
Dissolved Sulphate (SO4)	mg/L	770	40	4784222
Turbidity	NTU	5.0	0.10	4781684
Conductivity	uS/cm	1700	1.0	4781676

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Report Date: 2016/12/13

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Site Location: OHP/HE SITE

MERCURY BY COLD VAPOUR AA (WATER)

Maxxam ID		DOL668	DOL669	DOL670	DOL671	DOL673		
Sampling Date		2016/12/02	2016/12/02	2016/12/02	2016/12/02	2016/12/02		
COC Number		586491	586491	586491	586491	586491		
	UNITS	COBB-004-MWA	MCES-006-MW	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	4782127

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam ID		DOL674	DOL675		
Sampling Date		2016/12/02	2016/12/02		
COC Number		586491	586491		
	UNITS	COBC-001-MWA	SCU7-001-MW	RDL	QC Batch
Metals					
Total Mercury (Hg)	ug/L	<0.013	<0.013	0.013	4782127

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Report Date: 2016/12/13

Dillon Consulting Limited
Client Project #: 4104251070
Site Location: OHP/HE SITE

ELEMENTS BY ICP/MS (WATER)

Maxxam ID		DOL668		DOL669	DOL670	DOL671		
Sampling Date		2016/12/02		2016/12/02	2016/12/02	2016/12/02		
COC Number		586491		586491	586491	586491		
	UNITS	COBB-004-MWA	QC Batch	MCES-006-MW	MCWS-307-MWB	MCWS-309-MW	RDL	QC Batch
Metals								
Dissolved Aluminum (Al)	ug/L	10	4781724	23	13	60	5.0	4781722
Dissolved Antimony (Sb)	ug/L	<1.0	4781724	<1.0	<1.0	<1.0	1.0	4781722
Dissolved Arsenic (As)	ug/L	3.2	4781724	11	<1.0	4.4	1.0	4781722
Dissolved Barium (Ba)	ug/L	87	4781724	240	33	17	1.0	4781722
Dissolved Beryllium (Be)	ug/L	<1.0	4781724	<1.0	<1.0	<1.0	1.0	4781722
Dissolved Bismuth (Bi)	ug/L	<2.0	4781724	<2.0	<2.0	<2.0	2.0	4781722
Dissolved Boron (B)	ug/L	66	4781724	<50	120	400	50	4781722
Dissolved Cadmium (Cd)	ug/L	0.030	4781724	0.049	0.14	0.076	0.010	4781722
Dissolved Calcium (Ca)	ug/L	170000	4781724	59000	71000	8200	100	4781722
Dissolved Chromium (Cr)	ug/L	<1.0	4781724	<1.0	<1.0	<1.0	1.0	4781722
Dissolved Cobalt (Co)	ug/L	0.76	4781724	<0.40	<0.40	<0.40	0.40	4781722
Dissolved Copper (Cu)	ug/L	2.3	4781724	2.5	<2.0	<2.0	2.0	4781722
Dissolved Iron (Fe)	ug/L	320	4781724	650	61	590	50	4781722
Dissolved Lead (Pb)	ug/L	<0.50	4781724	<0.50	<0.50	<0.50	0.50	4781722
Dissolved Magnesium (Mg)	ug/L	6900	4781724	4700	11000	2200	100	4781722
Dissolved Manganese (Mn)	ug/L	1700	4781724	2700	130	2000	2.0	4781722
Dissolved Molybdenum (Mo)	ug/L	11	4781724	<2.0	<2.0	2.3	2.0	4781722
Dissolved Nickel (Ni)	ug/L	2.5	4781724	<2.0	<2.0	<2.0	2.0	4781722
Dissolved Phosphorus (P)	ug/L	<100	4781724	<100	<100	150	100	4781722
Dissolved Potassium (K)	ug/L	4200	4781724	1800	2100	8400	100	4781722
Dissolved Selenium (Se)	ug/L	<1.0	4781724	<1.0	<1.0	<1.0	1.0	4781722
Dissolved Silver (Ag)	ug/L	<0.10	4781724	<0.10	<0.10	<0.10	0.10	4781722
Dissolved Sodium (Na)	ug/L	8900	4781724	7900	200000	170000	100	4781722
Dissolved Strontium (Sr)	ug/L	740	4781724	510	310	29	2.0	4781722
Dissolved Thallium (Tl)	ug/L	<0.10	4781724	<0.10	<0.10	<0.10	0.10	4781722
Dissolved Tin (Sn)	ug/L	<2.0	4781724	<2.0	<2.0	<2.0	2.0	4781722
Dissolved Titanium (Ti)	ug/L	<2.0	4781724	<2.0	<2.0	<2.0	2.0	4781722
Dissolved Uranium (U)	ug/L	3.2	4781724	0.60	1.3	0.19	0.10	4781722
Dissolved Vanadium (V)	ug/L	<2.0	4781724	16	<2.0	<2.0	2.0	4781722
Dissolved Zinc (Zn)	ug/L	48	4781724	<5.0	<5.0	<5.0	5.0	4781722

RDL = Reportable Detection Limit
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Report Date: 2016/12/13

Dillon Consulting Limited
Client Project #: 4104251070
Site Location: OHP/HE SITE

ELEMENTS BY ICP/MS (WATER)

Maxxam ID		DOL673		DOL674	DOL675		
Sampling Date		2016/12/02		2016/12/02	2016/12/02		
COC Number		586491		586491	586491		
	UNITS	MCWS-310-MW	RDL	COBC-001-MWA	SCU7-001-MW	RDL	QC Batch
Metals							
Dissolved Aluminum (Al)	ug/L	18	5.0	7.7	8.1	5.0	4781722
Dissolved Antimony (Sb)	ug/L	<1.0	1.0	<1.0	<1.0	1.0	4781722
Dissolved Arsenic (As)	ug/L	<1.0	1.0	2.1	<1.0	1.0	4781722
Dissolved Barium (Ba)	ug/L	17	1.0	42	62	1.0	4781722
Dissolved Beryllium (Be)	ug/L	<1.0	1.0	<1.0	<1.0	1.0	4781722
Dissolved Bismuth (Bi)	ug/L	<2.0	2.0	<2.0	<2.0	2.0	4781722
Dissolved Boron (B)	ug/L	<50	50	<50	<50	50	4781722
Dissolved Cadmium (Cd)	ug/L	0.048	0.010	0.058	1.3	0.010	4781722
Dissolved Calcium (Ca)	ug/L	14000	100	270000	410000	100	4781722
Dissolved Chromium (Cr)	ug/L	<1.0	1.0	<1.0	<1.0	1.0	4781722
Dissolved Cobalt (Co)	ug/L	<0.40	0.40	0.86	<0.40	0.40	4781722
Dissolved Copper (Cu)	ug/L	<2.0	2.0	<2.0	<2.0	2.0	4781722
Dissolved Iron (Fe)	ug/L	<50	50	3800	<50	50	4781722
Dissolved Lead (Pb)	ug/L	<0.50	0.50	1.3	<0.50	0.50	4781722
Dissolved Magnesium (Mg)	ug/L	1500	100	16000	15000	100	4781722
Dissolved Manganese (Mn)	ug/L	2.3	2.0	2500	69	2.0	4781722
Dissolved Molybdenum (Mo)	ug/L	<2.0	2.0	<2.0	<2.0	2.0	4781722
Dissolved Nickel (Ni)	ug/L	6.0	2.0	<2.0	<2.0	2.0	4781722
Dissolved Phosphorus (P)	ug/L	<100	100	<100	<100	100	4781722
Dissolved Potassium (K)	ug/L	3200	100	2600	2500	100	4781722
Dissolved Selenium (Se)	ug/L	<1.0	1.0	<1.0	<1.0	1.0	4781722
Dissolved Silver (Ag)	ug/L	<0.10	0.10	<0.10	<0.10	0.10	4781722
Dissolved Sodium (Na)	ug/L	7600	100	45000	24000	100	4781722
Dissolved Strontium (Sr)	ug/L	130	2.0	10000	6900	20	4781722
Dissolved Thallium (Tl)	ug/L	<0.10	0.10	<0.10	<0.10	0.10	4781722
Dissolved Tin (Sn)	ug/L	<2.0	2.0	<2.0	<2.0	2.0	4781722
Dissolved Titanium (Ti)	ug/L	<2.0	2.0	<2.0	<2.0	2.0	4781722
Dissolved Uranium (U)	ug/L	<0.10	0.10	0.17	5.8	0.10	4781722
Dissolved Vanadium (V)	ug/L	<2.0	2.0	<2.0	<2.0	2.0	4781722
Dissolved Zinc (Zn)	ug/L	440	5.0	61	<5.0	5.0	4781722

RDL = Reportable Detection Limit
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Maxxam Job #: B6Q3940
Report Date: 2016/12/13

Dillon Consulting Limited
Client Project #: 4104251070
Site Location: OHP/HE SITE

SEMI-VOLATILE ORGANICS BY GC-MS (WATER)

Maxxam ID		DOL668	DOL669	DOL670	DOL671	DOL673		
Sampling Date		2016/12/02	2016/12/02	2016/12/02	2016/12/02	2016/12/02		
COC Number		586491	586491	586491	586491	586491		
	UNITS	COBB-004-MWA	MCES-006-MW	MCWS-307-MWB	MCWS-309-MW	MCWS-310-MW	RDL	QC Batch
Polyaromatic Hydrocarbons								
1-Methylnaphthalene	ug/L	0.57	17	<0.050	<0.050	<0.050	0.050	4783867
2-Methylnaphthalene	ug/L	0.19	0.53	<0.050	<0.050	<0.050	0.050	4783867
Acenaphthene	ug/L	0.20	22	<0.010	<0.010	<0.010	0.010	4783867
Acenaphthylene	ug/L	<0.010	0.24	<0.010	0.013	<0.010	0.010	4783867
Anthracene	ug/L	0.014	0.30	<0.010	0.019	<0.010	0.010	4783867
Benzo(a)anthracene	ug/L	0.017	0.016	<0.010	0.029	<0.010	0.010	4783867
Benzo(a)pyrene	ug/L	0.012	<0.010	<0.010	0.033	<0.010	0.010	4783867
Benzo(b)fluoranthene	ug/L	0.010	<0.010	<0.010	0.027	<0.010	0.010	4783867
Benzo(g,h,i)perylene	ug/L	<0.010	<0.010	<0.010	0.020	<0.010	0.010	4783867
Benzo(j)fluoranthene	ug/L	<0.010	<0.010	<0.010	0.018	<0.010	0.010	4783867
Benzo(k)fluoranthene	ug/L	<0.010	<0.010	<0.010	0.016	<0.010	0.010	4783867
Chrysene	ug/L	0.015	0.016	<0.010	0.031	<0.010	0.010	4783867
Dibenz(a,h)anthracene	ug/L	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	4783867
Fluoranthene	ug/L	0.033	0.42	<0.010	0.093	<0.010	0.010	4783867
Fluorene	ug/L	0.063	7.4	<0.010	0.014	<0.010	0.010	4783867
Indeno(1,2,3-cd)pyrene	ug/L	<0.010	<0.010	<0.010	0.018	<0.010	0.010	4783867
Naphthalene	ug/L	3.9	<0.20	<0.20	<0.20	<0.20	0.20	4783867
Perylene	ug/L	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	4783867
Phenanthrene	ug/L	0.060	2.6	<0.010	0.052	0.013	0.010	4783867
Pyrene	ug/L	0.025	0.30	<0.010	0.080	<0.010	0.010	4783867
Surrogate Recovery (%)								
D10-Anthracene	%	74	84	99	78	83		4783867
D14-Terphenyl	%	94	87	101	80	86		4783867
D8-Acenaphthylene	%	100	93	97	93	80		4783867

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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SEMI-VOLATILE ORGANICS BY GC-MS (WATER)

Maxxam ID		DOL674	DOL675	DOL676		
Sampling Date		2016/12/02	2016/12/02	2016/12/02		
COC Number		586491	586491	586491		
	UNITS	COBC-001-MWA	SCU7-001-MW	TB-033	RDL	QC Batch
Polyaromatic Hydrocarbons						
1-Methylnaphthalene	ug/L	0.36	<0.050	<0.050	0.050	4783867
2-Methylnaphthalene	ug/L	0.19	<0.050	<0.050	0.050	4783867
Acenaphthene	ug/L	0.42	0.012	<0.010	0.010	4783867
Acenaphthylene	ug/L	0.10	0.054	<0.010	0.010	4783867
Anthracene	ug/L	<0.010	<0.010	<0.010	0.010	4783867
Benzo(a)anthracene	ug/L	<0.010	<0.010	<0.010	0.010	4783867
Benzo(a)pyrene	ug/L	<0.010	<0.010	<0.010	0.010	4783867
Benzo(b)fluoranthene	ug/L	<0.010	<0.010	<0.010	0.010	4783867
Benzo(g,h,i)perylene	ug/L	<0.010	<0.010	<0.010	0.010	4783867
Benzo(j)fluoranthene	ug/L	<0.010	<0.010	<0.010	0.010	4783867
Benzo(k)fluoranthene	ug/L	<0.010	<0.010	<0.010	0.010	4783867
Chrysene	ug/L	<0.010	<0.010	<0.010	0.010	4783867
Dibenz(a,h)anthracene	ug/L	<0.010	<0.010	<0.010	0.010	4783867
Fluoranthene	ug/L	0.052	0.014	<0.010	0.010	4783867
Fluorene	ug/L	0.061	0.028	<0.010	0.010	4783867
Indeno(1,2,3-cd)pyrene	ug/L	<0.010	<0.010	<0.010	0.010	4783867
Naphthalene	ug/L	4.2	<0.20	<0.20	0.20	4783867
Perylene	ug/L	<0.010	<0.010	<0.010	0.010	4783867
Phenanthrene	ug/L	0.022	0.014	<0.010	0.010	4783867
Pyrene	ug/L	0.052	0.011	<0.010	0.010	4783867
Surrogate Recovery (%)						
D10-Anthracene	%	77	84	73		4783867
D14-Terphenyl	%	83	107	105		4783867
D8-Acenaphthylene	%	77	103	99		4783867

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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GENERAL COMMENTS

Sample DOL670 [MCWS-307-MWB] : Poor RCAp Ion Balance due to sample matrix.

Sample DOL671 [MCWS-309-MW] : Poor RCAp Ion Balance due to sample matrix. Cation sum does not include contribution from Mn

Sample DOL673 [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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Maxxam Job #: B6Q3940
Report Date: 2016/12/13

Dillon Consulting Limited
Client Project #: 4104251070
Site Location: OHP/HE SITE

QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
4781671	JMV	QC Standard	pH	2016/12/07		101	%	97 - 103
4781671	JMV	RPD	pH	2016/12/07	0.33		%	N/A
4781672	JMV	Spiked Blank	Conductivity	2016/12/07		104	%	80 - 120
4781672	JMV	Method Blank	Conductivity	2016/12/07	1.4, RDL=1.0		uS/cm	
4781672	JMV	RPD	Conductivity	2016/12/07	1.5		%	25
4781673	JMV	QC Standard	pH	2016/12/07		101	%	97 - 103
4781673	JMV	RPD [DOL668-02]	pH	2016/12/07	0.84		%	N/A
4781674	JMV	Spiked Blank	Conductivity	2016/12/07		101	%	80 - 120
4781674	JMV	Method Blank	Conductivity	2016/12/07	1.3, RDL=1.0		uS/cm	
4781674	JMV	RPD [DOL668-02]	Conductivity	2016/12/07	0.25		%	25
4781675	JMV	QC Standard	pH	2016/12/07		101	%	97 - 103
4781675	JMV	RPD	pH	2016/12/07	1.6		%	N/A
4781676	JMV	Spiked Blank	Conductivity	2016/12/07		102	%	80 - 120
4781676	JMV	Method Blank	Conductivity	2016/12/07	1.5, RDL=1.0		uS/cm	
4781676	JMV	RPD	Conductivity	2016/12/07	0.18		%	25
4781677	JMV	QC Standard	pH	2016/12/07		101	%	97 - 103
4781677	JMV	RPD	pH	2016/12/07	0.74		%	N/A
4781678	JMV	Spiked Blank	Conductivity	2016/12/07		102	%	80 - 120
4781678	JMV	Method Blank	Conductivity	2016/12/07	1.5, RDL=1.0		uS/cm	
4781678	JMV	RPD	Conductivity	2016/12/07	0.011		%	25
4781684	JMV	QC Standard	Turbidity	2016/12/07		88	%	80 - 120
4781684	JMV	Spiked Blank	Turbidity	2016/12/07		96	%	80 - 120
4781684	JMV	Method Blank	Turbidity	2016/12/07	<0.10		NTU	
4781684	JMV	RPD	Turbidity	2016/12/07	1.1		%	20
4781687	JMV	QC Standard	Turbidity	2016/12/07		89	%	80 - 120
4781687	JMV	Spiked Blank	Turbidity	2016/12/07		94	%	80 - 120
4781687	JMV	Method Blank	Turbidity	2016/12/07	<0.10		NTU	
4781687	JMV	RPD	Turbidity	2016/12/07	NC		%	20
4781688	JMV	QC Standard	Turbidity	2016/12/07		88	%	80 - 120
4781688	JMV	Spiked Blank	Turbidity	2016/12/07		95	%	80 - 120
4781688	JMV	Method Blank	Turbidity	2016/12/07	<0.10		NTU	
4781688	JMV	RPD	Turbidity	2016/12/07	NC		%	20
4781722	BAN	Matrix Spike	Dissolved Aluminum (Al)	2016/12/07		106	%	80 - 120
			Dissolved Antimony (Sb)	2016/12/07		110	%	80 - 120
			Dissolved Arsenic (As)	2016/12/07		97	%	80 - 120
			Dissolved Barium (Ba)	2016/12/07		96	%	80 - 120
			Dissolved Beryllium (Be)	2016/12/07		95	%	80 - 120
			Dissolved Bismuth (Bi)	2016/12/07		103	%	80 - 120
			Dissolved Boron (B)	2016/12/07		96	%	80 - 120
			Dissolved Cadmium (Cd)	2016/12/07		97	%	80 - 120
			Dissolved Calcium (Ca)	2016/12/07		NC	%	80 - 120
			Dissolved Chromium (Cr)	2016/12/07		96	%	80 - 120
			Dissolved Cobalt (Co)	2016/12/07		98	%	80 - 120
			Dissolved Copper (Cu)	2016/12/07		93	%	80 - 120
			Dissolved Iron (Fe)	2016/12/07		96	%	80 - 120
			Dissolved Lead (Pb)	2016/12/07		99	%	80 - 120
			Dissolved Magnesium (Mg)	2016/12/07		97	%	80 - 120
			Dissolved Manganese (Mn)	2016/12/07		NC	%	80 - 120
			Dissolved Molybdenum (Mo)	2016/12/07		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
			Dissolved Nickel (Ni)	2016/12/07		96	%	80 - 120
			Dissolved Phosphorus (P)	2016/12/07		105	%	80 - 120
			Dissolved Potassium (K)	2016/12/07		100	%	80 - 120
			Dissolved Selenium (Se)	2016/12/07		98	%	80 - 120
			Dissolved Silver (Ag)	2016/12/07		96	%	80 - 120
			Dissolved Sodium (Na)	2016/12/07		93	%	80 - 120
			Dissolved Strontium (Sr)	2016/12/07		NC	%	80 - 120
			Dissolved Thallium (Tl)	2016/12/07		103	%	80 - 120
			Dissolved Tin (Sn)	2016/12/07		109	%	80 - 120
			Dissolved Titanium (Ti)	2016/12/07		99	%	80 - 120
			Dissolved Uranium (U)	2016/12/07		105	%	80 - 120
			Dissolved Vanadium (V)	2016/12/07		99	%	80 - 120
			Dissolved Zinc (Zn)	2016/12/07		96	%	80 - 120
4781722	BAN	Spiked Blank	Dissolved Aluminum (Al)	2016/12/07		107	%	80 - 120
			Dissolved Antimony (Sb)	2016/12/07		108	%	80 - 120
			Dissolved Arsenic (As)	2016/12/07		97	%	80 - 120
			Dissolved Barium (Ba)	2016/12/07		96	%	80 - 120
			Dissolved Beryllium (Be)	2016/12/07		95	%	80 - 120
			Dissolved Bismuth (Bi)	2016/12/07		103	%	80 - 120
			Dissolved Boron (B)	2016/12/07		96	%	80 - 120
			Dissolved Cadmium (Cd)	2016/12/07		96	%	80 - 120
			Dissolved Calcium (Ca)	2016/12/07		100	%	80 - 120
			Dissolved Chromium (Cr)	2016/12/07		97	%	80 - 120
			Dissolved Cobalt (Co)	2016/12/07		99	%	80 - 120
			Dissolved Copper (Cu)	2016/12/07		95	%	80 - 120
			Dissolved Iron (Fe)	2016/12/07		97	%	80 - 120
			Dissolved Lead (Pb)	2016/12/07		100	%	80 - 120
			Dissolved Magnesium (Mg)	2016/12/07		100	%	80 - 120
			Dissolved Manganese (Mn)	2016/12/07		98	%	80 - 120
			Dissolved Molybdenum (Mo)	2016/12/07		104	%	80 - 120
			Dissolved Nickel (Ni)	2016/12/07		97	%	80 - 120
			Dissolved Phosphorus (P)	2016/12/07		106	%	80 - 120
			Dissolved Potassium (K)	2016/12/07		103	%	80 - 120
			Dissolved Selenium (Se)	2016/12/07		96	%	80 - 120
			Dissolved Silver (Ag)	2016/12/07		96	%	80 - 120
			Dissolved Sodium (Na)	2016/12/07		95	%	80 - 120
			Dissolved Strontium (Sr)	2016/12/07		101	%	80 - 120
			Dissolved Thallium (Tl)	2016/12/07		103	%	80 - 120
			Dissolved Tin (Sn)	2016/12/07		107	%	80 - 120
			Dissolved Titanium (Ti)	2016/12/07		100	%	80 - 120
			Dissolved Uranium (U)	2016/12/07		104	%	80 - 120
			Dissolved Vanadium (V)	2016/12/07		100	%	80 - 120
			Dissolved Zinc (Zn)	2016/12/07		97	%	80 - 120
4781722	BAN	Method Blank	Dissolved Aluminum (Al)	2016/12/07	5.2, RDL=5.0		ug/L	
			Dissolved Antimony (Sb)	2016/12/07	<1.0		ug/L	
			Dissolved Arsenic (As)	2016/12/07	<1.0		ug/L	
			Dissolved Barium (Ba)	2016/12/07	<1.0		ug/L	
			Dissolved Beryllium (Be)	2016/12/07	<1.0		ug/L	
			Dissolved Bismuth (Bi)	2016/12/07	<2.0		ug/L	
			Dissolved Boron (B)	2016/12/07	<50		ug/L	
			Dissolved Cadmium (Cd)	2016/12/07	<0.010		ug/L	
			Dissolved Calcium (Ca)	2016/12/07	<100		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 Chromium (Cr)	2016/12/07	<1.0		ug/L	
			Dissolved Cobalt (Co)	2016/12/07	<0.40		ug/L	
			Dissolved Copper (Cu)	2016/12/07	<2.0		ug/L	
			Dissolved Iron (Fe)	2016/12/07	<50		ug/L	
			Dissolved Lead (Pb)	2016/12/07	<0.50		ug/L	
			Dissolved Magnesium (Mg)	2016/12/07	<100		ug/L	
			Dissolved Manganese (Mn)	2016/12/07	<2.0		ug/L	
			Dissolved Molybdenum (Mo)	2016/12/07	<2.0		ug/L	
			Dissolved Nickel (Ni)	2016/12/07	<2.0		ug/L	
			Dissolved Phosphorus (P)	2016/12/07	<100		ug/L	
			Dissolved Potassium (K)	2016/12/07	<100		ug/L	
			Dissolved Selenium (Se)	2016/12/07	<1.0		ug/L	
			Dissolved Silver (Ag)	2016/12/07	<0.10		ug/L	
			Dissolved Sodium (Na)	2016/12/07	<100		ug/L	
			Dissolved Strontium (Sr)	2016/12/07	<2.0		ug/L	
			Dissolved Thallium (Tl)	2016/12/07	<0.10		ug/L	
			Dissolved Tin (Sn)	2016/12/07	<2.0		ug/L	
			Dissolved Titanium (Ti)	2016/12/07	<2.0		ug/L	
			Dissolved Uranium (U)	2016/12/07	<0.10		ug/L	
			Dissolved Vanadium (V)	2016/12/07	<2.0		ug/L	
			Dissolved Zinc (Zn)	2016/12/07	<5.0		ug/L	
4781722	BAN	RPD	Dissolved Aluminum (Al)	2016/12/07	0.82		%	20
			Dissolved Antimony (Sb)	2016/12/07	NC		%	20
			Dissolved Arsenic (As)	2016/12/07	NC		%	20
			Dissolved Barium (Ba)	2016/12/07	2.5		%	20
			Dissolved Beryllium (Be)	2016/12/07	NC		%	20
			Dissolved Bismuth (Bi)	2016/12/07	NC		%	20
			Dissolved Boron (B)	2016/12/07	NC		%	20
			Dissolved Cadmium (Cd)	2016/12/07	3.2		%	20
			Dissolved Calcium (Ca)	2016/12/07	0.57		%	20
			Dissolved Chromium (Cr)	2016/12/07	NC		%	20
			Dissolved Cobalt (Co)	2016/12/07	0.75		%	20
			Dissolved Copper (Cu)	2016/12/07	NC		%	20
			Dissolved Iron (Fe)	2016/12/07	NC		%	20
			Dissolved Lead (Pb)	2016/12/07	NC		%	20
			Dissolved Magnesium (Mg)	2016/12/07	0.44		%	20
			Dissolved Manganese (Mn)	2016/12/07	0.20		%	20
			Dissolved Molybdenum (Mo)	2016/12/07	NC		%	20
			Dissolved Nickel (Ni)	2016/12/07	NC		%	20
			Dissolved Phosphorus (P)	2016/12/07	NC		%	20
			Dissolved Potassium (K)	2016/12/07	0.28		%	20
			Dissolved Selenium (Se)	2016/12/07	NC		%	20
			Dissolved Silver (Ag)	2016/12/07	NC		%	20
			Dissolved Sodium (Na)	2016/12/07	0.45		%	20
			Dissolved Strontium (Sr)	2016/12/07	1.6		%	20
			Dissolved Thallium (Tl)	2016/12/07	NC		%	20
			Dissolved Tin (Sn)	2016/12/07	NC		%	20
			Dissolved Titanium (Ti)	2016/12/07	NC		%	20
			Dissolved Uranium (U)	2016/12/07	NC		%	20
			Dissolved Vanadium (V)	2016/12/07	NC		%	20
			Dissolved Zinc (Zn)	2016/12/07	NC		%	20
4781724	MLB	Matrix Spike [DOL668-03]	Dissolved Aluminum (Al)	2016/12/07		103	%	80 - 120
			Dissolved Antimony (Sb)	2016/12/07		111	%	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 Arsenic (As)	2016/12/07		99	%	80 - 120
			Dissolved Barium (Ba)	2016/12/07		NC	%	80 - 120
			Dissolved Beryllium (Be)	2016/12/07		98	%	80 - 120
			Dissolved Bismuth (Bi)	2016/12/07		101	%	80 - 120
			Dissolved Boron (B)	2016/12/07		100	%	80 - 120
			Dissolved Cadmium (Cd)	2016/12/07		98	%	80 - 120
			Dissolved Calcium (Ca)	2016/12/07		NC	%	80 - 120
			Dissolved Chromium (Cr)	2016/12/07		97	%	80 - 120
			Dissolved Cobalt (Co)	2016/12/07		98	%	80 - 120
			Dissolved Copper (Cu)	2016/12/07		92	%	80 - 120
			Dissolved Iron (Fe)	2016/12/07		96	%	80 - 120
			Dissolved Lead (Pb)	2016/12/07		98	%	80 - 120
			Dissolved Magnesium (Mg)	2016/12/07		NC	%	80 - 120
			Dissolved Manganese (Mn)	2016/12/07		NC	%	80 - 120
			Dissolved Molybdenum (Mo)	2016/12/07		105	%	80 - 120
			Dissolved Nickel (Ni)	2016/12/07		96	%	80 - 120
			Dissolved Phosphorus (P)	2016/12/07		104	%	80 - 120
			Dissolved Potassium (K)	2016/12/07		98	%	80 - 120
			Dissolved Selenium (Se)	2016/12/07		98	%	80 - 120
			Dissolved Silver (Ag)	2016/12/07		78 (1)	%	80 - 120
			Dissolved Sodium (Na)	2016/12/07		93	%	80 - 120
			Dissolved Strontium (Sr)	2016/12/07		NC	%	80 - 120
			Dissolved Thallium (Tl)	2016/12/07		103	%	80 - 120
			Dissolved Tin (Sn)	2016/12/07		110	%	80 - 120
			Dissolved Titanium (Ti)	2016/12/07		93	%	80 - 120
			Dissolved Uranium (U)	2016/12/07		105	%	80 - 120
			Dissolved Vanadium (V)	2016/12/07		101	%	80 - 120
			Dissolved Zinc (Zn)	2016/12/07		95	%	80 - 120
4781724	MLB	Spiked Blank	Dissolved Aluminum (Al)	2016/12/07		106	%	80 - 120
			Dissolved Antimony (Sb)	2016/12/07		107	%	80 - 120
			Dissolved Arsenic (As)	2016/12/07		97	%	80 - 120
			Dissolved Barium (Ba)	2016/12/07		99	%	80 - 120
			Dissolved Beryllium (Be)	2016/12/07		98	%	80 - 120
			Dissolved Bismuth (Bi)	2016/12/07		103	%	80 - 120
			Dissolved Boron (B)	2016/12/07		99	%	80 - 120
			Dissolved Cadmium (Cd)	2016/12/07		98	%	80 - 120
			Dissolved Calcium (Ca)	2016/12/07		100	%	80 - 120
			Dissolved Chromium (Cr)	2016/12/07		97	%	80 - 120
			Dissolved Cobalt (Co)	2016/12/07		99	%	80 - 120
			Dissolved Copper (Cu)	2016/12/07		95	%	80 - 120
			Dissolved Iron (Fe)	2016/12/07		97	%	80 - 120
			Dissolved Lead (Pb)	2016/12/07		99	%	80 - 120
			Dissolved Magnesium (Mg)	2016/12/07		101	%	80 - 120
			Dissolved Manganese (Mn)	2016/12/07		97	%	80 - 120
			Dissolved Molybdenum (Mo)	2016/12/07		102	%	80 - 120
			Dissolved Nickel (Ni)	2016/12/07		98	%	80 - 120
			Dissolved Phosphorus (P)	2016/12/07		104	%	80 - 120
			Dissolved Potassium (K)	2016/12/07		102	%	80 - 120
			Dissolved Selenium (Se)	2016/12/07		96	%	80 - 120
			Dissolved Silver (Ag)	2016/12/07		97	%	80 - 120
			Dissolved Sodium (Na)	2016/12/07		95	%	80 - 120
			Dissolved Strontium (Sr)	2016/12/07		101	%	80 - 120
			Dissolved Thallium (Tl)	2016/12/07		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)	2016/12/07		107	%	80 - 120
			Dissolved Titanium (Ti)	2016/12/07		99	%	80 - 120
			Dissolved Uranium (U)	2016/12/07		103	%	80 - 120
			Dissolved Vanadium (V)	2016/12/07		101	%	80 - 120
			Dissolved Zinc (Zn)	2016/12/07		97	%	80 - 120
4781724	MLB	Method Blank	Dissolved Aluminum (Al)	2016/12/07	5.1, RDL=5.0		ug/L	
			Dissolved Antimony (Sb)	2016/12/07	<1.0		ug/L	
			Dissolved Arsenic (As)	2016/12/07	<1.0		ug/L	
			Dissolved Barium (Ba)	2016/12/07	<1.0		ug/L	
			Dissolved Beryllium (Be)	2016/12/07	<1.0		ug/L	
			Dissolved Bismuth (Bi)	2016/12/07	<2.0		ug/L	
			Dissolved Boron (B)	2016/12/07	<50		ug/L	
			Dissolved Cadmium (Cd)	2016/12/07	<0.010		ug/L	
			Dissolved Calcium (Ca)	2016/12/07	<100		ug/L	
			Dissolved Chromium (Cr)	2016/12/07	<1.0		ug/L	
			Dissolved Cobalt (Co)	2016/12/07	<0.40		ug/L	
			Dissolved Copper (Cu)	2016/12/07	<2.0		ug/L	
			Dissolved Iron (Fe)	2016/12/07	<50		ug/L	
			Dissolved Lead (Pb)	2016/12/07	<0.50		ug/L	
			Dissolved Magnesium (Mg)	2016/12/07	<100		ug/L	
			Dissolved Manganese (Mn)	2016/12/07	<2.0		ug/L	
			Dissolved Molybdenum (Mo)	2016/12/07	<2.0		ug/L	
			Dissolved Nickel (Ni)	2016/12/07	<2.0		ug/L	
			Dissolved Phosphorus (P)	2016/12/07	<100		ug/L	
			Dissolved Potassium (K)	2016/12/07	<100		ug/L	
			Dissolved Selenium (Se)	2016/12/07	<1.0		ug/L	
			Dissolved Silver (Ag)	2016/12/07	<0.10		ug/L	
			Dissolved Sodium (Na)	2016/12/07	<100		ug/L	
			Dissolved Strontium (Sr)	2016/12/07	<2.0		ug/L	
			Dissolved Thallium (Tl)	2016/12/07	<0.10		ug/L	
			Dissolved Tin (Sn)	2016/12/07	<2.0		ug/L	
			Dissolved Titanium (Ti)	2016/12/07	<2.0		ug/L	
			Dissolved Uranium (U)	2016/12/07	<0.10		ug/L	
			Dissolved Vanadium (V)	2016/12/07	<2.0		ug/L	
			Dissolved Zinc (Zn)	2016/12/07	<5.0		ug/L	
4781724	MLB	RPD [DOL668-03]	Dissolved Aluminum (Al)	2016/12/07	NC		%	20
			Dissolved Antimony (Sb)	2016/12/07	NC		%	20
			Dissolved Arsenic (As)	2016/12/07	NC		%	20
			Dissolved Barium (Ba)	2016/12/07	1.4		%	20
			Dissolved Beryllium (Be)	2016/12/07	NC		%	20
			Dissolved Bismuth (Bi)	2016/12/07	NC		%	20
			Dissolved Boron (B)	2016/12/07	NC		%	20
			Dissolved Cadmium (Cd)	2016/12/07	NC		%	20
			Dissolved Calcium (Ca)	2016/12/07	1.4		%	20
			Dissolved Chromium (Cr)	2016/12/07	NC		%	20
			Dissolved Cobalt (Co)	2016/12/07	NC		%	20
			Dissolved Copper (Cu)	2016/12/07	NC		%	20
			Dissolved Iron (Fe)	2016/12/07	0.41		%	20
			Dissolved Lead (Pb)	2016/12/07	NC		%	20
			Dissolved Magnesium (Mg)	2016/12/07	0.32		%	20
			Dissolved Manganese (Mn)	2016/12/07	1.4		%	20
			Dissolved Molybdenum (Mo)	2016/12/07	1.5		%	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 Nickel (Ni)	2016/12/07	NC		%	20
			Dissolved Phosphorus (P)	2016/12/07	NC		%	20
			Dissolved Potassium (K)	2016/12/07	0.070		%	20
			Dissolved Selenium (Se)	2016/12/07	NC		%	20
			Dissolved Silver (Ag)	2016/12/07	NC		%	20
			Dissolved Sodium (Na)	2016/12/07	0.70		%	20
			Dissolved Strontium (Sr)	2016/12/07	0.88		%	20
			Dissolved Thallium (Tl)	2016/12/07	NC		%	20
			Dissolved Tin (Sn)	2016/12/07	NC		%	20
			Dissolved Titanium (Ti)	2016/12/07	NC		%	20
			Dissolved Uranium (U)	2016/12/07	2.2		%	20
			Dissolved Vanadium (V)	2016/12/07	NC		%	20
			Dissolved Zinc (Zn)	2016/12/07	7.7		%	20
4782127	ARS	Matrix Spike	Total Mercury (Hg)	2016/12/08		102	%	80 - 120
4782127	ARS	Spiked Blank	Total Mercury (Hg)	2016/12/08		109	%	80 - 120
4782127	ARS	Method Blank	Total Mercury (Hg)	2016/12/08	<0.013		ug/L	
4782127	ARS	RPD	Total Mercury (Hg)	2016/12/08	NC		%	20
4783750	NRG	Matrix Spike	Nitrogen (Ammonia Nitrogen)	2016/12/08		93	%	80 - 120
4783750	NRG	Spiked Blank	Nitrogen (Ammonia Nitrogen)	2016/12/08		106	%	80 - 120
4783750	NRG	Method Blank	Nitrogen (Ammonia Nitrogen)	2016/12/09	<0.050		mg/L	
4783750	NRG	RPD	Nitrogen (Ammonia Nitrogen)	2016/12/08	NC		%	20
4783867	GTH	Matrix Spike	D10-Anthracene	2016/12/09		62	%	30 - 130
			D14-Terphenyl	2016/12/09		81	%	30 - 130
			D8-Acenaphthylene	2016/12/09		86	%	30 - 130
			1-Methylnaphthalene	2016/12/09		82	%	30 - 130
			2-Methylnaphthalene	2016/12/09		87	%	30 - 130
			Acenaphthene	2016/12/09		87	%	30 - 130
			Acenaphthylene	2016/12/09		97	%	30 - 130
			Anthracene	2016/12/09		95	%	30 - 130
			Benzo(a)anthracene	2016/12/09		98	%	30 - 130
			Benzo(a)pyrene	2016/12/09		92	%	30 - 130
			Benzo(b)fluoranthene	2016/12/09		98	%	30 - 130
			Benzo(g,h,i)perylene	2016/12/09		80	%	30 - 130
			Benzo(j)fluoranthene	2016/12/09		85	%	30 - 130
			Benzo(k)fluoranthene	2016/12/09		94	%	30 - 130
			Chrysene	2016/12/09		90	%	30 - 130
			Dibenz(a,h)anthracene	2016/12/09		74	%	30 - 130
			Fluoranthene	2016/12/09		95	%	30 - 130
			Fluorene	2016/12/09		87	%	30 - 130
			Indeno(1,2,3-cd)pyrene	2016/12/09		69	%	30 - 130
			Naphthalene	2016/12/09		83	%	30 - 130
			Perylene	2016/12/09		80	%	30 - 130
			Phenanthrene	2016/12/09		76	%	30 - 130
			Pyrene	2016/12/09		92	%	30 - 130
4783867	GTH	Spiked Blank	D10-Anthracene	2016/12/09		86	%	30 - 130
			D14-Terphenyl	2016/12/09		90	%	30 - 130
			D8-Acenaphthylene	2016/12/09		98	%	30 - 130
			1-Methylnaphthalene	2016/12/09		94	%	30 - 130
			2-Methylnaphthalene	2016/12/09		98	%	30 - 130
			Acenaphthene	2016/12/09		103	%	30 - 130
			Acenaphthylene	2016/12/09		106	%	30 - 130
			Anthracene	2016/12/09		104	%	30 - 130
			Benzo(a)anthracene	2016/12/09		97	%	30 - 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(a)pyrene	2016/12/09		102	%	30 - 130
			Benzo(b)fluoranthene	2016/12/09		107	%	30 - 130
			Benzo(g,h,i)perylene	2016/12/09		104	%	30 - 130
			Benzo(j)fluoranthene	2016/12/09		102	%	30 - 130
			Benzo(k)fluoranthene	2016/12/09		106	%	30 - 130
			Chrysene	2016/12/09		92	%	30 - 130
			Dibenz(a,h)anthracene	2016/12/09		94	%	30 - 130
			Fluoranthene	2016/12/09		99	%	30 - 130
			Fluorene	2016/12/09		99	%	30 - 130
			Indeno(1,2,3-cd)pyrene	2016/12/09		98	%	30 - 130
			Naphthalene	2016/12/09		97	%	30 - 130
			Perylene	2016/12/09		105	%	30 - 130
			Phenanthrene	2016/12/09		101	%	30 - 130
			Pyrene	2016/12/09		97	%	30 - 130
4783867	GTH	Method Blank	D10-Anthracene	2016/12/09		115	%	30 - 130
			D14-Terphenyl	2016/12/09		123	%	30 - 130
			D8-Acenaphthylene	2016/12/09		129	%	30 - 130
			1-Methylnaphthalene	2016/12/09	<0.050		ug/L	
			2-Methylnaphthalene	2016/12/09	<0.050		ug/L	
			Acenaphthene	2016/12/09	<0.010		ug/L	
			Acenaphthylene	2016/12/09	<0.010		ug/L	
			Anthracene	2016/12/09	<0.010		ug/L	
			Benzo(a)anthracene	2016/12/09	<0.010		ug/L	
			Benzo(a)pyrene	2016/12/09	<0.010		ug/L	
			Benzo(b)fluoranthene	2016/12/09	<0.010		ug/L	
			Benzo(g,h,i)perylene	2016/12/09	<0.010		ug/L	
			Benzo(j)fluoranthene	2016/12/09	<0.010		ug/L	
			Benzo(k)fluoranthene	2016/12/09	<0.010		ug/L	
			Chrysene	2016/12/09	<0.010		ug/L	
			Dibenz(a,h)anthracene	2016/12/09	<0.010		ug/L	
			Fluoranthene	2016/12/09	<0.010		ug/L	
			Fluorene	2016/12/09	<0.010		ug/L	
			Indeno(1,2,3-cd)pyrene	2016/12/09	<0.010		ug/L	
			Naphthalene	2016/12/09	<0.20		ug/L	
			Perylene	2016/12/09	<0.010		ug/L	
			Phenanthrene	2016/12/09	<0.010		ug/L	
			Pyrene	2016/12/09	<0.010		ug/L	
4783867	GTH	RPD	1-Methylnaphthalene	2016/12/12	9.3		%	40
			2-Methylnaphthalene	2016/12/12	9.3		%	40
			Acenaphthene	2016/12/12	15		%	40
			Acenaphthylene	2016/12/12	NC (2)		%	40
			Anthracene	2016/12/12	NC (2)		%	40
			Benzo(a)anthracene	2016/12/12	NC (2)		%	40
			Benzo(a)pyrene	2016/12/12	NC		%	40
			Benzo(b)fluoranthene	2016/12/12	11		%	40
			Benzo(g,h,i)perylene	2016/12/12	NC		%	40
			Benzo(j)fluoranthene	2016/12/12	NC		%	40
			Benzo(k)fluoranthene	2016/12/12	NC		%	40
			Chrysene	2016/12/12	11		%	40
			Dibenz(a,h)anthracene	2016/12/12	NC		%	40
			Fluoranthene	2016/12/12	7.8		%	40
			Fluorene	2016/12/12	7.3		%	40
			Indeno(1,2,3-cd)pyrene	2016/12/12	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
			Naphthalene	2016/12/12	16 (3)		%	40
			Perylene	2016/12/12	NC		%	40
			Phenanthrene	2016/12/12	1.4		%	40
			Pyrene	2016/12/12	42 (4)		%	40
4784220	NRG	Matrix Spike	Total Alkalinity (Total as CaCO3)	2016/12/12		NC	%	80 - 120
4784220	NRG	Spiked Blank	Total Alkalinity (Total as CaCO3)	2016/12/12		110	%	80 - 120
4784220	NRG	Method Blank	Total Alkalinity (Total as CaCO3)	2016/12/12	<5.0		mg/L	
4784220	NRG	RPD	Total Alkalinity (Total as CaCO3)	2016/12/12	10		%	25
4784221	NRG	Matrix Spike	Dissolved Chloride (Cl)	2016/12/12		NC	%	80 - 120
4784221	NRG	QC Standard	Dissolved Chloride (Cl)	2016/12/13		109	%	80 - 120
4784221	NRG	Spiked Blank	Dissolved Chloride (Cl)	2016/12/12		105	%	80 - 120
4784221	NRG	Method Blank	Dissolved Chloride (Cl)	2016/12/12	<1.0		mg/L	
4784221	NRG	RPD	Dissolved Chloride (Cl)	2016/12/12	2.6		%	25
4784222	NRG	Matrix Spike	Dissolved Sulphate (SO4)	2016/12/09		100	%	80 - 120
4784222	NRG	Spiked Blank	Dissolved Sulphate (SO4)	2016/12/09		103	%	80 - 120
4784222	NRG	Method Blank	Dissolved Sulphate (SO4)	2016/12/09	<2.0		mg/L	
4784222	NRG	RPD	Dissolved Sulphate (SO4)	2016/12/09	NC		%	25
4784223	NRG	Matrix Spike	Reactive Silica (SiO2)	2016/12/13		NC	%	80 - 120
4784223	NRG	Spiked Blank	Reactive Silica (SiO2)	2016/12/12		97	%	80 - 120
4784223	NRG	Method Blank	Reactive Silica (SiO2)	2016/12/12	<0.50		mg/L	
4784223	NRG	RPD	Reactive Silica (SiO2)	2016/12/13	0.057		%	25
4784224	NRG	Spiked Blank	Colour	2016/12/09		100	%	80 - 120
4784224	NRG	Method Blank	Colour	2016/12/09	<5.0		TCU	
4784224	NRG	RPD	Colour	2016/12/09	NC		%	20
4784225	NRG	Matrix Spike	Orthophosphate (P)	2016/12/12		90	%	80 - 120
4784225	NRG	Spiked Blank	Orthophosphate (P)	2016/12/12		100	%	80 - 120
4784225	NRG	Method Blank	Orthophosphate (P)	2016/12/12	0.010, RDL=0.010		mg/L	
4784225	NRG	RPD	Orthophosphate (P)	2016/12/12	NC		%	25
4784226	NRG	Matrix Spike	Nitrate + Nitrite (N)	2016/12/12		99	%	80 - 120
4784226	NRG	Spiked Blank	Nitrate + Nitrite (N)	2016/12/12		100	%	80 - 120
4784226	NRG	Method Blank	Nitrate + Nitrite (N)	2016/12/12	<0.050		mg/L	
4784226	NRG	RPD	Nitrate + Nitrite (N)	2016/12/12	NC		%	25
4784227	NRG	Matrix Spike	Nitrite (N)	2016/12/12		93	%	80 - 120
4784227	NRG	Spiked Blank	Nitrite (N)	2016/12/12		98	%	80 - 120
4784227	NRG	Method Blank	Nitrite (N)	2016/12/12	<0.010		mg/L	
4784227	NRG	RPD	Nitrite (N)	2016/12/12	NC		%	25
4785696	JMV	QC Standard	Turbidity	2016/12/09		88	%	80 - 120
4785696	JMV	Spiked Blank	Turbidity	2016/12/09		95	%	80 - 120
4785696	JMV	Method Blank	Turbidity	2016/12/09	<0.10		NTU	
4785696	JMV	RPD	Turbidity	2016/12/09	3.0		%	20
4785975	SMT	Matrix Spike	Total Organic Carbon (C)	2016/12/09		96	%	80 - 120
4785975	SMT	Spiked Blank	Total Organic Carbon (C)	2016/12/09		107	%	80 - 120
4785975	SMT	Method Blank	Total Organic Carbon (C)	2016/12/09	<0.50		mg/L	

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Maxxam Job #: B6Q3940
Report Date: 2016/12/13

Dillon Consulting Limited
Client Project #: 4104251070
Site Location: OHP/HE SITE

QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
4785975	SMT	RPD	Total Organic Carbon (C)	2016/12/09	NC		%	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 spiked amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than 2x that of 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 (one or both samples < 5x RDL).

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

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

(3) Elevated PAH RDL(s) due to sample dilution.

(4) Duplicate: < 10 % of compounds in multi-component analysis in violation.

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Maxxam Job #: B6Q3940
Report Date: 2016/12/13

Dillon Consulting Limited
Client Project #: 4104251070
Site Location: OHP/HE SITE

VALIDATION SIGNATURE PAGE

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

Alan Stewart, Organics Manager, Bedford

Mike MacGillivray, Scientific Specialist (Inorganics)

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

Sydney OHP & HE

Nova Scotia Lands Incorporated

141360 - LTMM GROUNDWATER MONITORING EVENT NOVEMBER/DECEMBER 2016

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
Acenaphthylene	0.0006	0.0028	0.0034	0.000026	0.000047	0.0053					
	29-Mar-13	24-Jul-13	23-Oct-13	15-Dec-14	10-Dec-15	30-Nov-16					
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	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

Sydney OHP & HE

Nova Scotia Lands Incorporated

141360 - LTMM GROUNDWATER MONITORING EVENT NOVEMBER/DECEMBER 2016

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	0.015	0.14	0.011	0.002	0.00013	0.043					
	29-Mar-13	24-Jul-13	23-Oct-13	15-Dec-14	10-Dec-15	30-Nov-16					
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	-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	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 = **-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

Sydney OHP & HE

Nova Scotia Lands Incorporated

141360 - LTMM GROUNDWATER MONITORING EVENT NOVEMBER/DECEMBER 2016

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	0.0017	0.03	0.0026	0.000032	0.0012	0.005					
	29-Mar-13	24-Jul-13	23-Oct-13	15-Dec-14	10-Dec-15	30-Nov-16					
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	-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 = **-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

Sydney OHP & HE

Nova Scotia Lands Incorporated

141360 - LTMM GROUNDWATER MONITORING EVENT NOVEMBER/DECEMBER 2016

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	0.00065	0.014	0.00064	0.000018	0.00031	0.005					
	29-Mar-13	24-Jul-13	23-Oct-13	15-Dec-14	10-Dec-15	30-Nov-16					
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	-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

Sydney OHP & HE

Nova Scotia Lands Incorporated

141360 - LTMM GROUNDWATER MONITORING EVENT NOVEMBER/DECEMBER 2016

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	0.017	0.029	0.0028	0.0001	0.0001	4.1					
	29-Mar-13	24-Jul-13	23-Oct-13	15-Dec-14	10-Dec-15	30-Nov-16					
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:					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 0.0.00020 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

Sydney OHP & HE

Nova Scotia Lands Incorporated

141360 - LTMM GROUNDWATER MONITORING EVENT NOVEMBER/DECEMBER 2016

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	0.00045	0.0025	0.0017	0.0025	0.0023	0.00085					
	13-Mar-13	16-Jul-13	23-Oct-13	15-Dec-14	9-Dec-15	30-Nov-16					
Row 1: Compare to Event 1:		1	1	1	1	1	0	0	0	0	5
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	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 = **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							
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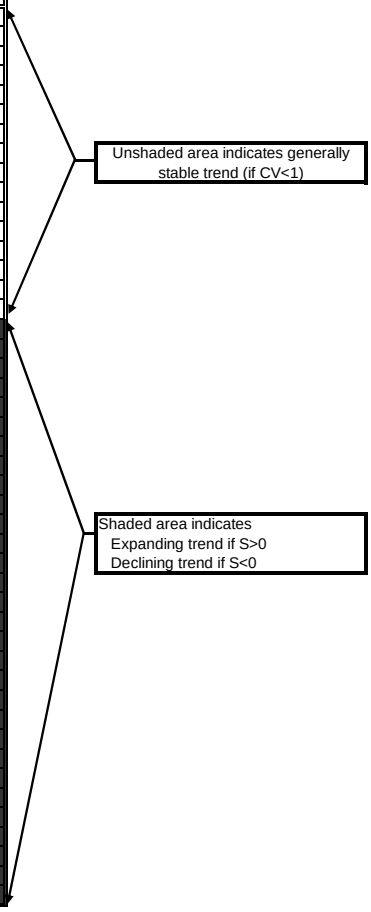
± 40							
± 41							
± 42							
± 43							
± 44							
± 45							



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

Sydney OHP & HE

Nova Scotia Lands Incorporated

141360 - LTMM GROUNDWATER MONITORING EVENT NOVEMBER/DECEMBER 2016

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	0.00073	0.0036	0.0025	0.0037	0.0047	0.0018					
	13-Mar-13	16-Jul-13	23-Oct-13	15-Dec-14	9-Dec-15	28-Nov-16					
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	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 = **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							
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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

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

Sydney OHP & HE

Nova Scotia Lands Incorporated

141360 - LTMM GROUNDWATER MONITORING EVENT NOVEMBER/DECEMBER 2016

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	0.00033	0.0015	0.0011	0.0015	0.0019	0.00078					
	13-Mar-13	16-Jul-13	23-Oct-13	15-Dec-14	9-Dec-15	28-Nov-16					
Row 1: Compare to Event 1:		1	1	1	1	1	0	0	0	0	5
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	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 = **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

Sydney OHP & HE

Nova Scotia Lands Incorporated

141360 - LTMM GROUNDWATER MONITORING EVENT NOVEMBER/DECEMBER 2016

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
Acenaphthylene	0.0038	0.008	0.01	0.012	0.018	0.011					
	13-Mar-13	16-Jul-13	23-Oct-13	15-Dec-14	9-Dec-15	28-Nov-16					
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	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 = **11**

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							
± 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

Sydney OHP & HE

Nova Scotia Lands Incorporated

141360 - LTMM GROUNDWATER MONITORING EVENT NOVEMBER/DECEMBER 2016

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	0.0049	0.0045	0.0033	0.0059	0.005	0.0033					
	13-Mar-13	16-Jul-13	23-Oct-13	15-Dec-14	9-Dec-15	28-Nov-16					
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	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 0.00001 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

Sydney OHP & HE

Nova Scotia Lands Incorporated

141360 - LTMM GROUNDWATER MONITORING EVENT NOVEMBER/DECEMBER 2016

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	5.1	4.9	6.3	7.2	9.5	7.5					
	13-Mar-13	16-Jul-13	23-Oct-13	15-Dec-14	9-Dec-15	28-Nov-16					
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	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 = **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							
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± 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

Sydney OHP & HE

Nova Scotia Lands Incorporated

141360 - LTMM GROUNDWATER MONITORING EVENT NOVEMBER/DECEMBER 2016

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	0.0021	0.0026	0.0025	0.00055	0.00042	0.00079					
	13-Mar-13	16-Jul-13	23-Oct-13	12-Dec-14	8-Dec-15	23-Nov-16					
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	-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	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 = **-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 Incorporated

141360 - LTMM GROUNDWATER MONITORING EVENT NOVEMBER/DECEMBER 2016

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	0.00024	0.00038	0.00029	0.00028	0.00029	0.00064					
	13-Mar-13	16-Jul-13	23-Oct-13	12-Dec-14	8-Dec-15	23-Nov-16					
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	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 0.00001 mg/L

Mann-Kendall (S) Statistic = **6**

Confidence Level Chart							
S	**Total No. of Sampling Events**						
Value	4	5	6	7	8	9	10
0							
± 1							
± 2							
± 3							
± 4							
± 5							
± 6			X				
± 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

Sydney OHP & HE

Nova Scotia Lands Incorporated

141360 - LTMM GROUNDWATER MONITORING EVENT NOVEMBER/DECEMBER 2016

MANN-KENDALL ANALYSIS OF PLUME				MONITORING WELL NO: MCES-204-MW							
	Event 1	Event 2	Event 3	Event 4	Event 5	Event 6	Event 7	Event 8	Event 9	Event 10	Sum Rows
Acenaphthylene	0.0017	0.0018	0.0025	0.0019	0.0018	0.0017					
	28-Mar-13	24-Jul-13	7-Nov-13	18-Dec-14	10-Dec-15	25-Nov-16					
Row 1: Compare to Event 1:		1	1	1	1	0	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	-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 = **-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

Sydney OHP & HE

Nova Scotia Lands Incorporated

141360 - LTMM GROUNDWATER MONITORING EVENT NOVEMBER/DECEMBER 2016

MANN-KENDALL ANALYSIS OF PLUME				MONITORING WELL NO: MCES-204-MW							
	Event 1	Event 2	Event 3	Event 4	Event 5	Event 6	Event 7	Event 8	Event 9	Event 10	Sum Rows
Anthracene	0.0036	0.0033	0.0042	0.0019	0.0026	0.002					
	28-Mar-13	24-Jul-13	7-Nov-13	18-Dec-14	10-Dec-15	25-Nov-16					
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 = **-7**

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			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 Incorporated

141360 - LTMM GROUNDWATER MONITORING EVENT NOVEMBER/DECEMBER 2016

MANN-KENDALL ANALYSIS OF PLUME	MONITORING WELL NO: MCES-204-MW										
	Event 1	Event 2	Event 3	Event 4	Event 5	Event 6	Event 7	Event 8	Event 9	Event 10	Sum Rows
Selenium	0.21	0.12	0.036	0.067	0.005	0.086					
	28-Mar-13	24-Jul-13	7-Nov-13	18-Dec-14	10-Dec-15	25-Nov-16					
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	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 = **-7**

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			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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141360 - LTMM GROUNDWATER MONITORING EVENT NOVEMBER/DECEMBER 2016

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	7.5	7.57	7.61	8.91	9.44	7.95					
	28-Mar-13	26-Jul-13	5-Nov-13	10-Dec-14	3-Dec-15	2-Dec-16					
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	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 = **11**

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							
± 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

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Nova Scotia Lands Incorporated

141360 - LTMM GROUNDWATER MONITORING EVENT NOVEMBER/DECEMBER 2016

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	374	376	390	260	260	220					
	28-Mar-13	26-Jul-13	5-Nov-13	10-Dec-14	3-Dec-15	2-Dec-16					
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	-3
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 = **-8**

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			X				
± 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

	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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Nova Scotia Lands Incorporated

141360 - LTMM GROUNDWATER MONITORING EVENT NOVEMBER/DECEMBER 2016

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	28	34	70	88	48					
	28-Mar-13	26-Jul-13	5-Nov-13	10-Dec-14	3-Dec-15	2-Dec-16					
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	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	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 = **8**

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			X				
± 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

	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

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141360 - LTMM GROUNDWATER MONITORING EVENT NOVEMBER/DECEMBER 2016

MANN-KENDALL ANALYSIS OF PLUME				MONITORING WELL NO:	MSES-008-MW						
	Event 1	Event 2	Event 3	Event 4	Event 5	Event 6	Event 7	Event 8	Event 9	Event 10	Sum Rows
Acenaphthylene	0.0042	0.0032	0.0041	0.0027	0.0024	0.0017					
	26-Mar-13	26-Jul-13	15-Nov-13	10-Dec-14	3-Dec-15	25-Nov-16					
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	-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 = **-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

Sydney OHP & HE

Nova Scotia Lands Incorporated

141360 - LTMM GROUNDWATER MONITORING EVENT NOVEMBER/DECEMBER 2016

MANN-KENDALL ANALYSIS OF PLUME				MONITORING WELL NO:	MSES-104-MWB						
	Event 1	Event 2	Event 3	Event 4	Event 5	Event 6	Event 7	Event 8	Event 9	Event 10	Sum Rows
Acenaphthylene	0.03	0.036	0.032	0.033	0.031	0.045					
	26-Mar-13	24-Jul-13	5-Nov-13	10-Dec-14	3-Dec-15	25-Nov-16					
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	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 = **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

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