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NOVA SCOTIA LANDS INC.

# Harbourside Commercial Park 2021 Long Term Maintenance and Monitoring Groundwater Event

Final Report



March 2022 – 20-2862-2000



March 17, 2022

Nova Scotia Lands Inc.  
45 Wabana Court  
Sydney, Nova Scotia  
B1P 0B9

Attention: Cory MacPhee, P.Eng.  
Project Manager

*Harbourside Commercial Park  
2021 Long Term Maintenance and Monitoring Groundwater Event*

Dear Mr. MacPhee:

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 [nwambolt@dillon.ca](mailto:nwambolt@dillon.ca), (902) 562-9880 extension 5206 (office) or (902) 565-8539 (cellular).

Yours sincerely,

DILLON CONSULTING LIMITED

A handwritten signature in blue ink, appearing to read "N. J. Wambolt".

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

NJW:kme

Enclosure

Our file: 20-2862-2000

275 Charlotte Street  
Suite 206  
Sydney, Nova Scotia  
Canada  
B1P 1C6  
Telephone  
902.562.9880  
Fax  
902.562.9890

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### References

# Executive Summary

Nova Scotia Lands Inc. (NSLI) is a Crown Corporation of the Province of Nova Scotia responsible for the Long Term Maintenance and Monitoring Program (LTMM) implemented at Harbourside Commercial Park (HCP). NSLI retained Dillon Consulting Limited (Dillon) to conduct the LTMM program, which consists of an annual groundwater sampling program. The LTMM event was mainly completed between December 10 and 13, 2021, noting that one damaged monitor well (i.e., MW20-3) required repairs and was sampled at a later date (i.e., December 21, 2021).

At the onset of the LTMM, the HCP groundwater monitoring program included 25 sampling wells. However, following the sale of three HCP properties to Membertou Development Corporation (Membertou), and following approval from Nova Scotia Environment (NSE) and NSLI, the 2017 LTMM program for HCP was reduced to include sampling of twelve monitor wells (including two added monitor wells). In 2018, seven of the twelve monitor wells scheduled for sampling had been decommissioned, destroyed or buried as a result of construction activity, thereby reducing the number of wells to be sampled at HCP to five. The 2020 LTMM included drilling of four new monitor wells strategically located on HCP to replace decommissioned/destroyed monitor wells (i.e., MCES-007-MW, SCU26-001-MW, SCU26-002-MW, SCU27-002-MW, SCU32-001-MWA, SCU32-002-MW, and SCU32-003-MW), while also considering NSLI environmental liabilities as related to future expected property sales. These four new monitor wells (i.e., SCU26-200-MW, SCU27-202-MW, SCU32-200-MW and MCES-207-MW) have been added to the LTMM program. Additionally, four monitor wells (i.e., MW20-1 to MW20-4) installed around a containment cell constructed along the southern portion of parcel identification designation number (PID No.) 15881741 (currently leased to Membertou) have also been added to the program to monitor downstream flow, and to evaluate functionality of the containment cell. The collection of water levels and the assessment of the presence/absence of product at eight additional monitor/recovery wells (i.e., SCU10-002-MW, SCU10-003-MW, SCU11-001-MWA, SCU11-001-MWB, SCU15-008-MWA/RW, SCU31-002-MWA, RW1, and RW2) is also included in the LTMM. However, one monitor well (i.e., SCU10-002-MW) was found damaged beyond repair during the 2021 LTMM program and, upon approval from NSLI, was subsequently decommissioned, reducing the number of wells monitored for product to seven.

Analytical data were assessed in comparison to the Nova Scotia Contaminated Sites Regulations (NS CSR) Tier I Environmental Quality Standards (EQS) for groundwater (established in 2013 and updated in September 2021). Where Tier I EQS are not available (e.g., for most PAHs and for metals in groundwater at non-potable sites), the Ontario Ministry of the Environment, Conservation and Parks (MECP) Groundwater Standards for use under Ontario's Environmental Protection Act were used.

During the 2021 monitoring event there were no groundwater concentrations above the Tier I EQS.

The following is a summary of the MECP standard (the comparison criteria which are used when no Tier I EQS is available) exceedances reported for the 2021 LTMM program:

- Metals:
  - o Sodium concentrations exceeded the MECP standard in MCES-207-MW and SCU27-202-MW. Although sodium concentrations in MCES-207-MW and SCU27-202-MW are above the MECP standard of 2,300,000 ug/L, this standard was not intended for use in a marine (saltwater) environment. Marine waters have natural sodium concentrations of 10,000,000 ug/L or higher, therefore, sodium was not identified as a contaminant of concern associated with the site.
- PAHs:
  - o Anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene and indeno(1,2,3-cd)pyrene concentrations exceeded the MECP standards at SCU10-004-MW. This is the first occurrence of benzo(a)anthracene, 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 exceedances at this location since 2015.
  - o The anthracene concentration in MW20-2 exceeded the MECP. While anthracene also exceeded the MECP in 2020, the concentration is significantly lower in 2021.

Findings of the product checks indicate that:

- SCU10-004-MW (sampling well): Oil/water interface probe did not detect product; however, the interface probe had black product on it (appeared to be from PVC wall of the well) when removed. A strong petroleum hydrocarbon odour was noted.
- SCU15-008-MWA/RW: Oil/water interface probe did not detect product; however, the probe had what appeared to be black product on it when removed from the well. A bailer cut exhibited no LNAPL inside the bailer; however, what appeared to be LNAPL was observed on the outside of the bailer, attributed to the well PVC, which the product appeared to be adhering to.
- SCU31-002-MWA: Oil/water interface probe did not detect product; however, the interface probe had black product on it (appeared to be from PVC wall of the well) when removed. A strong petroleum hydrocarbon odour was noted.

Results of Mann-Kendall analysis for monitor well SCU10-004-MW indicate a fluctuating trend for acenaphthylene, anthracene, indeno(1,2,3-cd)pyrene and TPH.

As presented on Figure 3, the available equipotential contour plot for the unconsolidated material (i.e., the fill/till) indicates that the groundwater flow direction is west toward Sydney Harbour.

This report was prepared by Dillon Consulting Limited for the sole benefit of our client, NSLI. 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.



# Introduction

Nova Scotia Lands (NSLI) is a Crown Corporation of the Province of Nova Scotia responsible for the Long Term Maintenance and Monitoring Program (LTMM) implemented at Harbourside Commercial Park (HCP) (Figure 1). NSLI retained Dillon Consulting Limited (Dillon) to conduct the LTMM program, which consists of an annual groundwater sampling program that has been ongoing at HCP since 2003.

Environmental Site Assessments (ESAs) conducted to date throughout the HCP have identified several groundwater constituents of interest in excess of evaluation criteria (i.e., petroleum hydrocarbons (PHCs), polycyclic aromatic hydrocarbons (PAHs), mercury, various other metals and vinyl chloride).

At the onset of the LTMM, the HCP groundwater monitoring program included 25 sampling wells. However, following the sale of three HCP properties to Membertou Development Corporation (Membertou), and following approval from Nova Scotia Environment (NSE) and NSLI, the 2017 LTMM program for HCP was reduced to include sampling of twelve monitor wells (including two added monitor wells). In 2018, seven of the twelve monitor wells scheduled for sampling had been decommissioned, destroyed or buried as a result of construction activity, thereby reducing the number of wells to be sampled at HCP to five. The 2020 LTMM included drilling of four new monitor wells strategically located on HCP to replace decommissioned/destroyed monitor wells (i.e., MCES-007-MW, SCU26-001-MW, SCU26-002-MW, SCU27-002-MW, SCU32-001-MWA, SCU32-002-MW, and SCU32-003-MW), while also considering NSLI environmental liabilities as related to future expected property sales. These four new monitor wells (i.e., SCU26-200-MW, SCU27-202-MW, SCU32-200-MW and MCES-207-MW) have been added to the LTMM program. Additionally, four monitor wells (i.e., MW20-1 to MW20-4) installed around a containment cell constructed along the southern portion of parcel identification designation number (PID No.) 15881741 (currently leased to Membertou) have also been added to the program to monitor downstream flow, and to evaluate functionality of the containment cell.

The collection of water levels and the assessment of the presence/absence of product at eight additional monitor/recovery wells (i.e., SCU10-002-MW, SCU10-003-MW, SCU11-001-MWA, SCU11-001-MWB, SCU15-008-MWA/RW, SCU31-002-MWA, RW1, and RW2,) is also included in the LTMM. However, one monitor well (i.e., SCU10-002-MW) was found damaged beyond repair during the 2021 LTMM program and, upon approval from NSLI, was subsequently decommissioned, reducing the number of wells monitored for product to seven.

This document details the 2021 groundwater monitoring event. **Section 1.1** 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 provided in **Section 5.0**. Data tables and supporting information are found in appendices referenced throughout the document.





**HARBOURSIDE COMMERCIAL PARK**  
2021 GROUNDWATER MONITORING EVENT

**SITE LOCATION**

Figure 1

 Harbourside Commercial Park



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

Province of Nova Scotia Mapping  
MAP CREATED BY: SCM  
MAP CHECKED BY: NJW  
MAP PROJECTION: NAD 1983 UTM Zone 20N



PROJECT: 20-2862

Date: 2022-02-17



## 1.1 Scope of Work

The 2021 LTMM program for the HCP consists of an annual groundwater sampling program (Figure 2). In accordance with the request for proposal (RFP) NSLAND111, the annual groundwater monitoring program was planned to include sampling at five select monitor wells on the HCP site, and the collection of water levels and a check for presence/absence of product at eight additional monitor/recovery wells. As noted above, eight additional sampling wells were added to the program in 2020. During the 2021 program, one monitor well designated for water level and the presence/absence product check was found damaged and was subsequently decommissioned (following approval from NSLI). In total, twenty wells (i.e., 13 sample wells and 7 water level/product check wells) were monitored as part of the 2021 LTMM program. Each of the thirteen monitor wells designated for sampling, and one field duplicate sample were collected and analyzed for PHCs (i.e., benzene, toluene, ethylbenzene, xylenes (BTEX) and modified total petroleum hydrocarbons (TPH)), PAHs, metals and mercury. Two trip blank samples (for BTEX/TPH analysis only) were also included in the LTMM program for HCP.

## 2.0 Project Methodologies

Methodologies are provided in the following sub-sections:

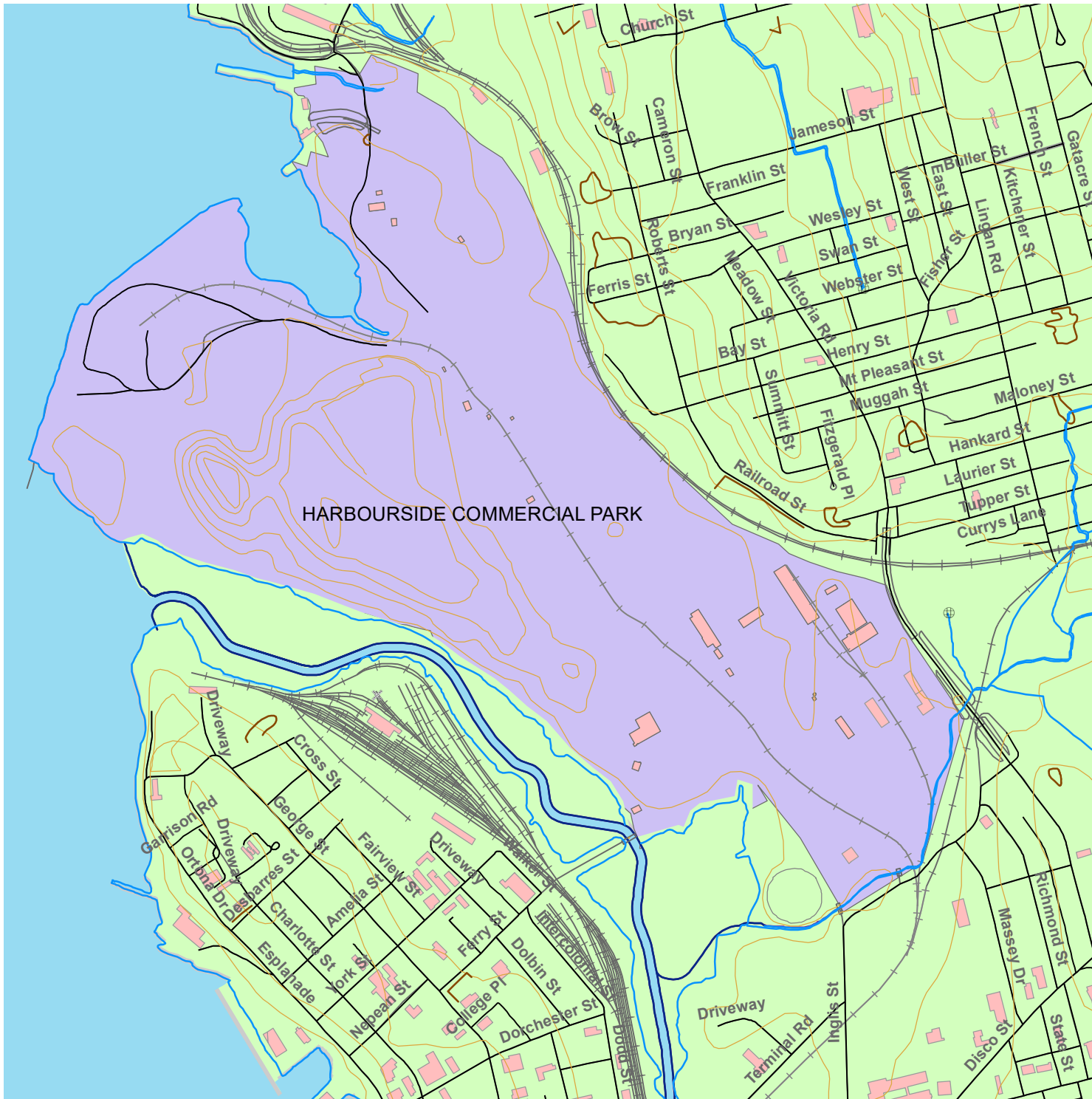
- Section 2.1 Health and Safety Processes
- Section 2.2 Quality Control (QC) Processes
- Section 2.3 Groundwater Sampling
- Section 2.4 Data Compilation/Assessment

### 2.1 Health and Safety Processes

Dillon developed a site-specific health and safety plan (HSP) for groundwater monitoring. The HSP includes site specific information, such as, local emergency contact information and hospital routes, 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 Personal Protective Equipment (PPE);
- Identification of safety training and first aid requirements;
- Identification of COVID-19 protocols and restrictions; and,
- Identification of emergency response procedures.

The project manager reviewed the HSP with field personnel prior to their mobilizing to the site. Field personnel were responsible for following the HSP, including conducting a job hazard analysis upon arrival to the site.



HARBOURSIDE COMMERCIAL PARK  
2021 GROUNDWATER MONITORING EVENT

STUDY AREA  
FIGURE 2

- Streets
- Watercourse
- Contour
- Harbourside Commercial Park
- Buildings
- Waterbody

0 50 100 200 300 m



MAP DRAWING INFORMATION:  
Province of Nova Scotia Mapping  
SLR Monitoring Recommendations drawing dated April 17, 2014

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



PROJECT: 20-2862  
Date: 2022-02-17

## 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**

One field duplicate, and two trip blank samples were collected during the 2021 LTMM event. Relative percent differences were calculated between sample and associated field duplicate results, as discussed in **Section 3.2.1**.

### **Laboratory QC**

Samples were delivered to Bureau Veritas (BV) Laboratories in Sydney, Nova Scotia for analysis. BV Laboratories are accredited through the Standard Council of Canada (SCC) and is a member of the Canadian Association for Laboratory Accreditation (CALA). BV 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 Monitor Well Repair and Decommissioning

As noted above, the 2021 LTMM included the following monitor well repair and decommissioning:

- MW20-3, located in the gated area of HCP, was found to be damaged. The protective stick-up casing was intact; however, on a slant. Once opened, it was noted that the monitor well PVC was broken at the bottom of the first 1.5 m length. Repairs to this monitor well included replacement of the damaged length of PVC and, resealing of the well. The damage to the well delayed sampling, which was completed on December 21, 2021 after the well repair had been completed. It is recommended that this well be resurveyed prior to the 2022 sampling program.
- SCU10-002-MW - Monitor well blocked at 2.71 m (above the water table). The monitor well was found with no protective flushmount cover or J-plug and the well tubing was partially removed from the well. Decommissioning was recommended and, upon approval from NSLI, completed on December 21, 2021. Review of the monitor well log details for this well indicate that it was screened at an interval similar to other wells in this general area that remain part of the LTMM program. Further, these other nearby wells provide sufficient coverage for this area. Therefore, replacement of SCU10-002-MW is not considered necessary at this time.

### 2.4 LTMM Groundwater Monitoring Program

The 2021 HCP program consists of thirteen monitor wells requiring sampling. The field component of the 2021 groundwater monitoring event involved the following activities:

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

#### 2.4.1 Measurement of Hydraulic Head Levels

The number of monitor wells measured for water levels was twenty (i.e., thirteen sampling and seven monitor/recovery wells that were checked for product). 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 electronic field sampling sheets.

#### 2.4.2 Sample Collection

Using a peristaltic pump or stainless steel submersible pump, groundwater was removed from the thirteen monitor wells sampled in the HCP area until select field parameters stabilized. The rate of flow (0.1 to 0.4 liters (L)/minute) at each well was controlled by an in-line valve. The water level was measured at 3-minute intervals; if the water level started to drop, the flow rate was reduced to attempt to maintain a constant head. The sample tube was connected to a flow-through cell containing a Horiba U-52 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 of water was removed. In instances where stabilization of turbidity provided some challenges, additional parameters including dissolved oxygen (DO) and oxidation reduction potential (ORP) were referenced to confirm stabilized conditions.

### 2.4.3 Groundwater Analysis

Pursuant to RFP NSLAND111 Groundwater Monitoring Services, groundwater samples were analyzed for PHCs, PAHs and metals, as listed below in Table 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 BV in Sydney, Nova Scotia for analysis.

Table 1 Water Quality Analytical Suite of Parameters

PHC	PAHs		Metals (dissolved)	
Benzene	Acenaphthene	Naphthalene	Aluminum	Mercury (Total)
Toluene	Acenaphthylene	Perylene	Antimony	Molybdenum
Ethylbenzene	Anthracene	Phenanthrene	Arsenic	Nickel
Total Xylenes	Benzo(a)anthracene	Pyrene	Barium	Phosphorus
C6-C10 (Less BTEX)	Benzo(a)pyrene	1-Methylnaphthalene	Beryllium	Selenium
>C10-C16 Hydrocarbons	Benzo(b)fluoranthene	2-Methylnaphthalene	Bismuth	Silver
>C16-C21 Hydrocarbons	Benzo(j)fluoranthene		Boron	Strontium
>C21-<C32 Hydrocarbons	Benzo(k)fluoranthene		Cadmium	Thallium
Modified TPH (Tier I)	Benzo(g,h,i)perylene		Chromium	Tin
	Chrysene		Cobalt	Titanium
	Dibenz(a,h)anthracene		Copper	Uranium
	Fluoranthene		Iron	Vanadium
	Fluorene		Lead	Zinc
	Indeno(1,2,3-cd)pyrene		Manganese	

### 2.5 Data Compilation/Assessment

The laboratory provided analytical results in a database compatible format, alleviating potential errors associated with manual entry. Data tables generated as part of the 2021 program also include historical groundwater monitoring data. Based on historical data, the following parameters, with concentrations consistently observed above applicable standards, are used as indicator parameters for the HCP site:

- PAHs (i.e., anthracene and indeno(1,2,3-cd)pyrene); and,
- Metals (i.e., sodium, barium and/or selenium).

Trend analysis was not completed for PHCs, as benzene, toluene, ethylbenzene and xylene concentrations have remained below the Tier I EQS throughout the LTMM program. Further, modified total petroleum hydrocarbon (TPH) exceedances of the Tier I EQS have only been reported on three

occasions at two monitor well locations (the last modified TPH exceedance was reported for SCU10-004-MW in 2015).

### 2.5.1 Regulatory Framework

Pursuant to RFP NSLAND111 Groundwater Monitoring Services, the remedial criteria used for this assessment were the Tier I Environmental Quality Standards (EQS) for groundwater established pursuant to the Nova Scotia Contaminated Sites Regulations (NS CSR), which came into effect in 2013 and were updated in September 2021. The subject property is classified as having commercial receptors, non-potable groundwater usage and coarse-grained soil. Where Tier I EQS are not available (e.g., for most PAHs and metals in groundwater at non-potable sites), the Ontario Ministry of the Environment, Conservation and Parks (MECP) Groundwater Standards for use under Ontario's Environmental Protection Act were used.

### 2.5.2 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 (e.g., stable, fluctuating, decreasing, increasing).

Select parameters with concentrations above, or historically above, applicable guidelines were selected for Mann-Kendall analysis. These include PAH indicator parameters anthracene and indeno(1, 2, 3-cd)pyrene in monitor well SCU10-004-MW. Historically, Mann-Kendall analysis completed as part of the LTMM has included additional monitor wells and parameters; however, due to the reduced number of sampling wells included in the program during 2018 and 2019, trend analysis was only completed for SCU10-004-MW as part of the 2021 LTMM. Trend analysis for select replacement wells will be completed once sufficient data has been obtained.

Groundwater analytical data collected during historical monitoring events to the 2021 monitoring event were applied for performing the trend analysis. In certain situations, Mann-Kendall analysis results may be biased due to elevated laboratory detection limits. However, non-detected data used in the Mann-Kendall analysis of indicator parameters indicated that the influence of non-detected data is minimal. At least four rounds of groundwater monitoring data is required for Mann-Kendall analysis.

## 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 HCP Findings
- Section 3.4 QC Summary

## 3.1

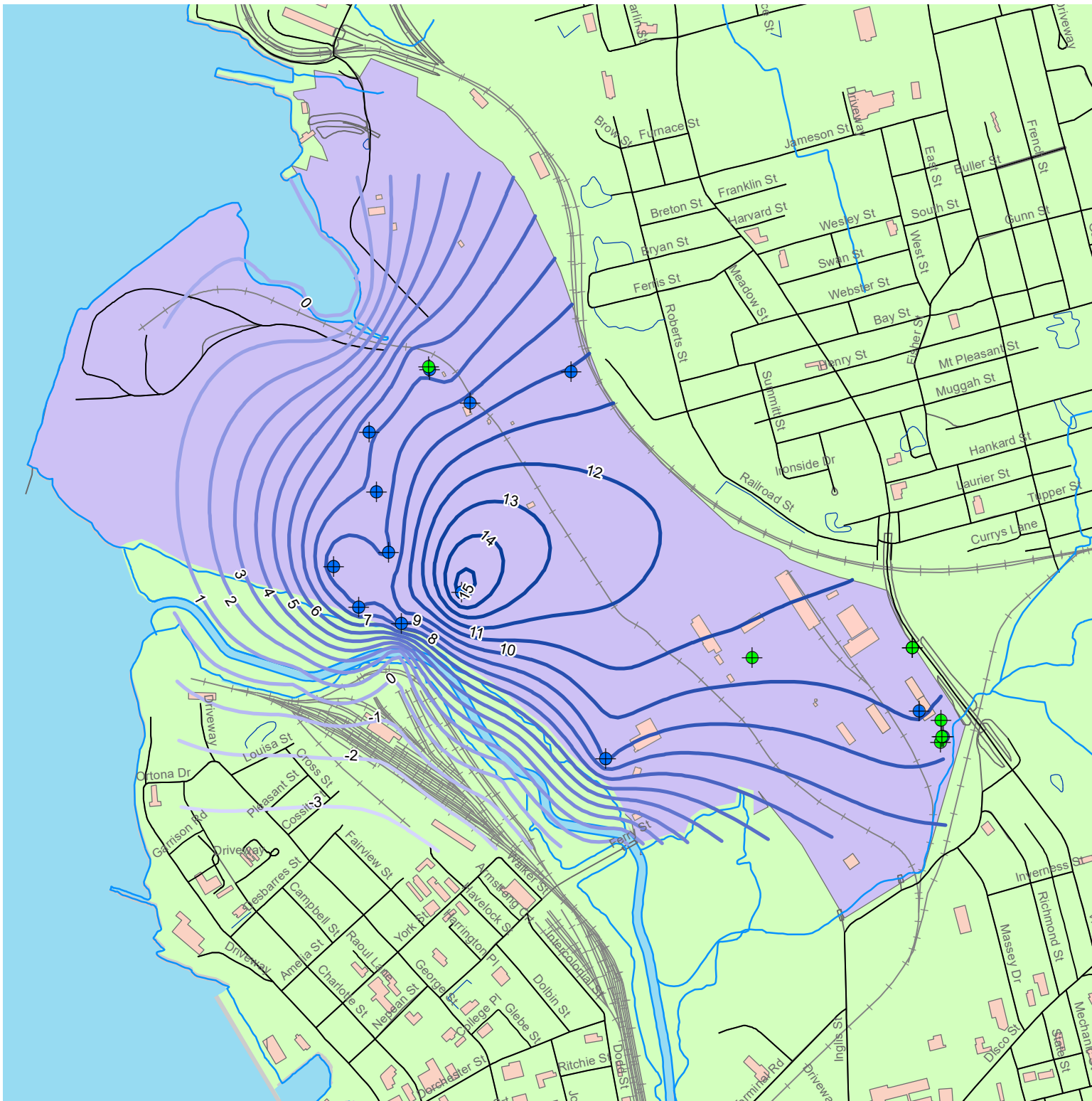
### Weather Conditions and General Observations

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 recordings at the Sydney A station indicates that precipitation of approximately 1695.6 millimeters (mm) was recorded for 2021, which is slightly more than the normal value of yearly precipitation of 1517 mm (i.e., as recorded between 1981 and 2010) (<http://climate.weather.gc.ca>). The monthly precipitation recorded for November 2021 was 364.0 mm. The total precipitation recorded between November 30, 2021 and December 13, 2021 (the duration of the majority of the HCP sampling program) was 96.6 mm. One of the HCP monitoring program wells required repairs prior to sampling (i.e., MW20-3) and was sampled on December 21, 2021. The total precipitation recorded between November 30, 2021 and December 21, 2021 was 105 mm.

## 3.2

### Groundwater Flow and Hydraulic Head Levels

NSLI provided Dillon with elevation survey information for the majority of the monitor wells initially included in the LTMM program at the HCP site. The newly installed monitor wells, and the containment cell monitor wells, were surveyed as part of the 2020 LTMM program. Accordingly, the hydraulic heads of nineteen monitor wells (i.e., the twelve sample wells and seven monitor/recovery wells that were checked for product) were calculated to plot the equipotential groundwater contours for the 2021 monitoring event (note: monitor well MW20-3 was excluded, as this well will need to be re-surveyed following the December 2021 repairs). The groundwater contours were applied to evaluate the groundwater flow pattern and direction within the unconsolidated till and/or fill unit (Figure 3). The available equipotential contour plot for the unconsolidated material (i.e., the fill/till) indicates that the groundwater flow direction is west toward Sydney Harbour.

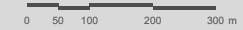


**HARBOURSIDE COMMERCIAL  
PARK  
2021 GROUNDWATER MONITORING EVENT**

**Equipotential Groundwater  
Contours Fill TIII  
FIGURE 3**

**Equipotential Groundwater Contours**

- 6m Groundwater Elevations are measured in meters above sea level (MASL)
- Active Water Level Only
- Active Sample and Water Level
- Harbourside Commercial Park



MAP DRAWING INFORMATION:  
Province of Nova Scotia Mapping  
SLR Monitoring Recommendations drawing dated April 17, 2014

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





## 3.3

## HCP Findings

As stated above, the 2021 LTMM for HCP included sampling at thirteen monitor wells on the HCP site, and the collection of water levels and the presence/absence of product at seven additional monitor/recovery wells (see Figure 4 for the area features).

During the 2021 monitoring event, no petroleum hydrocarbon concentrations above the Tier I EQS were reported in the analyzed groundwater samples.

The sodium concentrations of 4,100,000 ug/L and 5,600,000 ug/L exceeded the MECP standard (the comparison criteria which are used when no Tier I EQS is available) of 2,300,000 ug/L in MCES-207-MW and SCU27-202-MW. Although the concentration of sodium in MCES-201-MW and SCU27-202-MW is above the MECP standard, this standard was not intended for use in a marine (saltwater) environment (noting that the site is considered a marine saltwater environment). Marine waters have natural sodium concentrations of 10,000,000 ug/L or higher, therefore, sodium was not identified as a contaminant of concern associated with the site.

PAH MECP standard exceedances (which are used when no Tier I EQS is available) are summarized in Table 2 below.

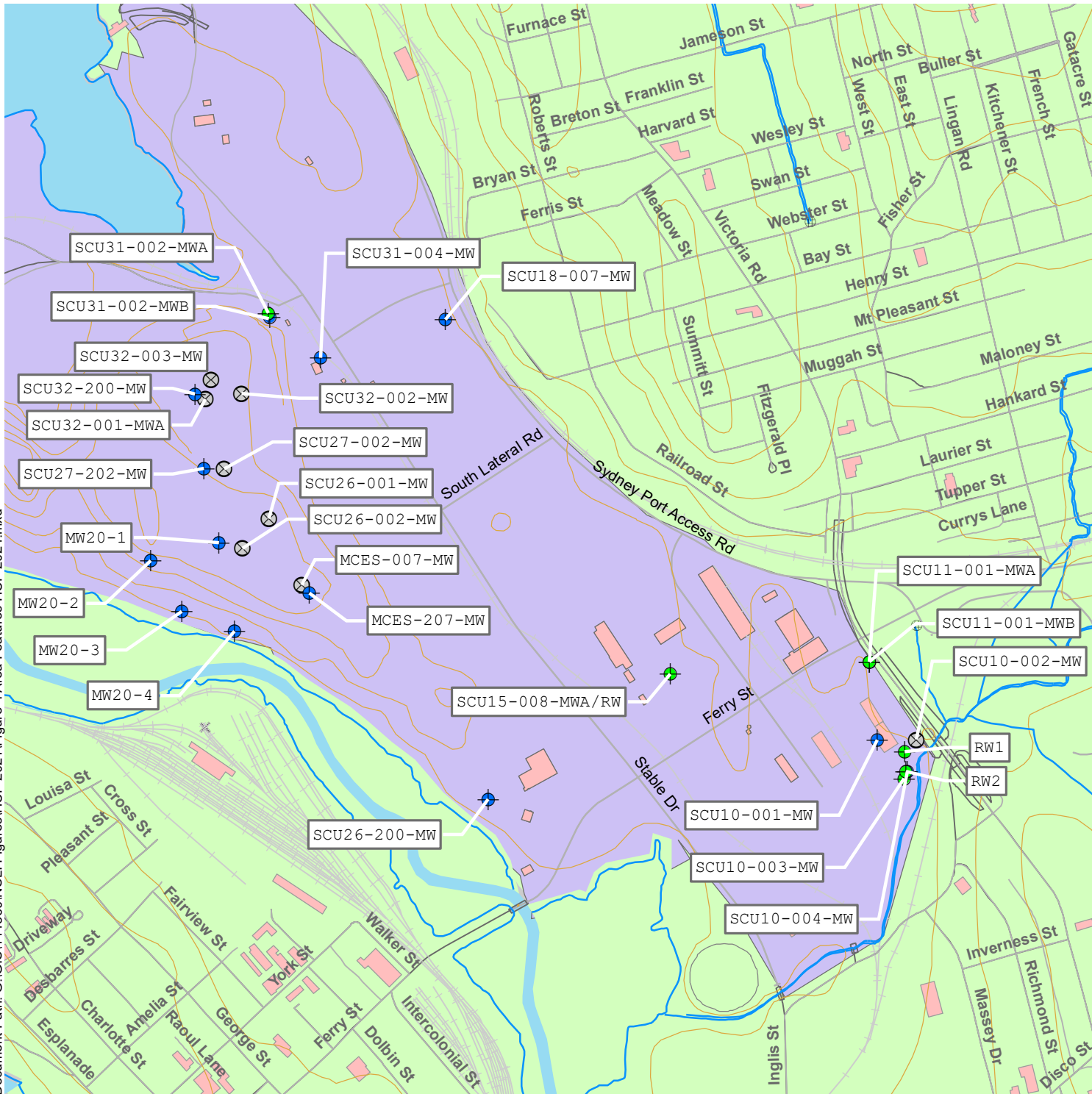
Table 2 HCP – PAH exceedances

Monitor Well ID	Analyte Concentration	MECP Table 3 <sup>1</sup>	Comment
SCU10-004-MW	Anthracene: 35 ug/L	2.4 ug/L	This is the first occurrence of benzo(a)anthracene, 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 exceedances at this location since 2015.
	Benzo(a)anthracene: 7.4 ug/L	4.7 ug/L,	
	Benzo(a)pyrene: 4.4 ug/L	0.81 ug/L	
	Benzo(b)fluoranthene: 3.6 ug/L	0.75 ug/L	
	Benzo(g,h,i)perylene: 2.0 ug/L	0.2 ug/L	
	Benzo(k)fluoranthene: 2.3 ug/L	0.4 ug/L	
	Chrysene: 6.1 ug/L	1 ug/L	
MW20-2	Dibenzo(a,h)anthracene: 0.56 ug/L	0.52 ug/L	While anthracene also exceeded the MECP in 2020, the concentration is significantly lower in 2021.
	Indeno(1,2,3-cd)pyrene: 1.7 ug/L	0.2 ug/L	
	Anthracene: 5.9 ug/L	2.4 ug/L.	

Note:

1. MECP, Table 3 Full Depth Generic Site Condition Standards, Non-potable Groundwater 2011.





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HARBOURSIDE COMMERCIAL PARK  
 2021 GROUNDWATER MONITORING EVENT

**AREA FEATURES**  
 FIGURE 4

**Monitoring Wells**

-  Active Water Level Only
-  Active Sample and Water Level
-  Decommissioned/Destroyed or Buried
-  Harbourside Commercial Park



MAP DRAWING INFORMATION:  
 Province of Nova Scotia Mapping  
 SLR Monitoring Recommendations drawing dated April 17, 2014

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



PROJECT: 20-2862  
 Date: 2022-02-17

### 3.3.1 HCP Groundwater Quality

Analytical data, including available historical data for reference, are presented in Appendix A (i.e., Tables A-1 (PHCs), A-2 (PAHs) and A-3 (metals)). Table 3 summarizes the select indicator parameter concentrations for the only monitor well remaining in the LTMM that has historically exhibited concentrations above applicable comparison criteria.

Table 3 HCP – Summary of Indicator Parameter Concentrations

Well ID	Organic Parameter (ug/L)		
	Date	Anthracene	Indeno(1,2,3-cd)pyrene
MECP Table 3 <sup>1</sup>		2.4	0.2
SCU10-004-MW	Nov 2010	2.4	0.09
	Oct 2011	13	0.74
	Nov 2012	38	0.75
	Dec 2013	4.0	0.072
	Dec 2015	1100	67
	Nov 2016	18	<1.0
	Dec 2017	5.6	0.12
	Nov 2018	2.3	0.099
	Dec 2019	1.3	0.18
	Dec 2020	8.2	0.16
	Dec 2021	35	1.7

**Notes:**

- MECP, Table 3 Full Depth Generic Site Condition Standards, Non-potable Groundwater 2011.
- There are no NSE Tier I EQS (September 2021) for Groundwater on a site with Coarse-Grained Soil, Non-potable Groundwater and Commercial/Industrial land use (2021) for anthracene or indeno(1,2,3-cd)pyrene.

*Italics* - Laboratory detection limited elevated above comparison criteria.

**BOLD** - Exceeds the MECP Table 3 standards.

### 3.3.2 Product Check

Observations recorded in the field during LNAPL and DNAPL checks are presented in Table 4.

Table 4 HCP Summary of Product Check

Well ID	Product Type/Thickness	Field Observations
SCU10-002-MW	No Measurable Product in Well	Monitor well was found to be blocked at 2.71 m (above the water table). The monitor well was found with no protective flushmount cover or J-plug. The well tubing was half out of the well. As repair of the well was not possible, decommissioning was recommended and, upon approval from NSLI, completed on December 21, 2021.
SCU10-003-MW	No Measurable Product in Well	Oil/water interface probe did not detect product, no product observed and no petroleum hydrocarbon odour detected.
SCU10-004-MW*	Trace DNAPL	There was no measureable product on groundwater in the monitor well; however, the interface probe had black product on

Table 4 HCP Summary of Product Check

Well ID	Product Type/Thickness	Field Observations
SCU10-004-MW*	Trace DNAPL	it (appeared to be historical DNAPL, which has smeared and adhered to the PVC wall of the well) when removed. A strong petroleum hydrocarbon odour was noted.
SCU11-001-MWA	No Measurable Product in Well	Oil/water interface probe did not detect product, no product observed and no petroleum hydrocarbon odour detected.
SCU11-001-MWB	No Measurable Product in Well	Oil/water interface probe did not detect product, no product observed and no petroleum hydrocarbon odour detected.
SCU15-008-MWA/RW	Trace LNAPL	Oil/water interface probe did not detect product; however, the probe had what appeared to be black product on it when removed from the well. A bailer cut exhibited no LNAPL inside the bailer; however, what appeared to be LNAPL was observed on the outside of the bailer, attributed to the well PVC, which the product appeared to be sticking to.
SCU31-002-MWA	Trace LNAPL	There was no measureable product on groundwater in the monitor well; however, the interface probe and tape had black product on it (appeared to be historical LNAPL, which has smeared and adhered to the PVC wall of the well) when removed. A strong petroleum hydrocarbon odour was noted.
RW1	No Measurable Product in Well	Oil/water interface probe did not detect product, no product observed and no petroleum hydrocarbon odour detected.
RW2	No Measurable Product in Well	Oil/water interface probe did not detect product, no product observed and no petroleum hydrocarbon odour detected.

Notes:

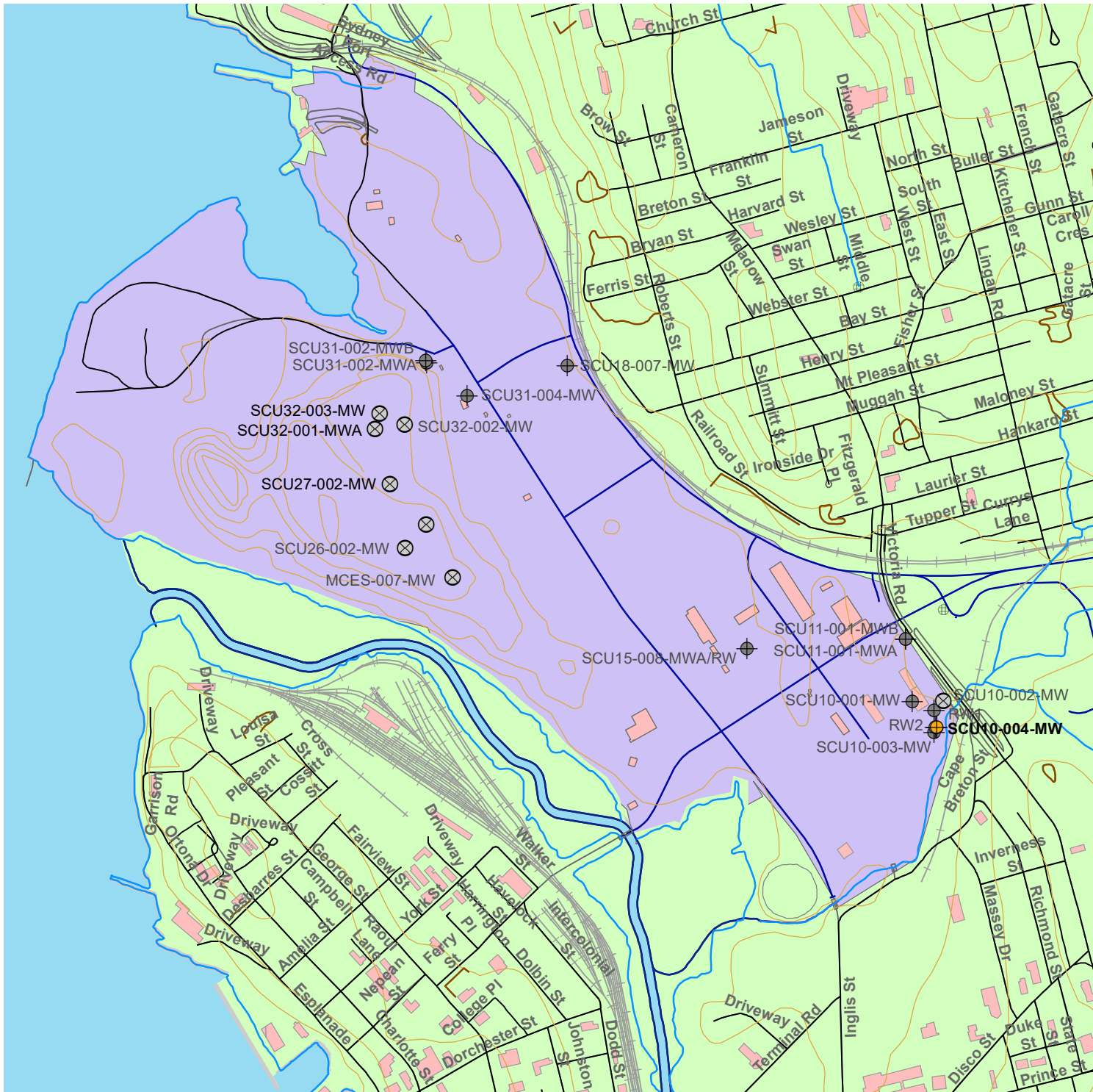
1. \* Denotes sampling well
2. mm - millimeters

### 3.3.3 Trend Analysis

The groundwater quality trend analysis for the 2021 monitoring event was based on the available analytical results (i.e., four rounds of sampling events are required) for select parameters with concentrations above the applicable guidelines. In 2017, monitor wells SCU27-002-MW and SCU32-003-MW contained concentration(s) of indicator parameters exhibiting an increasing or potentially increasing concentration trend (i.e., barium exhibited a potentially increasing trend in SCU27-002-MW and selenium exhibited an increasing trend in SCU32-003-MW). Monitor wells SCU27-002-MW and SCU32-003-MW were decommissioned in 2018; therefore, trend analysis could not be completed as part of the LTMM program in the following years. Trend analysis of replacement wells added to the 2021 LTMM program will be completed once sufficient data has been obtained.

Results of Mann-Kendall analysis for monitor well SCU10-004-MW are presented in Table 5 and on Figure 5. The Mann-Kendall analysis was conducted based on the available analytical data, including the 2021 analytical results. Mann Kendall results are presented in Appendix B.










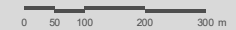


HARBOURSIDE COMMERCIAL PARK  
 2021 GROUNDWATER MONITORING EVENT

**INDICATOR PARAMETER CONCENTRATION TREND**  
 FIGURE 5

Trend Analysis

-  Increasing/Potentially Increasing
-  Fluctuating
-  Stable
-  Decreasing
-  Monitoring Well
-  Decommissioned/Destroyed or Buried
-  Harbourside Commercial Park



MAP DRAWING INFORMATION:  
 Province of Nova Scotia Mapping  
 SLR Monitoring Recommendations drawing dated April 17, 2014

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



PROJECT: 20-2862  
 Date: 2022-02-17

Table 5 HCP – Trend Analysis Summary

Well ID	Parameters	Trend
SCU10-004-MW	Acenaphthylene	Fluctuating
	Anthracene	Fluctuating
	Indeno(1,2,3-cd)pyrene	Fluctuating
	TPH	Fluctuating

### 3.4 QC Summary

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

- Section 3.2.1 Relative Percent Difference (RPD)
- Section 3.2.2 Laboratory Matrix Spikes, Spikes Blank and Method Blanks
- Section 3.2.3 Trip Blanks
- Section 3.2.4 Equipment Blanks
- Section 3.2.5 Holding Times

One field duplicate, two trip blanks, and one equipment blank (collected as part of the OHP and HE sampling program) were collected during the 2021 monitoring event, as presented in Table C-1 (Appendix C). Laboratory certificates of analysis are presented in Appendix D.

#### 3.4.1 Relative Percent Difference

One field duplicate sample was 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 sample indicated the calculated RPDs were within established limits (i.e., less than 30% RPD), as presented in Tables C-2 to C-4 (Appendix C).

#### 3.4.2 Laboratory Matrix Spikes, Spikes Blank and Method Blanks

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

- Laboratory Certificate C1AF610: The RPD results for anthracene and naphthalene were outside the acceptance limit in the laboratory blanks, with insufficient sample for repeat analysis.
- Laboratory Certificate C1Z6147: The matrix spike results for dibenzo(a,h)anthracene were outside the acceptance limit due to probable matrix interference.

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

#### 3.4.3 Trip Blank

Petroleum hydrocarbons were not detected in the trip blanks.

#### 3.4.4 Equipment Blank

One equipment blank (i.e., EB-03) was collected associated with OHP and HE. The field equipment used for the equipment blank was a stainless steel interface probe; which is the only piece of field equipment that interacts with each of the monitor wells (i.e., as each well has a dedicated pump or dedicated low flow tubing). The following analyte was detected in the equipment blank sample:

- Sodium (110 µg/L)

The detection of sodium at the detection limit is common and likely the result of dust or other particulate. Sodium detection at the detection limit does not indicate any potentially significant issues with QA/QC protocols, and does not impact data integrity.

#### 3.4.5 Holding Times

Although the groundwater samples were submitted to the BV Laboratories on the same day they were collected, eleven (including the field duplicate sample) of the mercury samples were analyzed by the lab past hold time (i.e., 30 days after collection instead of 28 days after collection). Discussions with the laboratory indicate that the samples were kept in cold storage during receipt and analysis; however, due to several factors such as the level of manual effort in processing the samples into the laboratory, and the instrument used for mercury analysis undergoing repairs at the time of sample submission, the hold time was not met for mercury analysis in submitted samples. BV initiated and conducted a detailed internal investigation and have provided further comment on the hold time exceedance via a letter that has been included in Appendix D of this report.

While the analysis of mercury samples past the recommended hold time could potentially result in a limited low bias (i.e., analyzed 7% beyond the recommended hold time), the 2021 analytical results for mercury are generally consistent with previous results, and are considered to be acceptable for the purposes of the monitoring program.

No other hold time issues were encountered.

## Summary

The 2021 LTMM program for the HCP consists of an annual groundwater sampling program. The annual groundwater monitoring program includes monitor wells MCES-007-MW, SCU26-001-MW, SCU26-002-MW, SCU27-002-MW, SCU32-001-MWA, SCU32-002-MW, SCU32-003-MW, SCU26-200-MW, SCU27-202-MW, SCU32-200-MW and MCES-207-MW, and MW20-1 to MW20-4.

Findings of the 2021 LTMM were compared to NS CSR Tier I EQS (updated September 2021) for groundwater. Where Tier I EQS were not available, MECP standards were used. During the 2021 monitoring event there were no groundwater concentrations above the Tier I EQS. The following is a summary of the MECP standard (the comparison criteria which are used when no Tier I EQS is available) exceedances reported for the 2021 LTMM program.

- Metals:
  - Sodium concentrations exceeded the MECP standard in MCES-207-MW and SCU27-202-MW. Although sodium concentrations in MCES-207-MW and SCU27-202-MW are above the MECP standard of 2,300,000 ug/L, this standard was not intended for use in a marine (saltwater) environment. Marine waters have natural sodium concentrations of 10,000,000 ug/L or higher, therefore, sodium was not identified as a contaminant of concern associated with the site.
- PAHs:
  - Anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene and indeno(1,2,3-cd)pyrene concentrations exceeded the MECP standards at SCU10-004-MW. This is the first occurrence of benzo(a)anthracene, 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 exceedances at this location since 2015.
  - The anthracene concentration in MW20-2 exceeded the MECP. While anthracene also exceeded the MECP in 2020, the concentration is significantly lower in 2021.

Although eight monitor wells were scheduled for water level and assessment of the presence/absence of product, monitor well SCU10-002-MW was found to be blocked above the water table. Decommissioning was recommended and, upon approval from NSLI, completed on December 21, 2021. Review of the monitor well log details for this well indicate that it was screened at an interval similar to other wells in this general area that remain part of the LTMM program. Further, these other nearby wells prove sufficient coverage for this area. Therefore, replacement of SCU10-002-MW is not considered necessary at this time. As a result of the decommissioning of SCU10-002-MW, the number of monitor wells scheduled for product checks was reduced to seven.

Findings of the product checks indicate that:

- SCU10-004-MW (sampling well): There was no measureable product on groundwater in the monitor well; however, the interface probe had black product on it (appeared to be historical DNAPL, which has smeared and adhered to the PVC wall of the well) when removed. A strong petroleum hydrocarbon odour was noted.
- SCU15-008-MWA/RW: Oil/water interface probe did not detect product; however, the probe had what appeared to be black product (LNAPL) on it when removed from the well. A bailer cut exhibited no LNAPL inside the bailer; however, what appeared to be LNAPL was observed on the outside of the bailer, attributed to the well PVC, which the product appeared to be sticking to.
- SCU31-002-MWA: There was no measureable product on groundwater in the monitor well; however, the interface probe and tape had black product on it (appeared to be historical LNAPL, which has smeared and adhered to the PVC wall of the well) when removed. A strong petroleum hydrocarbon odour was noted.

Results of Mann-Kendall analysis for monitor well SCU10-004-MW indicate a fluctuating trend for acenaphthylene, anthracene, indeno(1,2,3-cd)pyrene and TPH.

As presented on Figure 3, the available equipotential contour plot for the unconsolidated material (i.e., the fill/till) indicates that the groundwater flow direction is west toward Sydney Harbour.

## 5.0 Recommendations

The fall 2022 groundwater monitoring program will include sampling of thirteen monitor wells and collection of water level measurements from each sampling well. The program will also include checking seven monitor/recovery wells for product.

It is recommended that the groundwater monitoring program continue to include sampling for PAHs and metals (including mercury) parameters. It is also recommended that sampling for BTEX and PHCs be removed from the HCP LTMM program, with the exception of SCU10-004-MW based on the following:

- Concentrations of BTEX in the thirteen monitor wells currently included in the LTMM program have not exceeded the Tier I EQS.
- Concentrations of PHCs have not exceeded the Tier I EQS in twelve of the thirteen monitor wells included in the HCP LTMM. Monitoring well SCU10-004-MW last reported a PHC Tier I EQS exceedance in 2015. From 2015 to date, groundwater concentrations in this well have not exceeded the Tier I EQS; however, visual evidence of DNAPL (smeared on the well PVC) continues to be observed at this monitor well location.

As repairs were required to the PVC in monitor well MW20-3 during the 2021 LTMM program, it is recommended that this well be resurveyed prior to the 2022 sampling program.



## 6.0 Disclaimer

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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  
HARBOURSIDE COMMERCIAL PARK (HCP)  
LTMM GROUNDWATER MONITORING EVENT 2021  
GROUNDWATER ANALYTICAL RESULTS - BTEX/TPH

Sample Location (Water Level 2021)	Sample Date	BTEX Concentration (mg/L)				Petroleum Hydrocarbons (mg/L)						
		Benzene	Toluene	E. Benzene	Xylenes	C6 - C10	C10 - C21	C10 - C16	C16-C21	C21 - C32	Modified TPH	C32
<b>NS Tier 1 EQS<sup>1</sup></b>		20	20	20	20	-	-	-	-	-	20	-
SCU10-001-MW (1.85 m)	12-19-14	<0.001	<0.001	<0.001	<0.002	<0.01	-	0.060	<0.05	<0.1	<0.1	-
	12-11-15	<0.0010	<0.0010	<0.0010	<0.0020	0.012	-	<0.050	<0.050	<0.10	<0.10	-
	11-18-16	<0.0010	<0.0010	<0.0010	<0.0020	0.022	-	<0.050	<0.050	<0.10	<0.10	-
	12-4-17	<0.0010	<0.0010	<0.0010	<0.0020	0.027	-	<0.050	<0.050	<0.10	<0.10	-
	11-27-18	<0.0010	<0.0010	<0.0010	<0.0020	0.054 <sup>B</sup>	-	<0.050	<0.050	<0.10	<0.10	-
	12-06-19	<0.0010	<0.0010	<0.0010	<0.0020	<0.1	-	<0.050	<0.050	<0.10	<0.10	-
	12-02-20	<0.0010	<0.0010	<0.0010	<0.0020	<0.090	-	<0.051	<0.051	<0.090	<0.090	-
12-10-21	<0.0010	<0.0010	<0.0010	<0.0020	<0.090	-	<0.050	<0.050	<0.090	<0.090	-	
SCU10-004-MW (2.41 m)	11-21-09	1.0	0.22	0.17	4.2	<0.010	54	-	-	1.5	56	Yes
	11-22-09	0.017	0.002	0.003	0.012	0.02	0.4	-	-	<0.50	<0.50	Yes
	11-23-09	0.077	0.005	0.006	0.027	0.03	-	0.7	<0.20	<0.50	0.7	Yes
	11-24-09	0.057	0.006	0.006	0.053	0.09	-	1.8	0.24	<0.50	2.2	Yes
	11-25-09	0.18	0.097	0.074	0.35	0.79	-	13	2.2	1.0	17	Yes
	11-26-09	0.11	0.011	0.013	0.062	0.16	-	1.9	0.14	<0.10	2.2	Yes
	12-19-14	NM	NM	NM	NM	NM	-	NM	NM	NM	NM	-
	12-11-15	0.20	0.13	0.081	0.37	0.54	-	42	12	8.0	63	Yes
	11-18-16	0.27	0.30	0.15	0.81	1.0	-	15	0.64	0.19	17	Yes
	12-4-17	0.10	0.028	0.021	0.11	0.16	-	4.7	0.30	0.14	5.4	Yes
	11-27-18 <sup>FD</sup>	0.034	0.016	0.010	0.051	0.062	-	1.6	0.17	0.12	1.9	Yes
	11-27-18	0.033	0.018	0.011	0.055	0.11	-	1.2	0.094	<0.10	1.4	Yes
	12-06-19	0.039	0.023	0.015	0.069	<0.10	-	1.8	0.11	0.12	2.1	Yes
12-02-20	0.23	0.065	0.041	0.18	0.23	-	4.6	0.28	0.099	5.2	Yes	
12-10-21	0.054	0.058	0.034	0.15	0.16	-	5.0	0.46	0.53	6.2	Yes	
SCU18-007-MW (0.55 m)	7-12-06	<0.0010	<0.0010	<0.0010	<0.0020	<0.010	<0.20	-	-	<0.50	<0.50	-
	11-24-09	<0.0010	<0.0010	<0.0010	<0.0020	<0.010	<0.20	-	-	<0.50	<0.50	-
	9-7-10	0.002	<0.0010	<0.0010	<0.0020	<0.010	-	<0.20	<0.20	<0.50	0.007	Yes
	11-19-10	<0.0010	<0.0010	<0.0010	<0.0020	<0.010	-	<0.20	<0.20	<0.50	<0.50	-
	10-24-11	<0.0010	<0.0010	<0.0010	<0.0020	<0.010	-	<0.20	<0.20	<0.50	<0.50	-
	10-26-11	<0.0010	<0.0010	<0.0010	<0.0020	<0.010	-	<0.20	<0.20	<0.50	<0.50	-
	12-2-13	<0.0010	<0.0010	<0.0010	<0.0020	<0.010	-	<0.050	<0.050	<0.50	<0.10	-
	12-4-17	<0.0010	<0.0010	<0.0010	<0.0020	<0.010	-	<0.050	<0.050	<0.10	<0.10	-
	11-27-18	<0.0010	<0.0010	<0.0010	<0.0020	<0.010	-	<0.050	<0.050	<0.10	<0.10	-
	12-06-19	<0.0010	<0.0010	<0.0010	<0.0020	<0.10	-	<0.050	<0.050	<0.10	<0.10	-
	12-02-20	<0.0010	<0.0010	<0.0010	<0.0020	<0.090	-	<0.050	<0.050	<0.090	<0.090	-
12-13-21	<0.0010	<0.0010	<0.0010	<0.0020	<0.090	-	<0.050	<0.050	<0.090	<0.090	-	

TABLE A-1  
HARBOURSIDE COMMERCIAL PARK (HCP)  
LTMM GROUNDWATER MONITORING EVENT 2021  
GROUNDWATER ANALYTICAL RESULTS - BTEX/TPH

Sample Location (Water Level 2021)	Sample Date	BTEX Concentration (mg/L)				Petroleum Hydrocarbons (mg/L)						
		Benzene	Toluene	E. Benzene	Xylenes	C6 - C10	C10 - C21	C10 - C16	C16-C21	C21 - C32	Modified TPH	C32
<b>NS Tier 1 EQS<sup>1</sup></b>		20	20	20	20	-	-	-	-	-	20	-
SCU31-002-MWB (6.21 m)	7-2-10	<0.0010	<0.0010	<0.0010	<0.0020	<0.010	<0.20	-	-	<0.50	<0.50	-
	7-3-10	<0.0010	<0.0010	<0.0010	<0.0020	<0.010	-	<0.20	<0.20	<0.50	<0.50	-
	7-4-10	<0.0010	<0.0010	<0.0010	<0.0020	<0.010	-	<0.20	<0.20	<0.50	<0.50	-
	7-5-10	<0.0010	<0.0010	<0.0010	<0.0020	<0.010	-	<0.20	0.061	<0.50	<0.50	-
	7-6-10	<0.0010	<0.0010	<0.0010	<0.0020	<0.010	-	<0.050	<0.050	<0.10	<0.10	-
	7-7-10 <sup>FD</sup>	<0.0010	<0.0010	<0.0010	<0.0020	<0.010	-	<0.050	<0.050	<0.10	<0.10	-
	12-18-14 <sup>FD</sup>	<0.001	<0.001	<0.001	<0.002	<0.01	-	<0.05	<0.05	<0.1	<0.1	-
	12-18-14	<0.001	<0.001	<0.001	<0.002	<0.01	-	<0.05	<0.05	<0.1	<0.1	-
	12-2-15 <sup>FD</sup>	<0.0010	<0.0010	<0.0010	<0.0020	<0.010	-	<0.050	<0.050	<0.10	<0.10	-
	12-2-15	<0.0010	<0.0010	<0.0010	<0.0020	<0.010	-	<0.050	<0.050	<0.10	<0.10	-
	11-17-16	<0.0010	<0.0010	<0.0010	<0.0020	<0.010	-	<0.050	<0.050	<0.10	<0.10	-
	12-04-17 <sup>FD</sup>	<0.0010	<0.0010	<0.0010	<0.0020	<0.010	-	<0.050	<0.050	<0.10	<0.10	-
	12-4-17	<0.0010	<0.0010	<0.0010	<0.0020	<0.010	-	<0.050	<0.050	<0.10	<0.10	-
	11-27-18	<0.0010	<0.0010	<0.0010	<0.0020	<0.010	-	<0.050	<0.050	<0.10	<0.10	-
	12-06-19 <sup>FD</sup>	<0.0010	<0.0010	<0.0010	<0.0020	<0.10	-	<0.050	<0.050	<0.10	<0.10	-
12-06-19	<0.0010	<0.0010	<0.0010	<0.0020	<0.10	-	<0.050	<0.050	<0.10	<0.10	-	
12/02/20 <sup>FD</sup>	<0.0010	<0.0010	<0.0010	<0.0020	<0.090	-	<0.050	<0.050	<0.090	<0.090	-	
12-02-20	<0.0010	<0.0010	<0.0010	<0.0020	<0.090	-	<0.050	<0.050	<0.090	<0.090	-	
12-10-21	<0.0010	<0.0010	<0.0010	<0.0020	<0.090	-	<0.050	<0.050	<0.090	<0.090	-	
SCU31-004-MW (5.80 m)	9-16-05	<0.001	<0.001	<0.001	<0.002	<0.01	<0.2	-	-	<0.5	<0.5	-
	12-15-17	<0.0010	<0.0010	<0.0010	<0.0020	<0.010	-	0.052	0.052	<0.10	0.10	Yes
	11-27-18	<0.0010	<0.0010	<0.0010	<0.0020	<0.010	-	<0.050	<0.050	<0.10	<0.10	-
	12-06-19	<0.0010	<0.0010	<0.0010	<0.0020	<0.10	-	<0.050	<0.050	<0.10	<0.10	-
	12-02-20	<0.0010	<0.0010	<0.0010	<0.0020	<0.090	-	<0.050	<0.050	<0.090	<0.090	-
	12-10-21 <sup>FD</sup>	<0.0010	<0.0010	<0.0010	<0.0020	<0.090	-	<0.050	<0.050	<0.090	<0.090	-
12-10-21	<0.0010	<0.0010	<0.0010	<0.0020	<0.090	-	<0.050	<0.050	<0.090	<0.090	-	
MCES-207-MW (15.03 m)	12-10-20	<0.0010	<0.0010	<0.0010	<0.0020	<0.090	-	<0.050	<0.050	<0.090	<0.090	-
	12-13-21	<0.0010	<0.0010	<0.0010	<0.0020	<0.090	-	<0.050	<0.050	<0.090	<0.090	-
MW20-1 (7.84 m)	12-3-20	<0.0010	<0.0010	<0.0010	<0.0020	<0.090	-	0.17	<0.050	<0.090	0.17	Yes
	12-13-21	<0.0010	<0.0010	<0.0010	<0.0020	<0.090	-	0.18	0.066	<0.090	0.25	Yes
MW20-2 (9.13 m)	12-3-20	0.033	0.014	0.0011	0.013	<0.090	-	0.91	0.78	0.54	2.3	Yes
	12-13-21	0.025	0.011	<0.0010	0.011	<0.090	-	0.56	0.38	0.41	1.4	Yes
MW20-3 (8.15 m)	12-3-20	0.006	0.0031	<0.0010	0.005	<0.090	-	0.58	1.1	1.3	3.0	Yes
	12-21-21	<0.0010	<0.0010	<0.0010	<0.0020	<0.090	-	<0.050	<0.050	<0.090	<0.090	-
MW20-4 (8.31 m)	12-3-20	0.010	0.0025	<0.0010	<0.0020	<0.090	-	0.31	0.24	0.23	0.78	Yes
	12-13-21	0.0073	0.0020	<0.0010	<0.0020	<0.090	-	0.16	0.080	0.12	0.36	Yes
SCU26-200-MW (8.09 m)	12-10-20	0.059	0.017	<0.0010	0.0051	<0.090	-	0.14	0.083	0.10	0.35	Yes
	12-10-21	0.022	0.010	<0.0010	0.0030	<0.090	-	0.082	<0.050	<0.090	<0.090	-
SCU27-202-MW (7.78 m)	12-10-20	<0.0010	<0.0010	<0.0010	<0.0020	<0.090	-	<0.050	<0.050	<0.090	<0.090	-
	12-13-21	<0.0010	<0.0010	<0.0010	<0.0020	<0.090	-	<0.050	<0.050	<0.090	<0.090	-
SCU32-200-MW (7.07 m)	12-3-20	0.0015	<0.0010	<0.0010	<0.0020	<0.090	-	0.18	0.091	<0.090	0.27	Yes
	12-13-21	<0.0010	<0.0010	<0.0010	<0.0020	<0.090	-	0.18	0.12	0.13	0.43	Yes

**NOTES:**

FD - Field Duplicate

NM - Not Measured or not analyzed.

mg/L - milligrams per litre

- No applicable guideline criteria.

1 - Nova Scotia Environment Tier I Environmental Quality Standards for Groundwater (Coarse Grained Soil, Non-potable Groundwater Commercial/Industrial Site) 2013.

**2 - Bold and Shaded - Exceeds NSE Tier I EQS**

3 - SCU10-004-MW was not sampled during the 2014 monitoring event due to product in the well.

4 - DNAPL in SCU32-003-MW was sampled during the 2015 LTMM monitoring event. The groundwater column in the monitor well was sampled above the DNAPL in the well.

5 - Historical data (i.e., pre-2014) tabulated by SLR Consulting (Canada) Ltd. during historic assessment work, with the exception of SCU31-004-MW, for which data was derived from the Phase II ESA, Sydney Steel Corporation Sysco Blast Furnace Area, Site Classification Units SCU17, SCU19 & SCU31, Sydney, Nova Scotia (AMEC, 2006).

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

7 - SCU18-007-MW and SCU31-004-MW added to the LTMM program in 2017.

8 - Interference from Volatile Organic Compounds (VOCs) in the gasoline range.

TABLE A-2  
HARPOURSIDE COMMERCIAL PARK (HCP)  
LTMM GROUNDWATER MONITORING EVENT 2021  
GROUNDWATER ANALYTICAL RESULTS - PAH

Sample Location (Water Level 2021)	Sample Date	Acenaphthene	Acenaphthylene	Anthracene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(j)fluoranthene <sup>5</sup>	Benzo(k)fluoranthene	Chrysene	Dibenzo(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-cd)pyrene	1-Methylnaphthalene	2-Methylnaphthalene	Naphthalene	Perylene	Phenanthrene	Pyrene
Units		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	ug/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
<b>NS Tier 1 EQS<sup>1</sup></b>		600 <sup>2</sup>	7500	2.4 <sup>2</sup>	4.7 <sup>2</sup>	0.81 <sup>2</sup>	0.75 <sup>2</sup>	0.2 <sup>2</sup>	-	0.4 <sup>2</sup>	1 <sup>2</sup>	0.52 <sup>2</sup>	130 <sup>2</sup>	400 <sup>2</sup>	0.2 <sup>2</sup>	1800 <sup>2</sup>	1800 <sup>2</sup>	7000	-	580 <sup>2</sup>	68 <sup>2</sup>
SCU10-001-MW (1.85 m)	12-19-14	3.9	0.63	1.5	0.30	0.18	0.14	0.057	0.084	0.081	0.30	0.020	1.7	4.4	0.056	5.3	9.9	16	0.038	6.9	1.0
	12-11-15	0.024	<0.020	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.018	0.040	<0.010	0.053	0.15	<0.20	<0.010	0.011	0.018
	11-18-16	<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	<0.010	<0.010
	12-4-17	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.050	<0.050	<0.20	<0.010	<0.010	<0.010
	11-27-18	0.64	0.10	0.18	0.062	0.020	0.014	<0.020*	<0.010	<0.020*	0.058	<0.010	0.26	0.58	<0.010	0.73	1.1	2.1	<0.010	0.96	0.17
	12-06-19	<0.01	<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
	12-02-20	0.021	<0.010	<0.010	<0.01	<0.010	<0.010	<0.010	<0.01	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.050	<0.050	<0.20	<0.010	0.026	<0.010
	12-10-21	<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
SCU10-004-MW (2.41 m)	9-17-04	<b>1580</b>	194	<b>590</b>	<b>205</b>	<b>111</b>	<b>128</b>	<1	NM	<b>52</b>	<b>173</b>	<b>11.2</b>	<b>882</b>	<b>1420</b>	<b>41</b>	<b>2400</b>	<b>4150</b>	<b>11900</b>	NM	<b>2510</b>	<b>553</b>
	11-19-08	18	2.2	1.7	0.37	0.12	0.08	0.01	NM	0.11	0.32	<0.01	2.4	10	0.01	19	14	21	0.02	5.1	1.7
	11-10-10	37	7.5	2.4	0.28	0.23	0.15	0.09	NM	0.12	0.26	0.03	2.4	18	0.09	38*	37*	180*	0.04	15	1.6
	10-31-11	51**	10	<b>13</b>	3.1	<b>1.7</b>	<b>1.1</b>	<b>0.61</b>	NM	<b>0.73</b>	<b>2.5</b>	0.27	13	39**	<b>0.74</b>	74**	71**	68**	0.28	47	8.7
	11-23-12	230**	34**	<b>38**</b>	<b>5.3</b>	<b>1.9</b>	<b>1.4</b>	<b>0.58</b>	NM	<b>1.5</b>	<b>4.0</b>	0.15	38**	140**	<b>0.75</b>	380**	590**	2400**	0.32	170**	18
	12-2-13	53**	20	<b>4.0</b>	0.34	0.20	0.14	0.077	0.090	0.089	0.29	0.027	3.5	31	0.072	85**	80**	680**	0.043	24	2.3
	12-19-14	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
	12-11-15	<b>2800</b>	410	<b>1100</b>	<b>360</b>	<b>190</b>	<b>130</b>	<b>67</b>	110	<b>87</b>	<b>310</b>	<b>29</b>	<b>1500</b>	<b>2700</b>	<b>67</b>	<b>3300</b>	<b>6400</b>	<b>11000</b>	41	<b>5300</b>	<b>980</b>
	11-18-16	150	28	<b>18</b>	2.8	<1.0**	<1.0**	<1.0**	<1.0**	<1.0**	<b>2.1</b>	<1.0**	16	95	<1.0**	320	540	3800	<1.0**	76	10
	12-4-17	62	17	<b>5.6</b>	0.66	0.36	0.3	0.13	0.17	0.17	0.54	0.046	6.1	40	0.12	110	140	840	0.07	36	3.6
	11-27-18 <sup>FD</sup>	25	6.7	1.7	0.40	0.22	0.18	0.093	0.12	0.12	0.39	<0.040*	1.9	14	0.099	46**	59**	320**	<0.050*	8.0	1.2
	11-27-18	25	6.5	2.3	0.37	0.20	0.16	0.083	0.098	0.11	0.38	0.031	2.0	14	0.086	43**	51**	250**	0.041	8.7	1.2
	12-06-19	29	3.4	1.3	0.54	0.42	0.31	0.18	0.20	0.20	0.50	0.080	2.5	9.7	0.18	7.3	0.16	<0.20	0.085	0.54	1.6
	12-02-20	66**	27	<b>8.2</b>	1	0.48	0.35	0.17	0.24	0.23	0.94	0.060	10	40**	0.16	120**	140**	990**	0.097	34	6.1
12-10-21	95**	14	<b>35</b>	<b>7.4</b>	<b>4.4</b>	<b>3.6</b>	<b>2.0</b>	2.4	<b>2.3</b>	<b>6.1</b>	<b>0.56</b>	20	60**	<b>1.7</b>	170**	59**	34	1.0	31	15	
SCU18-007-MW (0.55 m)	7-12-06	<0.010	<0.010	<0.010	<0.010	0.02	<0.010	<0.010	NM	<0.010	0.02	<0.010	<0.010	<0.010	<0.010	<0.050	<0.050	<0.010	<0.010	<0.010	<0.010
	11-24-09	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	NM	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.050	<0.050	<0.010	<0.010	<0.010	<0.010
	9-7-10	1.6	1.9	0.92	0.12	0.02	0.04	0.01	NM	0.01	0.12	<0.010	1.8	3.4	<0.010	6.1	7.1	45	<0.010	2.4	1.2
	11-19-10	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	NM	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.050	<0.050	<0.010	<0.010	<0.010	<0.010
	10-24-11	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	NM	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.050	<0.050	<0.010	<0.010	<0.010	<0.010
	10-26-11	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	NM	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.050	<0.050	<0.010	<0.010	<0.010	<0.010
	12-2-13	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	NM	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.050	<0.050	<0.010	<0.010	<0.010	<0.010
	12-4-17	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.020	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.050	<0.050	<0.010	<0.010	<0.010	<0.010
	11-27-18	0.39	0.090	0.47	0.19	0.096	0.082	0.055	0.041	0.047	0.21	<0.030*	0.81	0.77	0.042	0.18	0.24	0.66	<0.030*	2.2	0.56
	12-06-19	<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
	12-02-20	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.050	<0.050	<0.20	<0.010	<0.010	<0.010
	12-13-21	<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	0.014	0.011



TABLE A-2  
HARPOURSIDE COMMERCIAL PARK (HCP)  
LTMM GROUNDWATER MONITORING EVENT 2021  
GROUNDWATER ANALYTICAL RESULTS - PAH

Sample Location (Water Level 2021)	Sample Date	Acenaphthene	Acenaphthylene	Anthracene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(j)fluoranthene <sup>5</sup>	Benzo(k)fluoranthene	Chrysene	Dibenzo(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-cd)pyrene	1-Methylnaphthalene	2-Methylnaphthalene	Naphthalene	Perylene	Phenanthrene	Pyrene
Units		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
NS Tier 1 EQS <sup>1</sup>		600 <sup>2</sup>	7500	2.4 <sup>2</sup>	4.7 <sup>2</sup>	0.81 <sup>2</sup>	0.75 <sup>2</sup>	0.2 <sup>2</sup>	-	0.4 <sup>2</sup>	1 <sup>2</sup>	0.52 <sup>2</sup>	130 <sup>2</sup>	400 <sup>2</sup>	0.2 <sup>2</sup>	1800 <sup>2</sup>	1800 <sup>2</sup>	7000	-	580 <sup>2</sup>	68 <sup>2</sup>
SCU31-002-MWB (6.21 m)	9-22-05	<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	<0.02	<0.01	<0.01	<0.01
	11-16-10	<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	<0.02	<0.01	0.02	0.01
	10-25-11	<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	<0.02	<0.01	0.03	0.02
	11-21-12	0.019	<0.01	0.014	0.032	0.033	0.027	0.024	NM	0.029	0.031	<0.01	0.067	0.010	0.018	<0.05	<0.05	<0.02	<0.01	0.068	0.063
	12/7/13 <sup>FD</sup>	0.011	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.020	0.010	<0.010	<0.050	<0.050	<0.20	<0.010	0.031	0.019
	12-7-13	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.016	<0.010	<0.010	<0.050	<0.050	<0.20	<0.010	0.029	0.016
	12/18/14 <sup>FD</sup>	0.061	0.032	0.036	0.072	0.080	0.061	0.053	0.032	0.036	0.085	0.012	0.20	0.074	0.039	0.14	0.12	0.76	0.020	0.20	0.17
	12-18-14	0.046	0.028	0.028	0.051	0.050	0.038	0.026	0.020	0.021	0.064	<0.01	0.13	0.058	0.020	0.11	0.11	0.61	0.011	0.14	0.11
	12/2/15 <sup>FD</sup>	<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	0.017	0.01
	12-02-15	<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	0.015	<0.010
	11-17-16	<0.010	<0.010	<0.010	0.017	0.014	0.012	<0.010	<0.010	<0.010	0.017	<0.010	0.035	<0.010	<0.010	<0.050	<0.050	<0.20	<0.010	0.033	0.029
	12/4/17 <sup>FD</sup>	<0.010	<0.010	<0.010	0.019	0.016	0.013	0.011	<0.010	<0.010	0.021	<0.010	0.041	<0.010	0.011	<0.050	<0.050	<0.20	<0.010	0.034	0.033
	12-4-17	0.013	<0.010	0.025	0.056	0.052	0.041	0.031	0.024	0.025	0.059	<0.010	0.12	0.017	0.027	<0.050	<0.050	<0.20	0.013	0.1	0.097
	11-27-18	0.11	0.020	0.058	<0.040*	<0.020*	<0.020*	<0.020*	<0.010	<0.010	<0.040*	<0.010	0.096	0.15	<0.010	0.13	0.19	0.29	<0.010	0.34	0.073
	12-06-19 <sup>FD</sup>	0.015	<0.010	<0.010	<0.010	<0.010	<0.010	<0.020	<0.010	<0.010	<0.010	<0.010	0.019	0.024	<0.010	<0.050	<0.050	<0.20	<0.010	0.04	0.017
12-06-19	0.015	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.017	0.024	<0.010	<0.050	<0.050	<0.20	<0.010	0.043	0.015	
12/02/20 <sup>FD</sup>	0.014	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.018	0.015	<0.010	<0.050	<0.050	<0.20	<0.010	0.013	0.015	
12-02-20	0.012	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.017	0.015	<0.010	<0.050	<0.050	<0.20	<0.010	0.015	0.014	
12-10-21	<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	0.014	0.011	
SCU31-004-MW (15.03 m)	9-6-05	0.02	<0.01	0.02	0.02	<0.01	<0.01	<0.01	NM	<0.01	0.03	<0.01	0.1	0.01	<0.01	<0.05	<0.05	<0.2	<0.01	0.02	0.17
	12-15-17	0.20	0.51	0.19	0.036	0.022	0.022	0.013	0.013	0.012	0.041	<0.010	0.32	0.73	0.011	0.81	1.0	2.3	<0.010	0.98	0.23
	11-27-18	0.12	0.14	0.18	0.064	<0.020*	0.023	<0.020*	<0.020*	<0.020*	0.072	<0.010	0.27	0.26	<0.010	0.16	0.17	0.22	<0.020*	0.60	0.27
	12-06-19	0.060	0.14	0.026	0.015	<0.010	<0.010	<0.010	<0.010	<0.010	0.021	<0.010	0.053	0.14	<0.010	0.21	0.17	0.46	<0.010	0.13	0.097
	12-02-20	0.28	0.69	0.17	0.018	<0.010	<0.010	<0.010	<0.010	<0.010	0.025	<0.010	0.29	0.94	<0.010	1	0.39	0.64	<0.010	1	0.26
12-10-21 <sup>FD</sup>	0.28	0.072	0.055	0.012	<0.010	<0.010	<0.010	<0.010	<0.010	0.015	<0.010	0.064	0.22	<0.010	0.36	0.54	2.1	<0.010	0.26	0.071	
12-10-21	0.29	0.073	0.055	0.012	<0.010	<0.010	<0.010	<0.010	<0.010	0.017	<0.010	0.068	0.23	<0.010	0.37	0.57	2.2	<0.010	0.26	0.073	
MCES-207-MW (15.03 m)	12-10-20	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	0.011	<0.01	<0.05	<0.05	<0.2	<0.01	0.017	0.014
	12-13-21	0.019	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.014	0.021	<0.010	<0.050	<0.050	<0.20	<0.010	0.046	<0.010
MW20-1 (7.84 m)	12-3-20	0.41	0.41	0.25	0.034	0.011	<0.01	<0.01	<0.01	<0.01	0.042	<0.01	0.42	0.86	<0.01	4.9	6.2	3.7	<0.01	1.6	0.25
	12-13-21	0.45	0.56	0.29	0.018	<0.010	<0.010	<0.010	<0.010	<0.010	0.019	<0.010	0.41	0.99	<0.010	4.7	5.8	3.5	<0.010	1.8	0.23
MW20-2 (9.13 m)	12-3-20	38	5.6	<b>28</b>	<b>9.2</b>	<b>3.4</b>	<b>2.8</b>	<b>1.1</b>	1.9	<b>1.8</b>	<b>9</b>	0.39	38**	37	<b>1.1</b>	38	39**	120**	0.77	82**	30
	12-13-21	23	4.0	<b>5.9</b>	1.2	0.59	0.44	0.20	0.33	0.33	1.0	0.043	7.7	21	0.16	29	31	100**	0.13	29	4.9
MW20-3 (8.15 m)	12-3-20	10	5	<b>17</b>	<b>11</b>	<b>5.7</b>	<b>4.3</b>	<b>2</b>	2.9	<b>2.8</b>	<b>10</b>	<b>0.73</b>	28	15	<b>2.1</b>	12	8.7	44**	1.2	35	20
	12-21-21	0.11	0.14	0.12	0.016	<0.010	<0.010	<0.010	<0.010	<0.010	0.019	<0.010	0.15	0.21	<0.010	0.22	0.16	1.0	<0.010	0.35	0.084
MW20-4 (8.31 m)	12-3-20	8.2	6.1	<b>6.1</b>	<b>2.6</b>	<b>1.2</b>	<b>0.93</b>	<b>0.45</b>	0.65	<b>0.61</b>	<b>2.3</b>	0.14	9.5	11	<b>0.43</b>	12	2.3	11	0.29	11	6.3
	12-13-21	5.6	4.8	1.9	0.14	0.032	0.027	0.011	<0.030*	0.019	0.11	<0.010	2.2	8.0	<0.010	10	3.4	22	<0.010	5.4	1.3
SCU26-200-MW (8.09 m)	12-10-20	1.4	2.1	0.83	0.063	0.035	0.031	0.015	0.02	0.019	0.075	<0.01	1	2.1	0.017	3.4	3.2	21	0.012	4.8	0.63
	12-10-21	1.0	2.5	0.74	0.052	0.016	0.015	<0.010	0.011	<0.010	0.048	<0.010	0.87	1.4	<0.010	3.1	2.9	19	<0.010	3.5	0.52

TABLE A-2  
HARPOURSIDE COMMERCIAL PARK (HCP)  
LTMM GROUNDWATER MONITORING EVENT 2021  
GROUNDWATER ANALYTICAL RESULTS - PAH

Sample Location (Water Level 2021)	Sample Date	Acenaphthene	Acenaphthylene	Anthracene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(j)fluoranthene <sup>5</sup>	Benzo(k)fluoranthene	Chrysene	Dibenzo(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-cd)pyrene	1-Methylnaphthalene	2-Methylnaphthalene	Naphthalene	Perylene	Phenanthrene	Pyrene
Units		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	ug/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
NS Tier 1 EQS <sup>1</sup>		600 <sup>2</sup>	7500	2.4 <sup>2</sup>	4.7 <sup>2</sup>	0.81 <sup>2</sup>	0.75 <sup>2</sup>	0.2 <sup>2</sup>	-	0.4 <sup>2</sup>	1 <sup>2</sup>	0.52 <sup>2</sup>	130 <sup>2</sup>	400 <sup>2</sup>	0.2 <sup>2</sup>	1800 <sup>2</sup>	1800 <sup>2</sup>	7000	-	580 <sup>2</sup>	68 <sup>2</sup>
SCU27-202-MW (7.78 m)	12-10-20	0.013	<0.01	0.014	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.027	0.017	<0.01	<0.05	<0.05	<0.2	<0.01	0.05	0.023
	12-13-21	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.018	<0.010	<0.010	<0.050	<0.050	<0.20	0.013	0.028	0.012
SCU32-200-MW (7.07 m)	12-3-20	1.4	2.7	0.84	0.11	0.028	0.022	<0.01	0.016	0.015	0.12	<0.01	1.7	2.3	<0.01	3	2.8	9.6	<0.01	4.1	0.95
	12-13-21	1.0	1.1	1.0	0.11	0.012	0.011	<0.010	<0.010	<0.010	0.099	<0.010	2.2	1.8	<0.010	2.2	1.6	5.3	<0.010	4.9	1.3

NOTES:

FD - Field Duplicate

NM - Not Measured or not analyzed

µg/L - micrograms per litre

- No applicable guideline criteria.

1 - Nova Scotia Environment Environmental Quality Standards for Groundwater (Coarse Grained Soil, Non-potable Groundwater Commercial/Industrial Site) (September 2021).

2 - Ontario Ministry of Environment, Conservation and Parks Table 3 Full Depth Generic Site Condition Standards in a Non-potable Groundwater (2011)

**3 - Bold and Shaded Exceeds NSE Tier I EQS or the MOE standards which are used when no Tier I EQS is available.**

4 - *Italicized RDL above applicable guideline*

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

6 - \* Elevated PAH RDL(s) due to matrix / co-extractive interference.

7 - \*\*Elevated PAH RDL(s) due to sample dilution.

8 - \*\*\* PAH RDL(s) elevated due to detection of compound in blank.

9 - SCU10-004-MW was not sampled during the 2014 monitoring event due to product in the well

10 - Historical data (i.e., pre-2014) tabulated by SLR Consulting (Canada) Ltd. During historic assessment work, with the exception of SCU31-004-MW, for which data was derived from the Phase II ESA, Sydney Steel Corporation Sysco Blast Furnace Area, Site Classification Units SCU17, SCU19 & SCU31, Sydney, Nova Scotia (AMEC, 2006).

11 - 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  
HARBORSIDE COMMERCIAL PARK (HCP)  
LTMM GROUNDWATER MONITORING EVENT 2020  
GROUNDWATER ANALYTICAL RESULTS - INORGANIC CHEMISTRY

Sample Location (Water Level 2021)	Sample Date	Units																															
		Aluminum (Al)	Antimony (Sb)	Arsenic (As)	Barium (Ba)	Beryllium (Be)	Bismuth (Bi)	Boron (B)	Cadmium (Cd)	Calcium (Ca)	Chromium (Cr)	Cobalt (Co)	Copper (Cu)	Iron (Fe)	Lead (Pb)	Magnesium (Mg)	Manganese (Mn)	Mercury (Hg)	Molybdenum (Mo)	Nickel (Ni)	Phosphorus (P)	Potassium (K)	Selenium (Se)	Silver (Ag)	Sodium (Na)	Strontium (Sr)	Thallium (Tl)	Tin (Sn)	Titanium (Ti)	Uranium (U)	Vanadium (V)	Zinc (Zn)	
Standard MECP Table 3 <sup>2</sup>		-	20000	1900	29000	67	-	45000	2.7	-	810	66	87	-	25	-	-	0.29	9200	490	-	-	63	1.5	2300000	-	510	-	-	420	250	1100	
SCU10-001-MW (1.85 m)	12-19-14	120	<1	<1	37	<1	<2	86	0.34	120000	<1	0.79	<2	110	0.78	12000	11000	<0.013	<2	2.1	<100	7800	<1	<0.1	37000	420	<0.1	<2	<2	0.23	<2	35	
	12-11-15	15	<1.0	<1.0	69	<1.0	<2.0	80	0.13	97000	<1.0	1.4	<2.0	190	<0.50	11000	16000	<0.013	<2.0	3.7	140	6500	<1.0	<0.10	43000	380	<0.10	<2.0	<2.0	0.33	<2.0	8.3	
	11-18-16	6.8	<1.0	<1.0	4.7	<1.0	<2.0	99	0.031	72000	<1.0	<0.40	<2.0	<50	<0.50	8000	370	<0.013	<2.0	<2.0	<100	4600	<1.0	<0.10	44000	360	<0.10	<2.0	<2.0	1.2	<2.0	<5.0	
	12-4-17	<5.0	<1.0	1.2	14	<1.0	<2.0	94	0.11	72000	<1.0	<0.40	<2.0	50	<0.50	7900	910	<0.013	<2.0	<2.0	<100	3900	2.1	<0.10	32000	370	<0.10	<2.0	<2.0	1.5	<2.0	<5.0	
	11-27-18	<5.0	1.1	1.5	23	<1.0	<2.0	94	0.013	99000	<1.0	<0.40	<2.0	<50	<0.50	9300	17	<0.013	<2.0	<2.0	<100	3800	2.3	<0.10	32000	450	<0.10	<2.0	<2.0	1.9	<2.0	<5.0	
	12-6-19	<5.0	1.2	1.6	19	<1.0	<2.0	75	0.011	100000	<1.0	<0.40	0.57	<50	<0.50	8000	31	<0.013	3.6	<2.0	110	3700	3.9	<0.10	38000	450	<0.10	<2.0	<2.0	2.5	<2.0	7.1	
	12-2-20	<5.0	1.8	2.1	16	<1.0	<2.0	100	0.038	70000	1	<0.40	0.55	<50	<0.5	6600	52	<0.013	2.2	<2.0	100	3500	4	<0.10	43000	330	<0.10	<2.0	<2.0	2	2.8	7.9	
12-10-21	<5.0	1.8	2.2	22	<0.10	<2.0	75	<0.010	68000	1	<0.40	<0.50	<50	<0.50	4600	<2.0	<0.013 <sup>9</sup>	2.2	<2.0	<100	3000	2.7	<0.10	28000	280	<0.10	<2.0	<2.0	1.6	3.3	<5.0		
SCU10-004-MW (2.41 m)	9-17-04	101	<0.40	15.7	87.2	<0.50	NM	<100	<0.017	244000	<1.0	<1.0	<2.0	<100	NM	1330	10	<0.013	<4.0	<3.0	<100	10000	3	<0.10	151000	1160	<0.80	<20	NM	<0.15	10	2	
	11-19-08	<5.0	1.2	4.3	56	<0.50	<2.0	<100	<0.017	130000	<1.0	<1.0	<2.0	<100	<1.0	6000	14	<0.013	6.9	<3.0	<100	13000	3.1	<0.10	140000	550	<0.80	<20	<3.0	2.4	8.0	<5.0	
	11-10-10	13	<0.40	8.1	49	<0.50	<2.0	<100	<0.017	100000	<1.0	<1.0	<2.0	<100	<1.0	5000	83	<0.013	6.6	<3.0	<100	9000	1.9	<0.10	92000	470	<0.80	<20	<3.0	1.6	7.5	<5.0	
	11-23-12	<5.0	<0.40	0.96	78	<0.50	<2.0	110	<0.017	99000	<1.0	<1.0	<2.0	<100	<1.0	10000	21	0.023	<4.0	<3.0	<100	<600	<1.0	<0.10	13000	6200	<0.80	<20	<3.0	2	<2.0	<5.0	
	12-2-13	39	<1.0	11	57	<1.0	<2.0	69	<0.010	100000	<1.0	<0.40	<2.0	110	<0.50	3600	73	<0.013	5.4	<2.0	<100	10000	1.2	<0.10	100000	540	<0.10	<2.0	2.9	1.2	7.3	6.2	
	12-19-14	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	NM	NM	NM
	12-11-15	35	<1.0	11	41	<1.0	<2.0	62	0.044	83000	<1.0	<0.40	<2.0	110	<0.50	2800	51	<0.013	6.1	<2.0	170	11000	1.2	<0.10	150000	440	<0.10	<2.0	<2.0	0.8	4.9	<5.0	
	11-18-16	17	<1.0	9.8	55	<1.0	<2.0	66	<0.010	95000	<1.0	<0.40	<2.0	160	<0.50	3600	93	0.013	3.2	<2.0	190	11000	1.7	<0.10	110000	460	<0.10	<2.0	<2.0	0.6	7.7	<5.0	
	12-4-17	12	<1.0	11	51	<1.0	<2.0	57	<0.010	70000	<1.0	<0.40	<2.0	86	<0.50	2300	35	<0.013	3.9	<2.0	170	8800	3.8	<0.10	100000	330	<0.10	<2.0	<2.0	0.56	5.0	<5.0	
	11-27-18 <sup>FD</sup>	10	1.3	9.4	42	<1.0	<2.0	55	<0.010	81000	<1.0	<0.40	<2.0	<50	<0.50	3600	23	<0.013	5.2	<2.0	<100	6800	1.7	<0.10	70000	330	<0.10	<2.0	<2.0	0.68	12	<5.0	
	11-27-18	21	1.3	9.4	43	<1.0	<2.0	56	<0.010	80000	<1.0	<0.40	<2.0	<50	<0.50	3500	22	<0.013	5.4	<2.0	<100	6800	1.7	<0.10	70000	320	<0.10	<2.0	<2.0	0.69	13	<5.0	
	12-6-19	8.5	<1.0	6.8	44	<1.0	<2.0	52	0.053	85000	<1.0	<0.40	0.78	<50	<0.50	3400	28	<0.013	5.7	<2.0	<100	6700	1.8	<0.10	67000	410	<0.10	<2.0	<2.0	0.69	12	<5.0	
	12-2-20	14	<1.0	13	53	<1.0	<2.0	64	0.014	81000	<1.0	<0.40	<0.5	100	<0.50	3200	50	<0.013	5	<2.0	110	10000	2.1	<0.10	160000	620	<0.10	<2.0	<2.0	0.5	3.4	<5.0	
12-10-21	8.2	1.4	7.8	50	<0.10	<2.0	62	0.017	100000	<1.0	<0.40	1.5	<50	<0.50	4800	45	<0.013	4.4	<2.0	<100	8500	1.4	<0.10	100000	540	<0.10	<2.0	<2.0	0.93	12	<5.0		
SCU18-007-MW (0.55 m)	7-12-06	23	<0.40	3.1	69	<0.50	<2.0	<100	0.043	85000	<1.0	3.3	<2.0	<100	<1.0	10000	15	<0.013	10	<3.0	<100	8000	6.7	<0.10	80000	290	<0.80	<20	<3.0	0.99	17	<5.0	
	11-24-09	7.9	<0.40	1.8	42	<0.50	<2.0	200	<0.017	67000	7.7	<1.0	<2.0	<100	<1.0	17000	<4.0	0.025	4.3	<3.0	<100	3900	2.2	<0.10	19000	200	<0.80	<20	<3.0	2	10	NM	
	9-7-10	40	1.1	7.58	26	<0.50	<2.0	<100	<0.017	170000	<1.0	<1.0	<2.0	<100	<1.0	240	<4.0	<0.013	29	<3.0	<100	12000	3.6	<0.10	38000	740	<0.80	<20	<3.0	<0.15	98	<5.0	
	11-19-10	30	3.4	1.9	48	<0.50	<2.0	200	<0.017	71000	8.6	<1.0	<2.0	<100	<1.0	16000	<4.0	<0.013	5.4	<3.0	<100	5200	1.5	<0.10	31000	250	<0.80	<20	<3.0	3.4	12	<5.0	
	10-24-11	27	0.79	2.4	58	<0.50	<2.0	230	<0.017	82000	11	<1.0	<2.0	<100	<1.0	17000	<4.0	<0.013	4.9	<3.0	<100	6000	<1.0	<0.10	34000	250	<0.80	<20	<3.0	5.3	16	<5.0	
	10-26-11	13	1.3	2.6	64	<0.50	<2.0	290	<0.017	84000	21	<1.0	<2.0	<100	<1.0	19000	<4.0	<0.013	4.8	<3.0	<100	5400	1.9	<0.10	26000	360	<0.80	<20	<3.0	6.4	17	6	
	12-2-13	12	<1.0	1.5	62	<1.0	<2.0	190	0.010	82000	9.4	<1.0	<2.0	<50	<0.5	27000	<2.0	<0.013	2.8	<3.0	100	4000	1.2	<0.10	14000	230	<0.10	<2.0	<2.0	3.6	7.6	<5.0	
	12-4-17	7.3	<1.0	1.5	85	<1.0	<2.0	190	<0.010	78000	16	<0.40	<2.0	<50	<0.50	32000	<2.0	<0.013	3.0	<2.0	<100	3700	2.2	<0.10	13000	230	<0.10	<2.0	<2.0	4.9	7.5	<5.0	
	11-27-18	18	1.1	1.9	51	<1.0	<2.0	160	0.023	55000	9.3	<0.40	<2.0	<50	1.1	29000	4.9	<0.013	2.4	<2.0	<100	2700	<1.0	<0.10	13000	160	<0.10	<2.0	<2.0	3.4	10	<5.0	
	12-6-19	<5.0	1.2	2.2	46	<1.0	<2.0	130	<0.010	49000	11	<0.40	1.4	<50	<0.50	26000	<2.0	<0.013	3.2	<2.0	130	2300	0.6	<0.10	11000	160	<0.10	<2.0	<2.0	2.8	11	<5.0	
	12-2-20	8.2	1	1.9	92	<1.0	<2.0	160	0.014	75000	17	<0.40	1.3	<50	<0.50	38000	<2.0	<0.013	<2.0	<2.0	110	3200	1.7	<0.10	11000	230	<0.10	<2.0	<2.0	5.1	9.7	<5.0	
12-13-21	6.5	<1.0	2.1	45	<0.10	<2.0	85	0.027	43000	6.7	<0.40	1.5	<50	<0.50	20000	<2.0	<0.013 <sup>9</sup>	<2.0	<2.0	<100	1900	0.50	<0.10	3900	120	<0.10	<2.0	<2.0	2.4	10	9.1		

TABLE A-3  
HARBORSIDE COMMERCIAL PARK (HCP)  
LTMM GROUNDWATER MONITORING EVENT 2020  
GROUNDWATER ANALYTICAL RESULTS - INORGANIC CHEMISTRY

Sample Location (Water Level 2021)	Sample Date	Units																														
		Aluminum (Al) ug/L	Antimony (Sb) ug/L	Arsenic (As) ug/L	Barium (Ba) ug/L	Beryllium (Be) ug/L	Bismuth (Bi) ug/L	Boron (B) ug/L	Cadmium (Cd) ug/L	Calcium (Ca) ug/L	Chromium (Cr) ug/L	Cobalt (Co) ug/L	Copper (Cu) ug/L	Iron (Fe) ug/L	Lead (Pb) ug/L	Magnesium (Mg) ug/L	Manganese (Mn) ug/L	Mercury (Hg) ug/L	Molybdenum (Mo) ug/L	Nickel (Ni) ug/L	Phosphorus (P) ug/L	Potassium (K) ug/L	Selenium (Se) ug/L	Silver (Ag) ug/L	Sodium (Na) ug/L	Strontium (Sr) ug/L	Thallium (Tl) ug/L	Tin (Sn) ug/L	Titanium (Ti) ug/L	Uranium (U) ug/L	Vanadium (V) ug/L	Zinc (Zn) ug/L
Standard MECP Table 3 <sup>2</sup>		-	20000	1900	29000	67	-	45000	2.7	-	810	66	87	-	25	-	-	0.29	9200	490	-	-	63	1.5	2300000	-	510	-	-	420	250	1100
SCU31-004-MW (5.80 m)	9-15-05	11	1	<0.6	35	<0.5	<2	<100	<0.017	NM	1.1	<1	<2	<100	<1	NM	<4	<0.01	6.5	<3	<100	NM	3.1	<0.1	NM	290	<0.8	<20	<3	<0.15	2.1	2.9
	12-15-17	12	<1.0	<1.0	55	<1.0	<2.0	84	<0.010	130000	2.6	<0.40	<2.0	<50	<0.50	9800	<2.0	<0.013	6	<2.0	<100	12000	2.1	<0.10	20000	730	<0.10	<2.0	<2.0	0.74	<2.0	<5.0
	11-27-18	23	<1.0	<1.0	48	<1.0	<2.0	69	<0.010	200000	4.6	<0.40	<2.0	<50	<0.50	<100	<2.0	<0.013	7.4	<2.0	<100	11000	4.3	<0.10	22000	950	<0.10	<2.0	<2.0	<0.10	10	<5.0
	12-6-19	20	<1.0	<1.0	48	<1.0	<2.0	65	<0.010	150000	2.3	<0.40	0.74	<50	<0.50	<100	<2.0	<0.013	6.4	<2.0	<100	8800	2.9	<0.10	20000	770	<0.10	<2.0	<2.0	<0.10	8.5	<5.0
	12-2-20	11	<1.0	<1.0	37	<1.0	<2.0	92	<0.010	180000	1.8	<0.40	<0.5	<50	<0.50	1300	<2.0	<0.013	5.1	<2.0	<100	9600	5.8	<0.1	22000	640	<0.10	<2.0	<2.0	<0.10	2.5	<5.0
	12-10-21 <sup>FD</sup>	<5.0	<1.0	<1.0	48	<0.10	<2.0	69	<0.010	140000	3.8	<0.40	0.72	<50	<0.50	1500	<2.0	<0.013 <sup>9</sup>	6.9	<2.0	<100	11000	2.8	<0.10	26000	750	<0.10	<2.0	<2.0	0.22	5.5	<5.0
12-10-21	<5.0	<1.0	<1.0	49	<0.10	<2.0	68	<0.010	140000	3.8	<0.40	0.66	<50	<0.50	1600	<2.0	<0.013 <sup>9</sup>	6.9	<2.0	<100	11000	2.9	<0.10	26000	740	<0.10	<2.0	<2.0	0.23	5.3	<5.0	
MCES-207-MW (15.03 m)	12-10-20	<50	<10	<10	4300	<10	<20	2100	0.16	660000	<10	<4	11	<500	<5	390000	2200	<0.013	<20	<20	<1000	67000	<5	<1	<b>2900000</b>	23000	<1	<20	<20	5.2	<20	90
	12-13-21	<50	<10	11	6100	<1.0	<20	2900	<0.10	810000	<10	<4.0	<5.0	18000	<5.0	570000	1900	<0.013 <sup>9</sup>	<20	<20	1100	87000	<5.0	<1.0	<b>4100000</b>	32000	<1.0	<20	<20	6.1	<20	<50
MW20-1 (7.84 m)	12-3-20	190	<1	<1	570	<1	<2	<50	<0.01	400000	<1	<0.4	<0.5	<50	<0.5	<100	<2	<0.013	3.9	<2	<100	30000	12	<0.1	32000	3200	<0.1	<2	<2	<0.1	<2	<5
	12-13-21	180	<1.0	<1.0	490	<0.10	<2.0	<50	<0.010	370000	<1.0	<0.40	<0.50	<50	<0.50	<100	<2.0	<0.013 <sup>9</sup>	4.6	<2.0	<100	30000	8.0	<0.10	31000	2800	<0.10	<2.0	<2.0	<0.10	<2.0	<5.0
MW20-2 (9.13 m)	12-3-20	750	1.4	27	490	<1	<2	62	0.01	250000	<1	<0.4	<0.5	1500	<0.5	<100	<2	0.41	7.3	<2	<100	69000	22	<0.1	190000	3600	<0.1	<2	<2	<0.1	3.7	<5
	12-13-21	130	<1.0	9.8	250	<0.10	<2.0	<50	<0.010	360000	<1.0	<0.40	<0.50	570	<0.50	<100	<2.0	<0.013 <sup>9</sup>	13	<2.0	<100	56000	13	<0.10	140000	3300	<0.10	<2.0	<2.0	<0.10	<2.0	<5.0
MW20-3 (8.15 m)	12-3-20	150	1.1	4.1	35	<1	<2	540	<0.01	150000	<1	<0.4	0.61	<50	<0.5	720	<2	0.16	24	<2	<100	32000	1.6	<0.1	45000	1100	<0.1	<2	<2	<0.1	55	<5
	12-21-21	240	<1.0	2.8	11	<0.10	<2.0	180	<0.010	110000	1.7	<0.40	1.9	<50	<0.50	190	<2.0	<0.013	16	<2.0	<100	27000	3.5	<0.10	32000	1100	<0.10	<2.0	<2.0	<0.10	170	<5.0
MW20-4 (8.31 m)	12-3-20	69	<1	8.3	55	<1	<2	750	0.017	230000	4.4	<0.4	2.6	59	<0.5	3100	2.9	0.068	39	3.6	<100	79000	3.9	<0.1	200000	1800	<0.1	<2	2	<0.1	54	<5
	12-13-21	150	<1.0	4.9	41	<0.10	<2.0	430	0.026	180000	7.5	<0.40	2.5	<50	<0.50	2600	46	<0.013 <sup>9</sup>	22	<2.0	<100	51000	2.4	<0.10	110000	1600	<0.10	<2.0	<2.0	<0.10	100	6.3
SCU26-200-MW (8.09 m)	12-10-20	46	<1	<1	1100	<1	<2	<50	<0.01	710000	<1	<0.4	<0.5	<50	<0.5	<100	6.2	<0.013	5.9	3.5	<100	38000	0.55	<0.1	220000	3200	<0.1	<2	<2	<0.1	3.8	<5
	12-10-21	43	<1.0	<1.0	1000	<0.10	<2.0	<50	0.42	650000	<1.0	<0.40	<0.50	<50	<0.50	<100	2.2	<0.013	5.9	2.1	<100	25000	0.52	<0.10	91000	2700	<0.10	<2.0	<2.0	<0.10	<2.0	<5.0
SCU27-202-MW (7.78 m)	12-10-20	<50	<10	<10	13000	<10	<20	5400	<0.1	950000	<10	<4	<5	84,000	<5	740000	5600	0.018	<20	<20	2600	160000	<5	<1	<b>5600000</b>	32000	<1	<20	<20	0.1	<20	55
	12-13-21	52	<10	22	15000	<1.0	<20	4600	<0.10	940000	<10	<4.0	<5.0	100,000	<5.0	740000	5200	<0.013 <sup>9</sup>	<20	<20	2200	160000	<5.0	<1.0	<b>5600000</b>	35000	<1.0	<20	<20	<1.0	<20	<50
SCU32-200-MW (7.07 m)	12-3-20	<50	<10	<10	160	<10	<20	<500	<0.1	380000	<10	<4	<5	<500	<5	5500	<20	0.02	260	<20	<1000	260000	10	<1	2200000	4300	<1	<20	<20	<1	<20	<50
	12-13-21	31	<1.0	1.2	140	<0.10	<2.0	54	<0.10*	330000	<1.0	<0.40	<0.50	<50	<0.50	<100	<2.0	<0.013 <sup>9</sup>	170	<2.0	<100	110000	5.3	<0.10	200000	1900	<0.10	<2.0	<2.0	<0.10	3.6	<5.0

NOTES:

FD - Field Duplicate

NM - Not Measured or not analyzed

ug/L - micrograms per litre

- No applicable guideline criteria.

1 - There are no Nova Scotia Environment Environmental Quality Standards for inorganic parameters in groundwater on a site with Coarse-Grained Soil, Non-potable Groundwater Commercial/Industrial land use) 2013.

2 - Ontario Ministry of Environment, Conservation and Parks Table 3 Full Depth Generic Site Condition Standards in a Non-potable Groundwater (2011).

3 - **Bold and Shaded Exceeds MOE Table 3 Standards**

4 - *Italicized RDL above applicable guideline*

5 - SCU10-004-MW was not sampled during the 2014 monitoring event due to product in the well.

6 - Historical data (i.e., pre-2014) tabulated by SLR Consulting (Canada) Ltd. During historic assessment work, with the exception of SCU31-004-MW, for which data was derived from the Phase II ESA, Sydney Steel Corporation Sysco Blast Furnace Area, Site Classification Units SCU17, SCU19 & SCU31, Sydney, Nova Scotia (AMEC, 2006).

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

8 - \* Elevated reporting limit due to sample matrix.

9 - Mercury analyzed past recommended hold time.

## Appendix B

### *Mann Kendall*

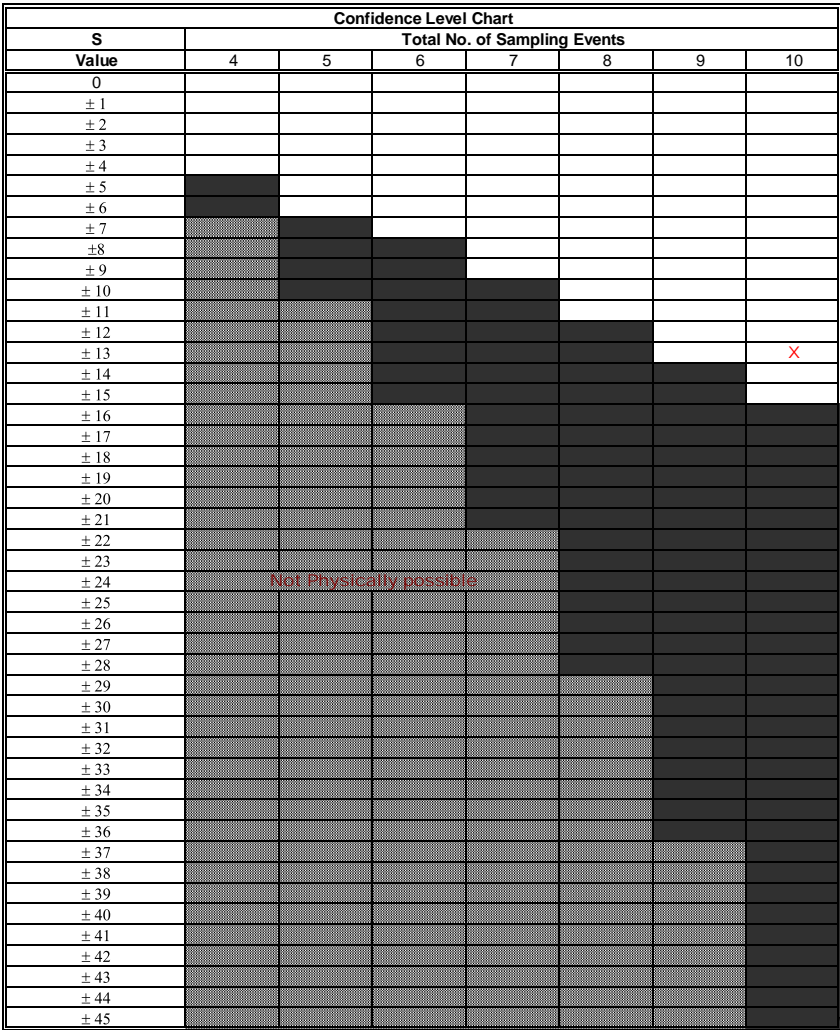


**MANN-KENDALL PLUME STABILITY ANALYSIS**  
**HARBOURSIDE COMMERCIAL PARK (HCP)**  
**2021 LTMM GROUNDWATER MONITORING EVENT**

MANN-KENDALL ANALYSIS OF PLUME		MONITORING WELL NO: SCU10-004-MW									
	Event 1	Event 2	Event 3	Event 4	Event 5	Event 6	Event 7	Event 8	Event 9	Event 10	Sum Rows
Acenaphthylene	0.01	0.034	0.02	0.41	0.028	0.017	0.0067	0.0034	0.027	0.014	
	31-Oct-11	23-Nov-12	2-Dec-13	11-Dec-15	18-Nov-16	4-Dec-17	27-Nov-18	6-Dec-19	2-Dec-20	10-Dec-21	
Row 1: Compare to Event 1:		1	1	1	1	1	-1	-1	1	1	5
Row 2: Compare to Event 2:			-1	1	-1	-1	-1	-1	-1	-1	-6
Row 3: Compare to Event 3:				1	1	-1	-1	-1	1	-1	-1
Row 4: Compare to Event 4:					-1	-1	-1	-1	-1	-1	-6
Row 5: Compare to Event 5:						-1	-1	-1	-1	-1	-5
Row 6: Compare to Event 6:							-1	-1	1	-1	-2
Row 7: Compare to Event 7:								-1	1	1	1
Row 8: Compare to Event 8:									1	1	2
Row 9: Compare to Event 9:										-1	-1

1/2 detection limit used for nd, historical data assumed EQL of 0.01 mg/L

Mann-Kendall (S) Statistic = -13



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

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

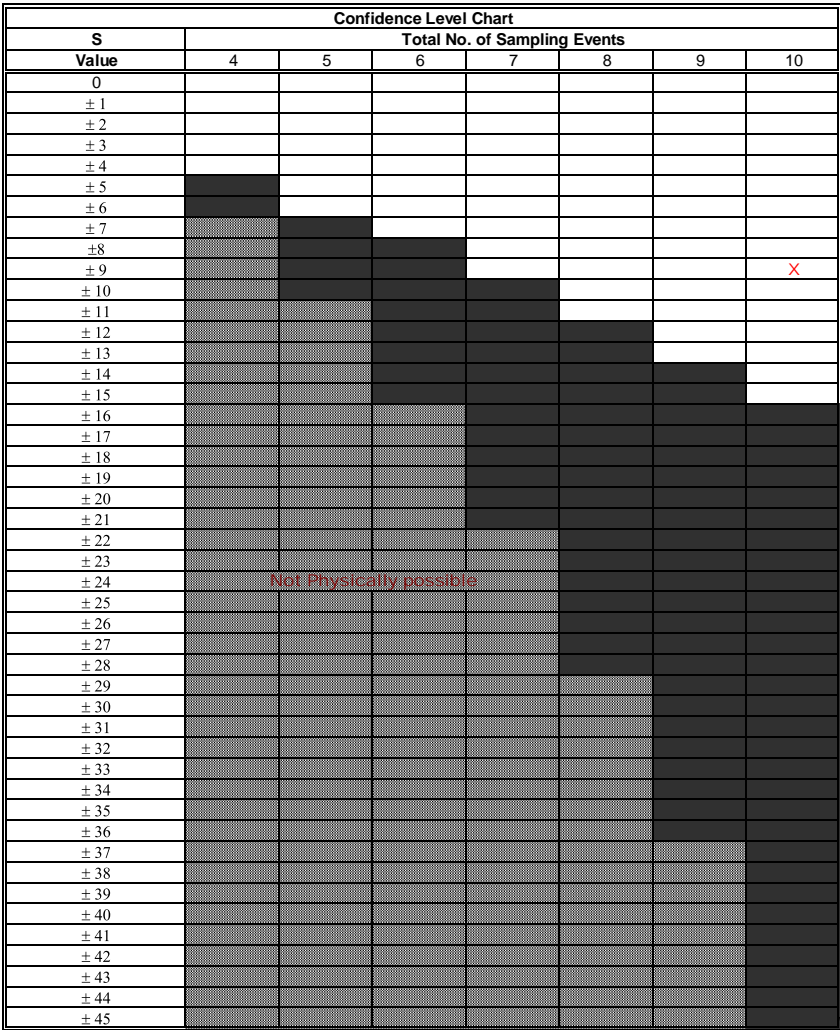
X	No Trend Indicated, Plume Not Dimishing or Expanding (Plume is Stable if CV<1)
	Trend Is Present (≥90% Confidence)
	S < 0      Diminishing Plume
	S > 0      Expanding Plume

**MANN-KENDALL PLUME STABILITY ANALYSIS**  
**HARBOURSIDE COMMERCIAL PARK (HCP)**  
**2021 LTMM GROUNDWATER MONITORING EVENT**

MANN-KENDALL ANALYSIS OF PLUME		MONITORING WELL NO: SCU10-004-MW									
	Event 1	Event 2	Event 3	Event 4	Event 5	Event 6	Event 7	Event 8	Event 9	Event 10	Sum Rows
<b>Anthracene</b>	0.013	0.038	0.004	1.1	0.018	0.0056	0.0023	0.0013	0.0082	0.035	
	31-Oct-11	13-Nov-12	2-Dec-13	11-Dec-15	18-Nov-16	4-Dec-17	27-Nov-18	6-Dec-19	2-Dec-20	10-Dec-21	
Row 1: Compare to Event 1:		1	-1	1	1	-1	-1	-1	-1	1	-1
Row 2: Compare to Event 2:			-1	1	-1	-1	-1	-1	-1	-1	-6
Row 3: Compare to Event 3:				1	1	1	-1	-1	1	1	3
Row 4: Compare to Event 4:					-1	-1	-1	-1	-1	-1	-6
Row 5: Compare to Event 5:						-1	-1	-1	-1	1	-3
Row 6: Compare to Event 6:							-1	-1	1	1	0
Row 7: Compare to Event 7:								-1	1	1	1
Row 8: Compare to Event 8:									1	1	2
Row 9: Compare to Event 9:										1	1

1/2 detection limit used for nd, historical data assumed EQL of 0.01 mg/L

Mann-Kendall (S) Statistic = **-9**



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

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

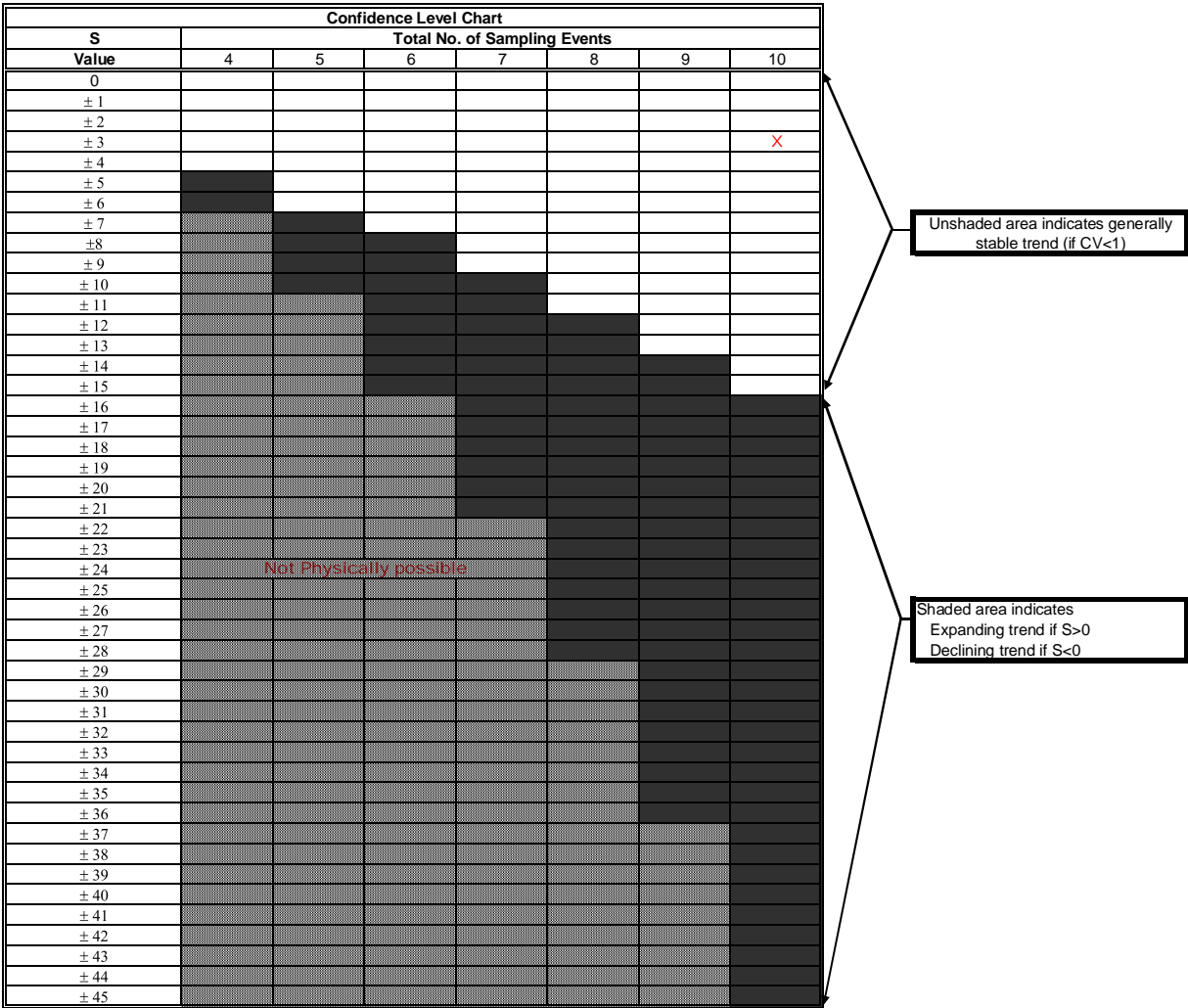
Stability Evaluation Results	
X	No Trend Indicated, Plume Not Diminishing or Expanding (Plume is Stable if CV<1)
	Trend Is Present (≥90% Confidence)
	S < 0      Diminishing Plume
	S > 0      Expanding Plume

**MANN-KENDALL PLUME STABILITY ANALYSIS**  
**HARBOURSIDE COMMERCIAL PARK (HCP)**  
**2021 LTMM GROUNDWATER MONITORING EVENT**

MANN-KENDALL ANALYSIS OF PLUME		MONITORING WELL NO: SCU10-004-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	0.00074	0.00075	0.000072	0.067	0.0005	0.00012	0.000099	0.00018	0.00016	0.0017	
	31-Oct-11	2012-23-11	2-Dec-13	11-Dec-15	18-Nov-16	4-Dec-17	27-Nov-18	6-Dec-19	2-Dec-20	10-Dec-21	
Row 1: Compare to Event 1:		1	-1	1	-1	-1	-1	-1	-1	1	-3
Row 2: Compare to Event 2:			-1	1	-1	-1	-1	-1	-1	1	-4
Row 3: Compare to Event 3:				1	1	1	1	1	1	1	7
Row 4: Compare to Event 4:					-1	-1	-1	-1	-1	-1	-6
Row 5: Compare to Event 5:						-1	-1	-1	-1	1	-3
Row 6: Compare to Event 6:							-1	1	1	1	2
Row 7: Compare to Event 7:								1	1	1	3
Row 8: Compare to Event 8:									-1	1	0
Row 9: Compare to Event 9:										1	1

1/2 detection limit used for nd, historical data assumed EQL of 0.01 mg/L

Mann-Kendall (S) Statistic = -3



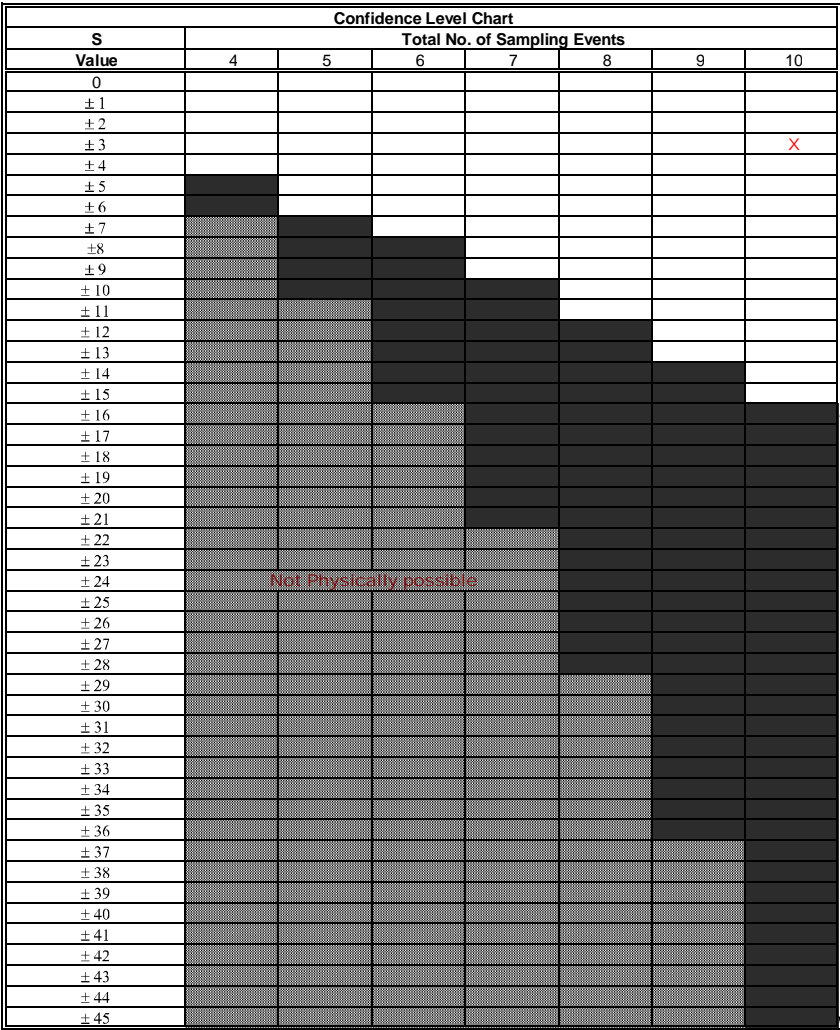
X	No Trend Indicated, Plume Not Diminishing or Expanding (Plume is Stable if CV<1)
	Trend Is Present (≥90% Confidence)
	S < 0      Diminishing Plume
	S > 0      Expanding Plume

**MANN-KENDALL PLUME STABILITY ANALYSIS**  
**HARBOURSIDE COMMERCIAL PARK (HCP)**  
**2021 LTMM GROUNDWATER MONITORING EVENT**

MANN-KENDALL ANALYSIS OF PLUME		MONITORING WELL NO: SCU10-004-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	0.00074	0.00075	0.000072	0.067	0.0005	0.00012	0.000099	0.00018	0.00016	0.0017	
	31-Oct-11	2012-23-11	2-Dec-13	11-Dec-15	18-Nov-16	4-Dec-17	27-Nov-18	6-Dec-19	2-Dec-20	10-Dec-21	
Row 1: Compare to Event 1:		1	-1	1	-1	-1	-1	-1	-1	1	-3
Row 2: Compare to Event 2:			-1	1	-1	-1	-1	-1	-1	1	-4
Row 3: Compare to Event 3:				1	1	1	1	1	1	1	7
Row 4: Compare to Event 4:					-1	-1	-1	-1	-1	-1	-6
Row 5: Compare to Event 5:						-1	-1	-1	-1	1	-3
Row 6: Compare to Event 6:							-1	1	1	1	2
Row 7: Compare to Event 7:								1	1	1	3
Row 8: Compare to Event 8:									-1	1	0
Row 9: Compare to Event 9:										1	1

1/2 detection limit used for nd, historical data assumed EQL of 0.01 mg/L

Mann-Kendall (S) Statistic = -3



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

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

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

# Appendix C

## *QC Tables*



**TABLE D-1  
HARBOURSIDE COMMERCIAL PARK  
LTMM GROUNDWATER MONITORING EVENT DECEMBER 2021  
SUMMARY OF FIELD DUPLICATES AND TRIP BLANKS**

<b>Field Duplicate Sample - Laboratory Certificate Number</b>	<b>Date Sampled</b>	<b>Trip Blank Sample - Laboratory Certificate Number</b>	<b>Date Sampled</b>	<b>Equipment Blank Sample - Laboratory Certificate Number</b>	<b>Date Sampled</b>
FD-18 - C1AF610	12-10-2021	TB-03 - C1AF610 TB-04 - C1Z6147	12/10/21 12/03/20	EB-01 - C1AF093	2012-02-21

Notes:

1. During the annual LTMM groundwater monitoring events for OHP, HE and HCP, one equipment blank was collected following the decontamination of communal monitoring equipment.
2. FD - Field Duplicate
3. TB - Trip Blank
4. EB - Equipment Blank

**TABLE D-2  
HARBOURSIDE COMMERCIAL PARK  
LTMM GROUNDWATER MONITORING EVENT 2021  
RPD FOR FIELD DUPLICATES (GROUNDWATER) - BTEX/TPH**

Sample Location	Sample ID	Type	Sample Date	Benzene	Toluene	E. Benzene	Xylenes	C6-C10	C10-C16	C16-C21	C21-C32	Modified TPH
				mg/L								
SCU31-004-MW	FD-18	Field Duplicate	2021-12-10	<0.0010	<0.0010	<0.0010	<0.0020	<0.090	<0.050	<0.050	<0.090	<0.090
	SCU31-004-MW	Regular	2021-12-10	<0.0010	<0.0010	<0.0010	<0.0020	<0.090	<0.050	<0.050	<0.090	<0.090
	--	RPD (%)	--	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:

NA - Not applicable if one or both sample results exhibit concentrations less than 5 times the RDL).

**Bold** - Calculation is outside of the acceptable RPD range.

FD - Field Duplicate

RPD - Relative Percent Difference

TABLE D-3  
HARBORSIDE COMMERCIAL PARK  
LTMM GROUNDWATER MONITORING EVENT 2021  
RPD FOR FIELD DUPLICATES (GROUNDWATER) - PAHs

Sample Location	Sample ID	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																			
SCU31-004-MW	FD-18	Field Duplicate	2021-12-10	0.28	0.072	0.055	0.012	<0.010	<0.010	<0.010	<0.010	<0.010	0.015	<0.010	0.064	0.22	<0.010	0.36	0.54	2.1	<0.010	0.26	0.071
	SCU31-004-MW	Regular	2021-12-10	0.29	0.073	0.055	0.012	<0.010	<0.010	<0.010	<0.010	<0.010	0.017	<0.010	0.068	0.23	<0.010	0.37	0.57	2.2	<0.010	0.26	0.073
	--	RPD (%)	--		4	1	0	NA	NA	NA	NA	NA	NA	NA	NA	6	4	NA	NA	5	5	NA	0

Notes:  
NA - Not applicable if one or both sample results exhibit concentrations less than 5 times the RDL.  
**Bold** - Calculation is outside of the acceptable RPD range.  
FD - Field Duplicate  
RPD - Relative Percent Difference

TABLE D-4  
HARBORSIDE COMMERCIAL PARK  
LTMM GROUNDWATER MONITORING EVENT 2021  
RPD FOR FIELD DUPLICATES (GROUNDWATER) - INORGANIC CHEMISTRY

Sample Location	Sample ID	Type	Sample Date	Al	Sb	As	Ba	Be	Bi	B	Cd	Ca	Cr	Co	Cu	Fe	Pb	Mg	Mn
				ug/L															
SCU31-004-MW	FD-18	Field Duplicate	2021-12-10	<5.0	<1.0	<1.0	48	<0.10	<2.0	69	<0.010	140000	3.8	<0.40	0.72	<50	<0.50	1500	<2.0
	SCU31-004-MW	Regular	2021-12-10	<5.0	<1.0	<1.0	49	<0.10	<2.0	68	<0.010	140000	3.8	<0.40	0.66	<50	<0.50	1600	<2.0
	--	RPD (%)	--	--	NA	NA	NA	2	NA	NA	1	NA	0%	0	NA	NA	NA	NA	6

Sample Location	Sample ID	Type	Sample Date	Hg	Mo	Ni	P	K	Se	Ag	Na	Sr	Tl	Sn	Ti	U	V	Zn
				ug/L														
SCU31-004-MW	FD-18	Field Duplicate	2021-12-10	<0.013	6.9	<2.0	<100	11000	2.8	<0.10	26000	750	<0.10	<2.0	<2.0	0.22	5.5	<5.0
	SCU31-004-MW	Regular	2021-12-10	<0.013	6.9	<2.0	<100	11000	2.9	<0.10	26000	740	<0.10	<2.0	<2.0	0.23	5.3	<5.0
	--	RPD (%)	--	--	NA	0	NA	NA	0%	4	NA	0%	1	NA	NA	NA	0%	4

Notes:

NA - Not applicable if one or both sample results exhibit concentrations less than 5 times the RDL.

**Bold** - Calculation is outside of the acceptable RPD range.

FD - Field Duplicate

RPD - Relative Percent Difference

## Appendix D

### Laboratory Certificates and Mercury Hold Time Letter



Your Project #: 20-2862  
 Site Location: HCP  
 Your C.O.C. #: D59008

**Attention: Nadine Wambolt**

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

**Report Date: 2022/01/18**  
 Report #: R6966664  
 Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**BV LABS JOB #: C1AC196**

**Received: 2021/12/21, 16:45**

Sample Matrix: Water  
 # Samples Received: 1

Analyses	Quantity	Date	Date	Laboratory Method	Analytical Method
		Extracted	Analyzed		
Benzo(b/j)fluoranthene Sum (water) (1)	1	N/A	2022/01/05	N/A	Auto Calc.
TEH in Water (PIRI) (1)	1	2021/12/29	2021/12/30	ATL SOP 00113	Atl. RBCA v3.1 m
Mercury - Total (CVAA,LL) (1)	1	2022/01/17	2022/01/18	ATL SOP 00026	EPA 245.1 R3 m
Metals Water Diss. MS (as rec'd) (1)	1	N/A	2021/12/30	ATL SOP 00058	EPA 6020B R2 m
PAH in Water by GC/MS (SIM) (1)	1	2021/12/23	2021/12/31	ATL SOP 00103	EPA 8270E R6 m
ModTPH (T1) Calc. for Water (1)	1	N/A	2021/12/31	N/A	Atl. RBCA v3 m
VPH in Water (PIRI) (1)	1	N/A	2021/12/29	ATL SOP 00130	Atl. RBCA v3.1 m

**Remarks:**

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCC, EPA, APHA.

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

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas 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 Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

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

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

This Certificate shall not be reproduced except in full, without the written approval of the laboratory.

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

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

(1) This test was performed by Bureau Veritas Bedford, 200 Bluewater Rd Suite 105, Bedford, NS, B4B 1G9





Your Project #: 20-2862  
Site Location: HCP  
Your C.O.C. #: D59008

**Attention: Nadine Wambolt**

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

**Report Date: 2022/01/18**  
Report #: R6966664  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**BV LABS JOB #: C1AC196**  
**Received: 2021/12/21, 16:45**

Encryption Key

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

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



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Bureau Veritas Job #: C1AC196  
Report Date: 2022/01/18

Dillon Consulting Limited  
Client Project #: 20-2862  
Site Location: HCP  
Sampler Initials: MS

### MERCURY BY COLD VAPOUR AA (WATER)

<b>Bureau Veritas ID</b>		RLQ356		
<b>Sampling Date</b>		2021/12/21		
<b>COC Number</b>		D59008		
	<b>UNITS</b>	<b>MW20-3</b>	<b>RDL</b>	<b>QC Batch</b>
<b>Metals</b>				
Total Mercury (Hg)	ug/L	<0.013	0.013	7784437
RDL = Reportable Detection Limit QC Batch = Quality Control Batch				



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Bureau Veritas Job #: C1AC196  
Report Date: 2022/01/18

Dillon Consulting Limited  
Client Project #: 20-2862  
Site Location: HCP  
Sampler Initials: MS

### ELEMENTS BY ICP/MS (WATER)

Bureau Veritas ID		RLQ356		
Sampling Date		2021/12/21		
COC Number		D59008		
	UNITS	MW20-3	RDL	QC Batch
<b>Metals</b>				
Dissolved Aluminum (Al)	ug/L	240	5.0	7759564
Dissolved Antimony (Sb)	ug/L	<1.0	1.0	7759564
Dissolved Arsenic (As)	ug/L	2.8	1.0	7759564
Dissolved Barium (Ba)	ug/L	11	1.0	7759564
Dissolved Beryllium (Be)	ug/L	<0.10	0.10	7759564
Dissolved Bismuth (Bi)	ug/L	<2.0	2.0	7759564
Dissolved Boron (B)	ug/L	180	50	7759564
Dissolved Cadmium (Cd)	ug/L	<0.010	0.010	7759564
Dissolved Calcium (Ca)	ug/L	110000	100	7759564
Dissolved Chromium (Cr)	ug/L	1.7	1.0	7759564
Dissolved Cobalt (Co)	ug/L	<0.40	0.40	7759564
Dissolved Copper (Cu)	ug/L	1.9	0.50	7759564
Dissolved Iron (Fe)	ug/L	<50	50	7759564
Dissolved Lead (Pb)	ug/L	<0.50	0.50	7759564
Dissolved Magnesium (Mg)	ug/L	190	100	7759564
Dissolved Manganese (Mn)	ug/L	<2.0	2.0	7759564
Dissolved Molybdenum (Mo)	ug/L	16	2.0	7759564
Dissolved Nickel (Ni)	ug/L	<2.0	2.0	7759564
Dissolved Phosphorus (P)	ug/L	<100	100	7759564
Dissolved Potassium (K)	ug/L	27000	100	7759564
Dissolved Selenium (Se)	ug/L	3.5	0.50	7759564
Dissolved Silver (Ag)	ug/L	<0.10	0.10	7759564
Dissolved Sodium (Na)	ug/L	32000	100	7759564
Dissolved Strontium (Sr)	ug/L	1100	2.0	7759564
Dissolved Thallium (Tl)	ug/L	<0.10	0.10	7759564
Dissolved Tin (Sn)	ug/L	<2.0	2.0	7759564
Dissolved Titanium (Ti)	ug/L	<2.0	2.0	7759564
Dissolved Uranium (U)	ug/L	<0.10	0.10	7759564
Dissolved Vanadium (V)	ug/L	170	2.0	7759564
Dissolved Zinc (Zn)	ug/L	<5.0	5.0	7759564
RDL = Reportable Detection Limit				
QC Batch = Quality Control Batch				



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Bureau Veritas Job #: C1AC196  
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Dillon Consulting Limited  
Client Project #: 20-2862  
Site Location: HCP  
Sampler Initials: MS

### SEMI-VOLATILE ORGANICS BY GC-MS (WATER)

Bureau Veritas ID		RLQ356		
Sampling Date		2021/12/21		
COC Number		D59008		
	UNITS	MW20-3	RDL	QC Batch
<b>Polyaromatic Hydrocarbons</b>				
1-Methylnaphthalene	ug/L	0.22	0.050	7757785
2-Methylnaphthalene	ug/L	0.16	0.050	7757785
Acenaphthene	ug/L	0.11	0.010	7757785
Acenaphthylene	ug/L	0.14	0.010	7757785
Anthracene	ug/L	0.12	0.010	7757785
Benzo(a)anthracene	ug/L	0.016	0.010	7757785
Benzo(a)pyrene	ug/L	<0.010	0.010	7757785
Benzo(b)fluoranthene	ug/L	<0.010	0.010	7757785
Benzo(b/j)fluoranthene	ug/L	<0.020	0.020	7747801
Benzo(g,h,i)perylene	ug/L	<0.010	0.010	7757785
Benzo(j)fluoranthene	ug/L	<0.010	0.010	7757785
Benzo(k)fluoranthene	ug/L	<0.010	0.010	7757785
Chrysene	ug/L	0.019	0.010	7757785
Dibenzo(a,h)anthracene	ug/L	<0.010	0.010	7757785
Fluoranthene	ug/L	0.15	0.010	7757785
Fluorene	ug/L	0.21	0.010	7757785
Indeno(1,2,3-cd)pyrene	ug/L	<0.010	0.010	7757785
Naphthalene	ug/L	1.0	0.20	7757785
Perylene	ug/L	<0.010	0.010	7757785
Phenanthrene	ug/L	0.35	0.010	7757785
Pyrene	ug/L	0.084	0.010	7757785
<b>Surrogate Recovery (%)</b>				
D10-Anthracene	%	98		7757785
D14-Terphenyl	%	95		7757785
D8-Acenaphthylene	%	96		7757785
RDL = Reportable Detection Limit QC Batch = Quality Control Batch				



**ATLANTIC RBCA HYDROCARBONS (WATER)**

<b>Bureau Veritas ID</b>		RLQ356		
<b>Sampling Date</b>		2021/12/21		
<b>COC Number</b>		D59008		
	<b>UNITS</b>	<b>MW20-3</b>	<b>RDL</b>	<b>QC Batch</b>
<b>Petroleum Hydrocarbons</b>				
Benzene	mg/L	<0.0010	0.0010	7756779
Toluene	mg/L	<0.0010	0.0010	7756779
Ethylbenzene	mg/L	<0.0010	0.0010	7756779
Total Xylenes	mg/L	<0.0020	0.0020	7756779
C6 - C10 (less BTEX)	mg/L	<0.090	0.090	7756779
>C10-C16 Hydrocarbons	mg/L	<0.050	0.050	7757326
>C16-C21 Hydrocarbons	mg/L	<0.050	0.050	7757326
>C21-<C32 Hydrocarbons	mg/L	<0.090	0.090	7757326
Modified TPH (Tier1)	mg/L	<0.090	0.090	7749755
Reached Baseline at C32	mg/L	NA	N/A	7757326
Hydrocarbon Resemblance	mg/L	NA	N/A	7757326
<b>Surrogate Recovery (%)</b>				
Isobutylbenzene - Extractable	%	94		7757326
n-Dotriacontane - Extractable	%	104		7757326
Isobutylbenzene - Volatile	%	103		7756779
RDL = Reportable Detection Limit QC Batch = Quality Control Batch N/A = Not Applicable				



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Bureau Veritas Job #: C1AC196  
Report Date: 2022/01/18

Dillon Consulting Limited  
Client Project #: 20-2862  
Site Location: HCP  
Sampler Initials: MS

### GENERAL COMMENTS

Results relate only to the items tested.





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Bureau Veritas Job #: C1AC196  
Report Date: 2022/01/18

Dillon Consulting Limited  
Client Project #: 20-2862  
Site Location: HCP  
Sampler Initials: MS

### QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
7756779	THL	Matrix Spike	Isobutylbenzene - Volatile	2021/12/29		112	%	70 - 130
			Benzene	2021/12/29		88	%	70 - 130
			Toluene	2021/12/29		90	%	70 - 130
			Ethylbenzene	2021/12/29		93	%	70 - 130
			Total Xylenes	2021/12/29		92	%	70 - 130
7756779	THL	Spiked Blank	Isobutylbenzene - Volatile	2021/12/29		106	%	70 - 130
			Benzene	2021/12/29		92	%	70 - 130
			Toluene	2021/12/29		92	%	70 - 130
			Ethylbenzene	2021/12/29		92	%	70 - 130
			Total Xylenes	2021/12/29		92	%	70 - 130
7756779	THL	Method Blank	Isobutylbenzene - Volatile	2021/12/29		104	%	70 - 130
			Benzene	2021/12/29	<0.0010		mg/L	
			Toluene	2021/12/29	<0.0010		mg/L	
			Ethylbenzene	2021/12/29	<0.0010		mg/L	
			Total Xylenes	2021/12/29	<0.0020		mg/L	
			C6 - C10 (less BTEX)	2021/12/29	<0.090		mg/L	
7756779	THL	RPD	Benzene	2021/12/29	NC		%	40
			Toluene	2021/12/29	NC		%	40
			Ethylbenzene	2021/12/29	NC		%	40
			Total Xylenes	2021/12/29	NC		%	40
			C6 - C10 (less BTEX)	2021/12/29	NC		%	40
7757326	MGN	Matrix Spike	Isobutylbenzene - Extractable	2021/12/30		84	%	70 - 130
			n-Dotriacontane - Extractable	2021/12/30		100	%	70 - 130
			>C10-C16 Hydrocarbons	2021/12/30		87	%	70 - 130
			>C16-C21 Hydrocarbons	2021/12/30		84	%	70 - 130
			>C21-<C32 Hydrocarbons	2021/12/30		86	%	70 - 130
7757326	MGN	Spiked Blank	Isobutylbenzene - Extractable	2021/12/30		106	%	70 - 130
			n-Dotriacontane - Extractable	2021/12/30		117	%	70 - 130
			>C10-C16 Hydrocarbons	2021/12/30		108	%	70 - 130
			>C16-C21 Hydrocarbons	2021/12/30		96	%	70 - 130
			>C21-<C32 Hydrocarbons	2021/12/30		97	%	70 - 130
7757326	MGN	Method Blank	Isobutylbenzene - Extractable	2021/12/30		103	%	70 - 130
			n-Dotriacontane - Extractable	2021/12/30		110	%	70 - 130
			>C10-C16 Hydrocarbons	2021/12/30	<0.050		mg/L	
			>C16-C21 Hydrocarbons	2021/12/30	<0.050		mg/L	
7757326	MGN	RPD	>C21-<C32 Hydrocarbons	2021/12/30	<0.090		mg/L	
			>C10-C16 Hydrocarbons	2021/12/30	NC		%	40
			>C16-C21 Hydrocarbons	2021/12/30	29		%	40
7757785	LGE	Matrix Spike	>C21-<C32 Hydrocarbons	2021/12/30	NC		%	40
			D10-Anthracene	2021/12/31		103	%	50 - 130
			D14-Terphenyl	2021/12/31		102	%	50 - 130
7757785	LGE	Matrix Spike	D8-Acenaphthylene	2021/12/31		98	%	50 - 130
			1-Methylnaphthalene	2021/12/31		99	%	50 - 130
			2-Methylnaphthalene	2021/12/31		92	%	50 - 130
			Acenaphthene	2021/12/31		91	%	50 - 130
			Acenaphthylene	2021/12/31		99	%	50 - 130
			Anthracene	2021/12/31		91	%	50 - 130
			Benzo(a)anthracene	2021/12/31		85	%	50 - 130
			Benzo(a)pyrene	2021/12/31		87	%	50 - 130
			Benzo(b)fluoranthene	2021/12/31		89	%	50 - 130
			Benzo(g,h,i)perylene	2021/12/31		81	%	50 - 130
			Benzo(j)fluoranthene	2021/12/31		95	%	50 - 130
			Benzo(k)fluoranthene	2021/12/31		90	%	50 - 130



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Bureau Veritas Job #: C1AC196  
Report Date: 2022/01/18

Dillon Consulting Limited  
Client Project #: 20-2862  
Site Location: HCP  
Sampler Initials: MS

### QUALITY ASSURANCE REPORT(CONT'D)

QA/QC	Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
				Chrysene	2021/12/31		93	%	50 - 130
				Dibenzo(a,h)anthracene	2021/12/31		82	%	50 - 130
				Fluoranthene	2021/12/31		91	%	50 - 130
				Fluorene	2021/12/31		97	%	50 - 130
				Indeno(1,2,3-cd)pyrene	2021/12/31		80	%	50 - 130
				Naphthalene	2021/12/31		93	%	50 - 130
				Perylene	2021/12/31		93	%	50 - 130
				Phenanthrene	2021/12/31		97	%	50 - 130
				Pyrene	2021/12/31		95	%	50 - 130
7757785	LGE		Spiked Blank	D10-Anthracene	2021/12/31		104	%	50 - 130
				D14-Terphenyl	2021/12/31		102	%	50 - 130
				D8-Acenaphthylene	2021/12/31		99	%	50 - 130
				1-Methylnaphthalene	2021/12/31		108	%	50 - 130
				2-Methylnaphthalene	2021/12/31		101	%	50 - 130
				Acenaphthene	2021/12/31		99	%	50 - 130
				Acenaphthylene	2021/12/31		102	%	50 - 130
				Anthracene	2021/12/31		94	%	50 - 130
				Benzo(a)anthracene	2021/12/31		86	%	50 - 130
				Benzo(a)pyrene	2021/12/31		95	%	50 - 130
				Benzo(b)fluoranthene	2021/12/31		92	%	50 - 130
				Benzo(g,h,i)perylene	2021/12/31		91	%	50 - 130
				Benzo(j)fluoranthene	2021/12/31		98	%	50 - 130
				Benzo(k)fluoranthene	2021/12/31		93	%	50 - 130
				Chrysene	2021/12/31		97	%	50 - 130
				Dibenzo(a,h)anthracene	2021/12/31		85	%	50 - 130
				Fluoranthene	2021/12/31		93	%	50 - 130
				Fluorene	2021/12/31		101	%	50 - 130
				Indeno(1,2,3-cd)pyrene	2021/12/31		88	%	50 - 130
				Naphthalene	2021/12/31		100	%	50 - 130
				Perylene	2021/12/31		98	%	50 - 130
				Phenanthrene	2021/12/31		106	%	50 - 130
				Pyrene	2021/12/31		96	%	50 - 130
7757785	LGE		Method Blank	D10-Anthracene	2021/12/31		95	%	50 - 130
				D14-Terphenyl	2021/12/31		97	%	50 - 130
				D8-Acenaphthylene	2021/12/31		94	%	50 - 130
				1-Methylnaphthalene	2021/12/31	<0.050		ug/L	
				2-Methylnaphthalene	2021/12/31	<0.050		ug/L	
				Acenaphthene	2021/12/31	<0.010		ug/L	
				Acenaphthylene	2021/12/31	<0.010		ug/L	
				Anthracene	2021/12/31	<0.010		ug/L	
				Benzo(a)anthracene	2021/12/31	<0.010		ug/L	
				Benzo(a)pyrene	2021/12/31	<0.010		ug/L	
				Benzo(b)fluoranthene	2021/12/31	<0.010		ug/L	
				Benzo(g,h,i)perylene	2021/12/31	<0.010		ug/L	
				Benzo(j)fluoranthene	2021/12/31	<0.010		ug/L	
				Benzo(k)fluoranthene	2021/12/31	<0.010		ug/L	
				Chrysene	2021/12/31	<0.010		ug/L	
				Dibenzo(a,h)anthracene	2021/12/31	<0.010		ug/L	
				Fluoranthene	2021/12/31	<0.010		ug/L	
				Fluorene	2021/12/31	<0.010		ug/L	
				Indeno(1,2,3-cd)pyrene	2021/12/31	<0.010		ug/L	
				Naphthalene	2021/12/31	<0.20		ug/L	
				Perylene	2021/12/31	<0.010		ug/L	



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Bureau Veritas Job #: C1AC196  
Report Date: 2022/01/18

Dillon Consulting Limited  
Client Project #: 20-2862  
Site Location: HCP  
Sampler Initials: MS

### QUALITY ASSURANCE REPORT(CONT'D)

QA/QC	Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
				Phenanthrene	2021/12/31	<0.010		ug/L	
				Pyrene	2021/12/31	<0.010		ug/L	
7757785	LGE	RPD		1-Methylnaphthalene	2021/12/31	8.8		%	40
				2-Methylnaphthalene	2021/12/31	NC		%	40
				Acenaphthene	2021/12/31	10		%	40
				Acenaphthylene	2021/12/31	1.0		%	40
				Anthracene	2021/12/31	NC		%	40
				Benzo(a)anthracene	2021/12/31	NC		%	40
				Benzo(a)pyrene	2021/12/31	NC		%	40
				Benzo(b)fluoranthene	2021/12/31	NC		%	40
				Benzo(g,h,i)perylene	2021/12/31	NC		%	40
				Benzo(j)fluoranthene	2021/12/31	NC		%	40
				Benzo(k)fluoranthene	2021/12/31	NC		%	40
				Chrysene	2021/12/31	NC		%	40
				Dibenzo(a,h)anthracene	2021/12/31	NC		%	40
				Fluoranthene	2021/12/31	9.9		%	40
				Fluorene	2021/12/31	11		%	40
				Indeno(1,2,3-cd)pyrene	2021/12/31	NC		%	40
				Naphthalene	2021/12/31	NC		%	40
				Perylene	2021/12/31	NC		%	40
				Phenanthrene	2021/12/31	0		%	40
				Pyrene	2021/12/31	10		%	40
7759564	BAN	Matrix Spike		Dissolved Aluminum (Al)	2021/12/30		110	%	80 - 120
				Dissolved Antimony (Sb)	2021/12/30		103	%	80 - 120
				Dissolved Arsenic (As)	2021/12/30		99	%	80 - 120
				Dissolved Barium (Ba)	2021/12/30		99	%	80 - 120
				Dissolved Beryllium (Be)	2021/12/30		102	%	80 - 120
				Dissolved Bismuth (Bi)	2021/12/30		101	%	80 - 120
				Dissolved Boron (B)	2021/12/30		100	%	80 - 120
				Dissolved Cadmium (Cd)	2021/12/30		103	%	80 - 120
				Dissolved Calcium (Ca)	2021/12/30		100	%	80 - 120
				Dissolved Chromium (Cr)	2021/12/30		103	%	80 - 120
				Dissolved Cobalt (Co)	2021/12/30		103	%	80 - 120
				Dissolved Copper (Cu)	2021/12/30		102	%	80 - 120
				Dissolved Iron (Fe)	2021/12/30		100	%	80 - 120
				Dissolved Lead (Pb)	2021/12/30		105	%	80 - 120
				Dissolved Magnesium (Mg)	2021/12/30		107	%	80 - 120
				Dissolved Manganese (Mn)	2021/12/30		105	%	80 - 120
				Dissolved Molybdenum (Mo)	2021/12/30		104	%	80 - 120
				Dissolved Nickel (Ni)	2021/12/30		104	%	80 - 120
				Dissolved Phosphorus (P)	2021/12/30		106	%	80 - 120
				Dissolved Potassium (K)	2021/12/30		102	%	80 - 120
				Dissolved Selenium (Se)	2021/12/30		104	%	80 - 120
				Dissolved Silver (Ag)	2021/12/30		103	%	80 - 120
				Dissolved Sodium (Na)	2021/12/30		104	%	80 - 120
				Dissolved Strontium (Sr)	2021/12/30		101	%	80 - 120
				Dissolved Thallium (Tl)	2021/12/30		103	%	80 - 120
				Dissolved Tin (Sn)	2021/12/30		104	%	80 - 120
				Dissolved Titanium (Ti)	2021/12/30		103	%	80 - 120
				Dissolved Uranium (U)	2021/12/30		109	%	80 - 120
				Dissolved Vanadium (V)	2021/12/30		107	%	80 - 120
				Dissolved Zinc (Zn)	2021/12/30		104	%	80 - 120
7759564	BAN	Spiked Blank		Dissolved Aluminum (Al)	2021/12/30		102	%	80 - 120



BUREAU  
VERITAS

Bureau Veritas Job #: C1AC196  
Report Date: 2022/01/18

Dillon Consulting Limited  
Client Project #: 20-2862  
Site Location: HCP  
Sampler Initials: MS

### QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Dissolved Antimony (Sb)	2021/12/30		100	%	80 - 120
			Dissolved Arsenic (As)	2021/12/30		97	%	80 - 120
			Dissolved Barium (Ba)	2021/12/30		100	%	80 - 120
			Dissolved Beryllium (Be)	2021/12/30		102	%	80 - 120
			Dissolved Bismuth (Bi)	2021/12/30		102	%	80 - 120
			Dissolved Boron (B)	2021/12/30		102	%	80 - 120
			Dissolved Cadmium (Cd)	2021/12/30		100	%	80 - 120
			Dissolved Calcium (Ca)	2021/12/30		102	%	80 - 120
			Dissolved Chromium (Cr)	2021/12/30		101	%	80 - 120
			Dissolved Cobalt (Co)	2021/12/30		101	%	80 - 120
			Dissolved Copper (Cu)	2021/12/30		102	%	80 - 120
			Dissolved Iron (Fe)	2021/12/30		100	%	80 - 120
			Dissolved Lead (Pb)	2021/12/30		104	%	80 - 120
			Dissolved Magnesium (Mg)	2021/12/30		107	%	80 - 120
			Dissolved Manganese (Mn)	2021/12/30		104	%	80 - 120
			Dissolved Molybdenum (Mo)	2021/12/30		102	%	80 - 120
			Dissolved Nickel (Ni)	2021/12/30		102	%	80 - 120
			Dissolved Phosphorus (P)	2021/12/30		106	%	80 - 120
			Dissolved Potassium (K)	2021/12/30		102	%	80 - 120
			Dissolved Selenium (Se)	2021/12/30		101	%	80 - 120
			Dissolved Silver (Ag)	2021/12/30		101	%	80 - 120
			Dissolved Sodium (Na)	2021/12/30		102	%	80 - 120
			Dissolved Strontium (Sr)	2021/12/30		100	%	80 - 120
			Dissolved Thallium (Tl)	2021/12/30		102	%	80 - 120
			Dissolved Tin (Sn)	2021/12/30		102	%	80 - 120
			Dissolved Titanium (Ti)	2021/12/30		104	%	80 - 120
			Dissolved Uranium (U)	2021/12/30		109	%	80 - 120
			Dissolved Vanadium (V)	2021/12/30		105	%	80 - 120
			Dissolved Zinc (Zn)	2021/12/30		102	%	80 - 120
7759564	BAN	Method Blank	Dissolved Aluminum (Al)	2021/12/30	<5.0		ug/L	
			Dissolved Antimony (Sb)	2021/12/30	<1.0		ug/L	
			Dissolved Arsenic (As)	2021/12/30	<1.0		ug/L	
			Dissolved Barium (Ba)	2021/12/30	<1.0		ug/L	
			Dissolved Beryllium (Be)	2021/12/30	<0.10		ug/L	
			Dissolved Bismuth (Bi)	2021/12/30	<2.0		ug/L	
			Dissolved Boron (B)	2021/12/30	<50		ug/L	
			Dissolved Cadmium (Cd)	2021/12/30	<0.010		ug/L	
			Dissolved Calcium (Ca)	2021/12/30	<100		ug/L	
			Dissolved Chromium (Cr)	2021/12/30	<1.0		ug/L	
			Dissolved Cobalt (Co)	2021/12/30	<0.40		ug/L	
			Dissolved Copper (Cu)	2021/12/30	<0.50		ug/L	
			Dissolved Iron (Fe)	2021/12/30	<50		ug/L	
			Dissolved Lead (Pb)	2021/12/30	<0.50		ug/L	
			Dissolved Magnesium (Mg)	2021/12/30	<100		ug/L	
			Dissolved Manganese (Mn)	2021/12/30	<2.0		ug/L	
			Dissolved Molybdenum (Mo)	2021/12/30	<2.0		ug/L	
			Dissolved Nickel (Ni)	2021/12/30	<2.0		ug/L	
			Dissolved Phosphorus (P)	2021/12/30	<100		ug/L	
			Dissolved Potassium (K)	2021/12/30	<100		ug/L	
			Dissolved Selenium (Se)	2021/12/30	<0.50		ug/L	
			Dissolved Silver (Ag)	2021/12/30	<0.10		ug/L	
			Dissolved Sodium (Na)	2021/12/30	<100		ug/L	
			Dissolved Strontium (Sr)	2021/12/30	<2.0		ug/L	



QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Dissolved Thallium (Tl)	2021/12/30	<0.10		ug/L	
			Dissolved Tin (Sn)	2021/12/30	<2.0		ug/L	
			Dissolved Titanium (Ti)	2021/12/30	<2.0		ug/L	
			Dissolved Uranium (U)	2021/12/30	<0.10		ug/L	
			Dissolved Vanadium (V)	2021/12/30	<2.0		ug/L	
			Dissolved Zinc (Zn)	2021/12/30	<5.0		ug/L	
7759564	BAN	RPD	Dissolved Aluminum (Al)	2021/12/30	3.7		%	20
			Dissolved Antimony (Sb)	2021/12/30	NC		%	20
			Dissolved Arsenic (As)	2021/12/30	NC		%	20
			Dissolved Barium (Ba)	2021/12/30	0.13		%	20
			Dissolved Beryllium (Be)	2021/12/30	NC		%	20
			Dissolved Bismuth (Bi)	2021/12/30	NC		%	20
			Dissolved Boron (B)	2021/12/30	NC		%	20
			Dissolved Cadmium (Cd)	2021/12/30	2.3		%	20
			Dissolved Calcium (Ca)	2021/12/30	0.088		%	20
			Dissolved Chromium (Cr)	2021/12/30	NC		%	20
			Dissolved Cobalt (Co)	2021/12/30	NC		%	20
			Dissolved Copper (Cu)	2021/12/30	1.7		%	20
			Dissolved Iron (Fe)	2021/12/30	NC		%	20
			Dissolved Lead (Pb)	2021/12/30	2.3		%	20
			Dissolved Magnesium (Mg)	2021/12/30	0.56		%	20
			Dissolved Manganese (Mn)	2021/12/30	2.0		%	20
			Dissolved Molybdenum (Mo)	2021/12/30	NC		%	20
			Dissolved Nickel (Ni)	2021/12/30	NC		%	20
			Dissolved Phosphorus (P)	2021/12/30	NC		%	20
			Dissolved Potassium (K)	2021/12/30	1.1		%	20
			Dissolved Selenium (Se)	2021/12/30	NC		%	20
			Dissolved Silver (Ag)	2021/12/30	NC		%	20
			Dissolved Sodium (Na)	2021/12/30	1.3		%	20
			Dissolved Strontium (Sr)	2021/12/30	3.5		%	20
			Dissolved Thallium (Tl)	2021/12/30	NC		%	20
			Dissolved Tin (Sn)	2021/12/30	NC		%	20
			Dissolved Titanium (Ti)	2021/12/30	NC		%	20
			Dissolved Uranium (U)	2021/12/30	NC		%	20
			Dissolved Vanadium (V)	2021/12/30	NC		%	20
			Dissolved Zinc (Zn)	2021/12/30	NC		%	20
7784437	FJO	Matrix Spike	Total Mercury (Hg)	2022/01/18		97	%	80 - 120
7784437	FJO	Spiked Blank	Total Mercury (Hg)	2022/01/18		95	%	80 - 120
7784437	FJO	Method Blank	Total Mercury (Hg)	2022/01/18	<0.013		ug/L	
7784437	FJO	RPD	Total Mercury (Hg)	2022/01/18	8.0		%	20

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.

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



BUREAU  
VERITAS

Bureau Veritas Job #: C1AC196  
Report Date: 2022/01/18

Dillon Consulting Limited  
Client Project #: 20-2862  
Site Location: HCP  
Sampler Initials: MS

### VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:

---

Mike MacGillivray, Scientific Specialist (Inorganics)

---

Rosemarie MacDonald, Scientific Specialist (Organics)



Bureau Veritas Proprietary Software  
Logiciel Propriétaire de Bureau Veritas

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Automated Statchk

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Your Project #: 20-2862  
 Site Location: HCP  
 Your C.O.C. #: D59007

**Attention: Nadine Wambolt**

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

**Report Date: 2022/01/31**  
 Report #: R6983411  
 Version: 2 - Revision

**CERTIFICATE OF ANALYSIS – REVISED REPORT**

**BV LABS JOB #: C1AF610**

**Received: 2021/12/10, 16:50**

Sample Matrix: Water  
 # Samples Received: 7

Analyses	Quantity	Date	Date	Laboratory Method	Analytical Method
		Extracted	Analyzed		
Benzo(b/j)fluoranthene Sum (water) (1)	6	N/A	2021/12/30	N/A	Auto Calc.
TEH in Water (PIRI) (1)	7	2021/12/15	2021/12/16	ATL SOP 00113	Atl. RBCA v3.1 m
Mercury - Total (CVAA,LL) (1)	1	2022/01/10	2022/01/10	ATL SOP 00026	EPA 245.1 R3 m
Mercury - Total (CVAA,LL) (1)	2	2022/01/12	2022/01/12	ATL SOP 00026	EPA 245.1 R3 m
Mercury - Total (CVAA,LL) (1)	1	2022/01/12	2022/01/13	ATL SOP 00026	EPA 245.1 R3 m
Mercury - Total (CVAA,LL) (1)	2	2022/01/05	2022/01/05	ATL SOP 00026	EPA 245.1 R3 m
Metals Water Diss. MS (as rec'd) (1)	4	N/A	2022/01/04	ATL SOP 00058	EPA 6020B R2 m
Metals Water Diss. MS (as rec'd) (1)	2	N/A	2021/12/31	ATL SOP 00058	EPA 6020B R2 m
PAH in Water by GC/MS (SIM) (1)	5	2021/12/17	2021/12/26	ATL SOP 00103	EPA 8270E R6 m
PAH in Water by GC/MS (SIM) (1)	1	2021/12/17	2021/12/29	ATL SOP 00103	EPA 8270E R6 m
ModTPH (T1) Calc. for Water (1)	7	N/A	2021/12/30	N/A	Atl. RBCA v3 m
VPH in Water (PIRI) (1)	7	N/A	2021/12/17	ATL SOP 00130	Atl. RBCA v3.1 m

**Remarks:**

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCC, EPA, APHA.

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

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas 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 Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

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

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

This Certificate shall not be reproduced except in full, without the written approval of the laboratory.

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



Your Project #: 20-2862  
Site Location: HCP  
Your C.O.C. #: D59007

**Attention: Nadine Wambolt**

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

**Report Date: 2022/01/31**  
Report #: R6983411  
Version: 2 - Revision

**CERTIFICATE OF ANALYSIS – REVISED REPORT**

**BV LABS JOB #: C1AF610**

**Received: 2021/12/10, 16:50**

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

(1) This test was performed by Bureau Veritas Bedford, 200 Bluewater Rd Suite 105, Bedford, NS, B4B 1G9

**Encryption Key**

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Natalie MacAskill, Key Account Specialist

Email: Natalie.MacAskill@bureauveritas.com

Phone# (902)567-1255 Ext:17

=====  
BV Labs has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation please refer to the Validation Signature Page.



**MERCURY BY COLD VAPOUR AA (WATER)**

<b>Bureau Veritas ID</b>		RMN127		RMN138	RMN139		RMN140		
<b>Sampling Date</b>		2021/12/10		2021/12/10	2021/12/10		2021/12/10		
<b>COC Number</b>		D59007		D59007	D59007		D59007		
<b>Sample #</b>		DEC10-62		DEC10-63	DEC10-64		DEC10-65		
	<b>UNITS</b>	<b>SCU10-001-MW</b>	<b>QC Batch</b>	<b>SCU10-004-MW</b>	<b>SCU26-200-MW</b>	<b>QC Batch</b>	<b>SCU31-002-MWB</b>	<b>RDL</b>	<b>QC Batch</b>

<b>Metals</b>									
Total Mercury (Hg)	ug/L	<0.013 (1)	777257	<0.013	<0.013	7763841	<0.013 (1)	0.013	7772542
RDL = Reportable Detection Limit QC Batch = Quality Control Batch (1) Mercury analyzed past recommended hold time.									

<b>Bureau Veritas ID</b>		RMN141		RMN142		
<b>Sampling Date</b>		2021/12/10		2021/12/10		
<b>COC Number</b>		D59007		D59007		
<b>Sample #</b>		DEC10-66		DEC10-67		
	<b>UNITS</b>	<b>SCU31-004-MW</b>	<b>QC Batch</b>	<b>FD-18</b>	<b>RDL</b>	<b>QC Batch</b>

<b>Metals</b>						
Total Mercury (Hg)	ug/L	<0.013 (1)	7772542	<0.013 (1)	0.013	7767168
RDL = Reportable Detection Limit QC Batch = Quality Control Batch (1) Mercury analyzed past recommended hold time.						



BUREAU  
VERITAS

Bureau Veritas Job #: C1AF610  
Report Date: 2022/01/31

Dillon Consulting Limited  
Client Project #: 20-2862  
Site Location: HCP  
Sampler Initials: MS

### ELEMENTS BY ICP/MS (WATER)

Bureau Veritas ID		RMN127	RMN138	RMN139			RMN140		
Sampling Date		2021/12/10	2021/12/10	2021/12/10			2021/12/10		
COC Number		D59007	D59007	D59007			D59007		
Sample #		DEC10-62	DEC10-63	DEC10-64			DEC10-65		
	UNITS	SCU10-001-MW	SCU10-004-MW	SCU26-200-MW	RDL	QC Batch	SCU31-002-MWB	RDL	QC Batch

Metals									
Dissolved Aluminum (Al)	ug/L	<5.0	8.2	43	5.0	7762792	11	5.0	7761181
Dissolved Antimony (Sb)	ug/L	1.8	1.4	<1.0	1.0	7762792	<1.0	1.0	7761181
Dissolved Arsenic (As)	ug/L	2.2	7.8	<1.0	1.0	7762792	1.4	1.0	7761181
Dissolved Barium (Ba)	ug/L	22	50	1000	1.0	7762792	22	1.0	7761181
Dissolved Beryllium (Be)	ug/L	<0.10	<0.10	<0.10	0.10	7762792	<0.10	0.10	7761181
Dissolved Bismuth (Bi)	ug/L	<2.0	<2.0	<2.0	2.0	7762792	<2.0	2.0	7761181
Dissolved Boron (B)	ug/L	75	62	<50	50	7762792	530	50	7761181
Dissolved Cadmium (Cd)	ug/L	<0.010	0.017	0.42	0.010	7762792	0.012	0.010	7761181
Dissolved Calcium (Ca)	ug/L	68000	100000	650000	100	7762792	440000	100	7761181
Dissolved Chromium (Cr)	ug/L	1.0	<1.0	<1.0	1.0	7762792	<1.0	1.0	7761181
Dissolved Cobalt (Co)	ug/L	<0.40	<0.40	<0.40	0.40	7762792	<0.40	0.40	7761181
Dissolved Copper (Cu)	ug/L	<0.50	1.5	<0.50	0.50	7762792	<0.50	0.50	7761181
Dissolved Iron (Fe)	ug/L	<50	<50	<50	50	7762792	120	50	7761181
Dissolved Lead (Pb)	ug/L	<0.50	<0.50	<0.50	0.50	7762792	<0.50	0.50	7761181
Dissolved Magnesium (Mg)	ug/L	4600	4800	<100	100	7762792	95000	100	7761181
Dissolved Manganese (Mn)	ug/L	<2.0	45	2.2	2.0	7762792	510	2.0	7761181
Dissolved Molybdenum (Mo)	ug/L	2.2	4.4	5.9	2.0	7762792	3.1	2.0	7761181
Dissolved Nickel (Ni)	ug/L	<2.0	<2.0	2.1	2.0	7762792	<2.0	2.0	7761181
Dissolved Phosphorus (P)	ug/L	<100	<100	<100	100	7762792	<100	100	7761181
Dissolved Potassium (K)	ug/L	3000	8500	25000	100	7762792	19000	100	7761181
Dissolved Selenium (Se)	ug/L	2.7	1.4	0.52	0.50	7762792	<0.50	0.50	7761181
Dissolved Silver (Ag)	ug/L	<0.10	<0.10	<0.10	0.10	7762792	<0.10	0.10	7761181
Dissolved Sodium (Na)	ug/L	28000	100000	91000	100	7762792	1400000	1000	7761181
Dissolved Strontium (Sr)	ug/L	280	540	2700	2.0	7762792	16000	20	7761181
Dissolved Thallium (Tl)	ug/L	<0.10	<0.10	<0.10	0.10	7762792	<0.10	0.10	7761181
Dissolved Tin (Sn)	ug/L	<2.0	<2.0	<2.0	2.0	7762792	<2.0	2.0	7761181
Dissolved Titanium (Ti)	ug/L	<2.0	<2.0	<2.0	2.0	7762792	<2.0	2.0	7761181
Dissolved Uranium (U)	ug/L	1.6	0.93	<0.10	0.10	7762792	6.5	0.10	7761181
Dissolved Vanadium (V)	ug/L	3.3	12	<2.0	2.0	7762792	<2.0	2.0	7761181
Dissolved Zinc (Zn)	ug/L	<5.0	<5.0	<5.0	5.0	7762792	<5.0	5.0	7761181

RDL = Reportable Detection Limit  
QC Batch = Quality Control Batch



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Bureau Veritas Job #: C1AF610  
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Dillon Consulting Limited  
Client Project #: 20-2862  
Site Location: HCP  
Sampler Initials: MS

### ELEMENTS BY ICP/MS (WATER)

Bureau Veritas ID		RMN141	RMN142		
Sampling Date		2021/12/10	2021/12/10		
COC Number		D59007	D59007		
Sample #		DEC10-66	DEC10-67		
	<b>UNITS</b>	<b>SCU31-004-MW</b>	<b>FD-18</b>	<b>RDL</b>	<b>QC Batch</b>
<b>Metals</b>					
Dissolved Aluminum (Al)	ug/L	<5.0	<5.0	5.0	7761181
Dissolved Antimony (Sb)	ug/L	<1.0	<1.0	1.0	7761181
Dissolved Arsenic (As)	ug/L	<1.0	<1.0	1.0	7761181
Dissolved Barium (Ba)	ug/L	49	48	1.0	7761181
Dissolved Beryllium (Be)	ug/L	<0.10	<0.10	0.10	7761181
Dissolved Bismuth (Bi)	ug/L	<2.0	<2.0	2.0	7761181
Dissolved Boron (B)	ug/L	68	69	50	7761181
Dissolved Cadmium (Cd)	ug/L	<0.010	<0.010	0.010	7761181
Dissolved Calcium (Ca)	ug/L	140000	140000	100	7761181
Dissolved Chromium (Cr)	ug/L	3.8	3.8	1.0	7761181
Dissolved Cobalt (Co)	ug/L	<0.40	<0.40	0.40	7761181
Dissolved Copper (Cu)	ug/L	0.66	0.72	0.50	7761181
Dissolved Iron (Fe)	ug/L	<50	<50	50	7761181
Dissolved Lead (Pb)	ug/L	<0.50	<0.50	0.50	7761181
Dissolved Magnesium (Mg)	ug/L	1600	1500	100	7761181
Dissolved Manganese (Mn)	ug/L	<2.0	<2.0	2.0	7761181
Dissolved Molybdenum (Mo)	ug/L	6.9	6.9	2.0	7761181
Dissolved Nickel (Ni)	ug/L	<2.0	<2.0	2.0	7761181
Dissolved Phosphorus (P)	ug/L	<100	<100	100	7761181
Dissolved Potassium (K)	ug/L	11000	11000	100	7761181
Dissolved Selenium (Se)	ug/L	2.9	2.8	0.50	7761181
Dissolved Silver (Ag)	ug/L	<0.10	<0.10	0.10	7761181
Dissolved Sodium (Na)	ug/L	26000	26000	100	7761181
Dissolved Strontium (Sr)	ug/L	740	750	2.0	7761181
Dissolved Thallium (Tl)	ug/L	<0.10	<0.10	0.10	7761181
Dissolved Tin (Sn)	ug/L	<2.0	<2.0	2.0	7761181
Dissolved Titanium (Ti)	ug/L	<2.0	<2.0	2.0	7761181
Dissolved Uranium (U)	ug/L	0.23	0.22	0.10	7761181
Dissolved Vanadium (V)	ug/L	5.3	5.5	2.0	7761181
Dissolved Zinc (Zn)	ug/L	<5.0	<5.0	5.0	7761181
RDL = Reportable Detection Limit					
QC Batch = Quality Control Batch					



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### SEMI-VOLATILE ORGANICS BY GC-MS (WATER)

Bureau Veritas ID		RMN127		RMN138		RMN139	RMN140		
Sampling Date		2021/12/10		2021/12/10		2021/12/10	2021/12/10		
COC Number		D59007		D59007		D59007	D59007		
Sample #		DEC10-62		DEC10-63		DEC10-64	DEC10-65		
	UNITS	SCU10-001-MW	RDL	SCU10-004-MW	RDL	SCU26-200-MW	SCU31-002-MWB	RDL	QC Batch
<b>Polyaromatic Hydrocarbons</b>									
1-Methylnaphthalene	ug/L	<0.050	0.050	170 (1)	0.50	3.1	<0.050	0.050	7745968
2-Methylnaphthalene	ug/L	<0.050	0.050	59 (1)	0.50	2.9	<0.050	0.050	7745968
Acenaphthene	ug/L	<0.010	0.010	95 (1)	0.10	1.0	<0.010	0.010	7745968
Acenaphthylene	ug/L	<0.010	0.010	14	0.010	2.5	<0.010	0.010	7745968
Anthracene	ug/L	<0.010	0.010	35	0.010	0.74	<0.010	0.010	7745968
Benzo(a)anthracene	ug/L	<0.010	0.010	7.4	0.010	0.052	<0.010	0.010	7745968
Benzo(a)pyrene	ug/L	<0.010	0.010	4.4	0.010	0.016	<0.010	0.010	7745968
Benzo(b)fluoranthene	ug/L	<0.010	0.010	3.6	0.010	0.015	<0.010	0.010	7745968
Benzo(b/j)fluoranthene	ug/L	<0.020	0.020	6.0	0.020	0.027	<0.020	0.020	7757297
Benzo(g,h,i)perylene	ug/L	<0.010	0.010	2.0	0.010	<0.010	<0.010	0.010	7745968
Benzo(j)fluoranthene	ug/L	<0.010	0.010	2.4	0.010	0.011	<0.010	0.010	7745968
Benzo(k)fluoranthene	ug/L	<0.010	0.010	2.3	0.010	<0.010	<0.010	0.010	7745968
Chrysene	ug/L	<0.010	0.010	6.1	0.010	0.048	<0.010	0.010	7745968
Dibenzo(a,h)anthracene	ug/L	<0.010	0.010	0.56	0.010	<0.010	<0.010	0.010	7745968
Fluoranthene	ug/L	<0.010	0.010	20	0.010	0.87	0.013	0.010	7745968
Fluorene	ug/L	<0.010	0.010	60 (1)	0.10	1.4	<0.010	0.010	7745968
Indeno(1,2,3-cd)pyrene	ug/L	<0.010	0.010	1.7	0.010	<0.010	<0.010	0.010	7745968
Naphthalene	ug/L	<0.20	0.20	34	0.20	19	<0.20	0.20	7745968
Perylene	ug/L	<0.010	0.010	1.0	0.010	<0.010	<0.010	0.010	7745968
Phenanthrene	ug/L	<0.010	0.010	31	0.010	3.5	0.014	0.010	7745968
Pyrene	ug/L	<0.010	0.010	15	0.010	0.52	0.011	0.010	7745968
<b>Surrogate Recovery (%)</b>									
D10-Anthracene	%	101		89		107	97		7745968
D14-Terphenyl	%	100		104		111	103		7745968
D8-Acenaphthylene	%	106		89		112	101		7745968
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)

Bureau Veritas ID		RMN141	RMN142		
Sampling Date		2021/12/10	2021/12/10		
COC Number		D59007	D59007		
Sample #		DEC10-66	DEC10-67		
	UNITS	SCU31-004-MW	FD-18	RDL	QC Batch
<b>Polyaromatic Hydrocarbons</b>					
1-Methylnaphthalene	ug/L	0.37	0.36	0.050	7745968
2-Methylnaphthalene	ug/L	0.57	0.54	0.050	7745968
Acenaphthene	ug/L	0.29	0.28	0.010	7745968
Acenaphthylene	ug/L	0.073	0.072	0.010	7745968
Anthracene	ug/L	0.055	0.055	0.010	7745968
Benzo(a)anthracene	ug/L	0.012	0.012	0.010	7745968
Benzo(a)pyrene	ug/L	<0.010	<0.010	0.010	7745968
Benzo(b)fluoranthene	ug/L	<0.010	<0.010	0.010	7745968
Benzo(b/j)fluoranthene	ug/L	<0.020	<0.020	0.020	7757297
Benzo(g,h,i)perylene	ug/L	<0.010	<0.010	0.010	7745968
Benzo(j)fluoranthene	ug/L	<0.010	<0.010	0.010	7745968
Benzo(k)fluoranthene	ug/L	<0.010	<0.010	0.010	7745968
Chrysene	ug/L	0.017	0.015	0.010	7745968
Dibenzo(a,h)anthracene	ug/L	<0.010	<0.010	0.010	7745968
Fluoranthene	ug/L	0.068	0.064	0.010	7745968
Fluorene	ug/L	0.23	0.22	0.010	7745968
Indeno(1,2,3-cd)pyrene	ug/L	<0.010	<0.010	0.010	7745968
Naphthalene	ug/L	2.2	2.1	0.20	7745968
Perylene	ug/L	<0.010	<0.010	0.010	7745968
Phenanthrene	ug/L	0.26	0.26	0.010	7745968
Pyrene	ug/L	0.073	0.071	0.010	7745968
<b>Surrogate Recovery (%)</b>					
D10-Anthracene	%	97	93		7745968
D14-Terphenyl	%	103	101		7745968
D8-Acenaphthylene	%	106	102		7745968
RDL = Reportable Detection Limit QC Batch = Quality Control Batch					



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Dillon Consulting Limited  
Client Project #: 20-2862  
Site Location: HCP  
Sampler Initials: MS

### ATLANTIC RBCA HYDROCARBONS (WATER)

Bureau Veritas ID		RMN127		RMN138		RMN139	RMN140		
Sampling Date		2021/12/10		2021/12/10		2021/12/10	2021/12/10		
COC Number		D59007		D59007		D59007	D59007		
Sample #		DEC10-62		DEC10-63		DEC10-64	DEC10-65		
	<b>UNITS</b>	<b>SCU10-001-MW</b>	<b>RDL</b>	<b>SCU10-004-MW</b>	<b>RDL</b>	<b>SCU26-200-MW</b>	<b>SCU31-002-MWB</b>	<b>RDL</b>	<b>QC Batch</b>

Petroleum Hydrocarbons									
Benzene	mg/L	<0.0010	0.0010	0.054	0.0010	0.022	<0.0010	0.0010	7735240
Toluene	mg/L	<0.0010	0.0010	0.058	0.0010	0.010	<0.0010	0.0010	7735240
Ethylbenzene	mg/L	<0.0010	0.0010	0.034	0.0010	<0.0010	<0.0010	0.0010	7735240
Total Xylenes	mg/L	<0.0020	0.0020	0.15	0.0020	0.0030	<0.0020	0.0020	7735240
C6 - C10 (less BTEX)	mg/L	<0.090	0.090	0.16	0.090	<0.090	<0.090	0.090	7735240
>C10-C16 Hydrocarbons	mg/L	<0.050	0.050	5.0	0.25	0.082	<0.050	0.050	7757327
>C16-C21 Hydrocarbons	mg/L	<0.050	0.050	0.46	0.25	<0.050	<0.050	0.050	7757327
>C21-<C32 Hydrocarbons	mg/L	<0.090	0.090	0.53	0.45	<0.090	<0.090	0.090	7757327
Modified TPH (Tier1)	mg/L	<0.090	0.090	6.2	0.45	<0.090	<0.090	0.090	7757154
Reached Baseline at C32	mg/L	NA	N/A	Yes	N/A	NA	NA	N/A	7757327
Hydrocarbon Resemblance	mg/L	NA	N/A	COMMENT (1)	N/A	NA	NA	N/A	7757327
Surrogate Recovery (%)									
Isobutylbenzene - Extractable	%	111		104		100	105		7757327
n-Dotriacontane - Extractable	%	92		117 (2)		92	84		7757327
Isobutylbenzene - Volatile	%	98		99		104	100		7735240

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 / lube range.  
 (2) Elevated TEH RDL(s) due to sample dilution.



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### ATLANTIC RBCA HYDROCARBONS (WATER)

Bureau Veritas ID		RMN141	RMN142	RMN145		
Sampling Date		2021/12/10	2021/12/10	2021/12/10		
COC Number		D59007	D59007	D59007		
Sample #		DEC10-66	DEC10-67	DEC10-68		
	<b>UNITS</b>	<b>SCU31-004-MW</b>	<b>FD-18</b>	<b>TB-03</b>	<b>RDL</b>	<b>QC Batch</b>
<b>Petroleum Hydrocarbons</b>						
Benzene	mg/L	<0.0010	<0.0010	<0.0010	0.0010	7735240
Toluene	mg/L	<0.0010	<0.0010	<0.0010	0.0010	7735240
Ethylbenzene	mg/L	<0.0010	<0.0010	<0.0010	0.0010	7735240
Total Xylenes	mg/L	<0.0020	<0.0020	<0.0020	0.0020	7735240
C6 - C10 (less BTEX)	mg/L	<0.090	<0.090	<0.090	0.090	7735240
>C10-C16 Hydrocarbons	mg/L	<0.050	<0.050	<0.050	0.050	7757327
>C16-C21 Hydrocarbons	mg/L	<0.050	<0.050	<0.050	0.050	7757327
>C21-<C32 Hydrocarbons	mg/L	<0.090	<0.090	<0.090	0.090	7757327
Modified TPH (Tier1)	mg/L	<0.090	<0.090	<0.090	0.090	7757154
Reached Baseline at C32	mg/L	NA	NA	NA	N/A	7757327
Hydrocarbon Resemblance	mg/L	NA	NA	NA	N/A	7757327
<b>Surrogate Recovery (%)</b>						
Isobutylbenzene - Extractable	%	105	102	88		7757327
n-Dotriacontane - Extractable	%	87	86	81		7757327
Isobutylbenzene - Volatile	%	96	98	97		7735240
RDL = Reportable Detection Limit QC Batch = Quality Control Batch N/A = Not Applicable						



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### GENERAL COMMENTS

REISSUED REPORT to modify sample ID FB-18 to FD-18. Entry error on receipt at lab. 01/31/2022 NBU

**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
7735240	THL	Matrix Spike	Isobutylbenzene - Volatile	2021/12/17		99	%	70 - 130	
			Benzene	2021/12/17		96	%	70 - 130	
			Toluene	2021/12/17		94	%	70 - 130	
			Ethylbenzene	2021/12/17		97	%	70 - 130	
			Total Xylenes	2021/12/17		95	%	70 - 130	
7735240	THL	Spiked Blank	Isobutylbenzene - Volatile	2021/12/17		99	%	70 - 130	
			Benzene	2021/12/17		96	%	70 - 130	
			Toluene	2021/12/17		96	%	70 - 130	
			Ethylbenzene	2021/12/17		99	%	70 - 130	
			Total Xylenes	2021/12/17		97	%	70 - 130	
7735240	THL	Method Blank	Isobutylbenzene - Volatile	2021/12/17		93	%	70 - 130	
			Benzene	2021/12/17	<0.0010		mg/L		
			Toluene	2021/12/17	<0.0010		mg/L		
			Ethylbenzene	2021/12/17	<0.0010		mg/L		
			Total Xylenes	2021/12/17	<0.0020		mg/L		
			C6 - C10 (less BTEX)	2021/12/17	<0.090		mg/L		
7735240	THL	RPD	Benzene	2021/12/17	NC		%	40	
			Toluene	2021/12/17	NC		%	40	
			Ethylbenzene	2021/12/17	NC		%	40	
			Total Xylenes	2021/12/17	NC		%	40	
			C6 - C10 (less BTEX)	2021/12/17	NC		%	40	
7745968	KKE	Matrix Spike	D10-Anthracene	2021/12/25		65	%	50 - 130	
			D14-Terphenyl	2021/12/25		99	%	50 - 130	
			D8-Acenaphthylene	2021/12/25		84	%	50 - 130	
			1-Methylnaphthalene	2021/12/25		112	%	50 - 130	
			2-Methylnaphthalene	2021/12/25		112	%	50 - 130	
			Acenaphthene	2021/12/25		122	%	50 - 130	
			Acenaphthylene	2021/12/25		122	%	50 - 130	
			Anthracene	2021/12/25		116	%	50 - 130	
			Benzo(a)anthracene	2021/12/25		117	%	50 - 130	
			Benzo(a)pyrene	2021/12/25		87	%	50 - 130	
			Benzo(b)fluoranthene	2021/12/25		115	%	50 - 130	
			Benzo(g,h,i)perylene	2021/12/25		99	%	50 - 130	
			Benzo(j)fluoranthene	2021/12/25		118	%	50 - 130	
			Benzo(k)fluoranthene	2021/12/25		110	%	50 - 130	
			Chrysene	2021/12/25		126	%	50 - 130	
			Dibenzo(a,h)anthracene	2021/12/25		81	%	50 - 130	
			Fluoranthene	2021/12/25		121	%	50 - 130	
			Fluorene	2021/12/25		119	%	50 - 130	
			Indeno(1,2,3-cd)pyrene	2021/12/25		83	%	50 - 130	
			Naphthalene	2021/12/25		116	%	50 - 130	
Perylene	2021/12/25		112	%	50 - 130				
Phenanthrene	2021/12/25		121	%	50 - 130				
Pyrene	2021/12/25		124	%	50 - 130				
7745968	KKE	Spiked Blank	D10-Anthracene	2021/12/25		96	%	50 - 130	
			D14-Terphenyl	2021/12/25		100	%	50 - 130	
			D8-Acenaphthylene	2021/12/25		99	%	50 - 130	
			1-Methylnaphthalene	2021/12/25		108	%	50 - 130	
			2-Methylnaphthalene	2021/12/25		108	%	50 - 130	
			Acenaphthene	2021/12/25		118	%	50 - 130	
			Acenaphthylene	2021/12/25		119	%	50 - 130	
			Anthracene	2021/12/25		112	%	50 - 130	
Benzo(a)anthracene	2021/12/25		109	%	50 - 130				



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### QUALITY ASSURANCE REPORT(CONT'D)

QA/QC	Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
				Benzo(a)pyrene	2021/12/25		83	%	50 - 130
				Benzo(b)fluoranthene	2021/12/25		109	%	50 - 130
				Benzo(g,h,i)perylene	2021/12/25		93	%	50 - 130
				Benzo(j)fluoranthene	2021/12/25		113	%	50 - 130
				Benzo(k)fluoranthene	2021/12/25		85	%	50 - 130
				Chrysene	2021/12/25		123	%	50 - 130
				Dibenzo(a,h)anthracene	2021/12/25		66	%	50 - 130
				Fluoranthene	2021/12/25		116	%	50 - 130
				Fluorene	2021/12/25		113	%	50 - 130
				Indeno(1,2,3-cd)pyrene	2021/12/25		77	%	50 - 130
				Naphthalene	2021/12/25		112	%	50 - 130
				Perylene	2021/12/25		108	%	50 - 130
				Phenanthrene	2021/12/25		121	%	50 - 130
				Pyrene	2021/12/25		118	%	50 - 130
7745968	KKE		Method Blank	D10-Anthracene	2021/12/25		98	%	50 - 130
				D14-Terphenyl	2021/12/25		100	%	50 - 130
				D8-Acenaphthylene	2021/12/25		95	%	50 - 130
				1-Methylnaphthalene	2021/12/25	<0.050		ug/L	
				2-Methylnaphthalene	2021/12/25	<0.050		ug/L	
				Acenaphthene	2021/12/25	<0.010		ug/L	
				Acenaphthylene	2021/12/25	<0.010		ug/L	
				Anthracene	2021/12/25	<0.010		ug/L	
				Benzo(a)anthracene	2021/12/25	<0.010		ug/L	
				Benzo(a)pyrene	2021/12/25	<0.010		ug/L	
				Benzo(b)fluoranthene	2021/12/25	<0.010		ug/L	
				Benzo(g,h,i)perylene	2021/12/25	<0.010		ug/L	
				Benzo(j)fluoranthene	2021/12/25	<0.010		ug/L	
				Benzo(k)fluoranthene	2021/12/25	<0.010		ug/L	
				Chrysene	2021/12/25	<0.010		ug/L	
				Dibenzo(a,h)anthracene	2021/12/25	<0.010		ug/L	
				Fluoranthene	2021/12/25	<0.010		ug/L	
				Fluorene	2021/12/25	<0.010		ug/L	
				Indeno(1,2,3-cd)pyrene	2021/12/25	<0.010		ug/L	
				Naphthalene	2021/12/25	<0.20		ug/L	
				Perylene	2021/12/25	<0.010		ug/L	
				Phenanthrene	2021/12/25	<0.010		ug/L	
				Pyrene	2021/12/25	<0.010		ug/L	
7745968	KKE		RPD	1-Methylnaphthalene	2021/12/25	3.1		%	40
				2-Methylnaphthalene	2021/12/25	36		%	40
				Acenaphthene	2021/12/25	3.3		%	40
				Acenaphthylene	2021/12/25	6.4		%	40
				Anthracene	2021/12/25	134 (1)		%	40
				Benzo(a)anthracene	2021/12/25	7.1		%	40
				Benzo(a)pyrene	2021/12/25	NC		%	40
				Benzo(b)fluoranthene	2021/12/25	NC		%	40
				Benzo(g,h,i)perylene	2021/12/25	NC		%	40
				Benzo(j)fluoranthene	2021/12/25	NC		%	40
				Benzo(k)fluoranthene	2021/12/25	NC		%	40
				Chrysene	2021/12/25	6.3		%	40
				Dibenzo(a,h)anthracene	2021/12/25	NC		%	40
				Fluoranthene	2021/12/25	4.4		%	40
				Fluorene	2021/12/25	0.67		%	40
				Indeno(1,2,3-cd)pyrene	2021/12/25	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	2021/12/25	112 (1)		%	40
				Perylene	2021/12/25	NC		%	40
				Phenanthrene	2021/12/25	6.3		%	40
				Pyrene	2021/12/25	4.1		%	40
7757327	MGN		Matrix Spike	Isobutylbenzene - Extractable	2021/12/16		106	%	70 - 130
				n-Dotriacontane - Extractable	2021/12/16		84	%	70 - 130
				>C10-C16 Hydrocarbons	2021/12/16		109	%	70 - 130
				>C16-C21 Hydrocarbons	2021/12/16		97	%	70 - 130
				>C21-<C32 Hydrocarbons	2021/12/16		93	%	70 - 130
7757327	MGN		Spiked Blank	Isobutylbenzene - Extractable	2021/12/16		106	%	70 - 130
				n-Dotriacontane - Extractable	2021/12/16		81	%	70 - 130
				>C10-C16 Hydrocarbons	2021/12/16		102	%	70 - 130
				>C16-C21 Hydrocarbons	2021/12/16		92	%	70 - 130
				>C21-<C32 Hydrocarbons	2021/12/16		88	%	70 - 130
7757327	MGN		Method Blank	Isobutylbenzene - Extractable	2021/12/16		101	%	70 - 130
				n-Dotriacontane - Extractable	2021/12/16		97	%	70 - 130
				>C10-C16 Hydrocarbons	2021/12/16	<0.050		mg/L	
				>C16-C21 Hydrocarbons	2021/12/16	<0.050		mg/L	
				>C21-<C32 Hydrocarbons	2021/12/16	<0.090		mg/L	
7757327	MGN		RPD [RMN145-01]	>C10-C16 Hydrocarbons	2021/12/16	NC		%	40
				>C16-C21 Hydrocarbons	2021/12/16	NC		%	40
				>C21-<C32 Hydrocarbons	2021/12/16	NC		%	40
7761181	BAN		Matrix Spike	Dissolved Aluminum (Al)	2021/12/31		101	%	80 - 120
				Dissolved Antimony (Sb)	2021/12/31		101	%	80 - 120
				Dissolved Arsenic (As)	2021/12/31		99	%	80 - 120
				Dissolved Barium (Ba)	2021/12/31		106	%	80 - 120
				Dissolved Beryllium (Be)	2021/12/31		100	%	80 - 120
				Dissolved Bismuth (Bi)	2021/12/31		96	%	80 - 120
				Dissolved Boron (B)	2021/12/31		94	%	80 - 120
				Dissolved Cadmium (Cd)	2021/12/31		101	%	80 - 120
				Dissolved Calcium (Ca)	2021/12/31		NC	%	80 - 120
				Dissolved Chromium (Cr)	2021/12/31		98	%	80 - 120
				Dissolved Cobalt (Co)	2021/12/31		98	%	80 - 120
				Dissolved Copper (Cu)	2021/12/31		98	%	80 - 120
				Dissolved Iron (Fe)	2021/12/31		100	%	80 - 120
				Dissolved Lead (Pb)	2021/12/31		100	%	80 - 120
				Dissolved Magnesium (Mg)	2021/12/31		97	%	80 - 120
				Dissolved Manganese (Mn)	2021/12/31		101	%	80 - 120
				Dissolved Molybdenum (Mo)	2021/12/31		104	%	80 - 120
				Dissolved Nickel (Ni)	2021/12/31		98	%	80 - 120
				Dissolved Phosphorus (P)	2021/12/31		105	%	80 - 120
				Dissolved Potassium (K)	2021/12/31		100	%	80 - 120
				Dissolved Selenium (Se)	2021/12/31		101	%	80 - 120
				Dissolved Silver (Ag)	2021/12/31		99	%	80 - 120
				Dissolved Sodium (Na)	2021/12/31		NC	%	80 - 120
				Dissolved Strontium (Sr)	2021/12/31		NC	%	80 - 120
				Dissolved Thallium (Tl)	2021/12/31		99	%	80 - 120
				Dissolved Tin (Sn)	2021/12/31		101	%	80 - 120
				Dissolved Titanium (Ti)	2021/12/31		102	%	80 - 120
				Dissolved Uranium (U)	2021/12/31		104	%	80 - 120
				Dissolved Vanadium (V)	2021/12/31		102	%	80 - 120
				Dissolved Zinc (Zn)	2021/12/31		99	%	80 - 120
7761181	BAN		Spiked Blank	Dissolved Aluminum (Al)	2021/12/31		104	%	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 Antimony (Sb)	2021/12/31		100	%	80 - 120
			Dissolved Arsenic (As)	2021/12/31		97	%	80 - 120
			Dissolved Barium (Ba)	2021/12/31		100	%	80 - 120
			Dissolved Beryllium (Be)	2021/12/31		98	%	80 - 120
			Dissolved Bismuth (Bi)	2021/12/31		98	%	80 - 120
			Dissolved Boron (B)	2021/12/31		94	%	80 - 120
			Dissolved Cadmium (Cd)	2021/12/31		100	%	80 - 120
			Dissolved Calcium (Ca)	2021/12/31		100	%	80 - 120
			Dissolved Chromium (Cr)	2021/12/31		99	%	80 - 120
			Dissolved Cobalt (Co)	2021/12/31		99	%	80 - 120
			Dissolved Copper (Cu)	2021/12/31		100	%	80 - 120
			Dissolved Iron (Fe)	2021/12/31		102	%	80 - 120
			Dissolved Lead (Pb)	2021/12/31		102	%	80 - 120
			Dissolved Magnesium (Mg)	2021/12/31		106	%	80 - 120
			Dissolved Manganese (Mn)	2021/12/31		104	%	80 - 120
			Dissolved Molybdenum (Mo)	2021/12/31		101	%	80 - 120
			Dissolved Nickel (Ni)	2021/12/31		101	%	80 - 120
			Dissolved Phosphorus (P)	2021/12/31		106	%	80 - 120
			Dissolved Potassium (K)	2021/12/31		103	%	80 - 120
			Dissolved Selenium (Se)	2021/12/31		99	%	80 - 120
			Dissolved Silver (Ag)	2021/12/31		98	%	80 - 120
			Dissolved Sodium (Na)	2021/12/31		104	%	80 - 120
			Dissolved Strontium (Sr)	2021/12/31		101	%	80 - 120
			Dissolved Thallium (Tl)	2021/12/31		99	%	80 - 120
			Dissolved Tin (Sn)	2021/12/31		101	%	80 - 120
			Dissolved Titanium (Ti)	2021/12/31		105	%	80 - 120
			Dissolved Uranium (U)	2021/12/31		103	%	80 - 120
			Dissolved Vanadium (V)	2021/12/31		103	%	80 - 120
			Dissolved Zinc (Zn)	2021/12/31		100	%	80 - 120
7761181	BAN	Method Blank	Dissolved Aluminum (Al)	2021/12/31	<5.0		ug/L	
			Dissolved Antimony (Sb)	2021/12/31	<1.0		ug/L	
			Dissolved Arsenic (As)	2021/12/31	<1.0		ug/L	
			Dissolved Barium (Ba)	2021/12/31	<1.0		ug/L	
			Dissolved Beryllium (Be)	2021/12/31	<0.10		ug/L	
			Dissolved Bismuth (Bi)	2021/12/31	<2.0		ug/L	
			Dissolved Boron (B)	2021/12/31	<50		ug/L	
			Dissolved Cadmium (Cd)	2021/12/31	<0.010		ug/L	
			Dissolved Calcium (Ca)	2021/12/31	<100		ug/L	
			Dissolved Chromium (Cr)	2021/12/31	<1.0		ug/L	
			Dissolved Cobalt (Co)	2021/12/31	<0.40		ug/L	
			Dissolved Copper (Cu)	2021/12/31	<0.50		ug/L	
			Dissolved Iron (Fe)	2021/12/31	<50		ug/L	
			Dissolved Lead (Pb)	2021/12/31	<0.50		ug/L	
			Dissolved Magnesium (Mg)	2021/12/31	<100		ug/L	
			Dissolved Manganese (Mn)	2021/12/31	<2.0		ug/L	
			Dissolved Molybdenum (Mo)	2021/12/31	<2.0		ug/L	
			Dissolved Nickel (Ni)	2021/12/31	<2.0		ug/L	
			Dissolved Phosphorus (P)	2021/12/31	<100		ug/L	
			Dissolved Potassium (K)	2021/12/31	<100		ug/L	
			Dissolved Selenium (Se)	2021/12/31	<0.50		ug/L	
			Dissolved Silver (Ag)	2021/12/31	<0.10		ug/L	
			Dissolved Sodium (Na)	2021/12/31	<100		ug/L	
			Dissolved Strontium (Sr)	2021/12/31	<2.0		ug/L	



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### QUALITY ASSURANCE REPORT(CONT'D)

QA/QC	Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
				Dissolved Thallium (Tl)	2021/12/31	<0.10		ug/L	
				Dissolved Tin (Sn)	2021/12/31	<2.0		ug/L	
				Dissolved Titanium (Ti)	2021/12/31	<2.0		ug/L	
				Dissolved Uranium (U)	2021/12/31	<0.10		ug/L	
				Dissolved Vanadium (V)	2021/12/31	<2.0		ug/L	
				Dissolved Zinc (Zn)	2021/12/31	<5.0		ug/L	
7761181	BAN	RPD		Dissolved Aluminum (Al)	2021/12/31	3.4		%	20
				Dissolved Antimony (Sb)	2021/12/31	NC		%	20
				Dissolved Arsenic (As)	2021/12/31	NC		%	20
				Dissolved Barium (Ba)	2021/12/31	0.75		%	20
				Dissolved Beryllium (Be)	2021/12/31	NC		%	20
				Dissolved Bismuth (Bi)	2021/12/31	NC		%	20
				Dissolved Boron (B)	2021/12/31	0.21		%	20
				Dissolved Cadmium (Cd)	2021/12/31	11		%	20
				Dissolved Calcium (Ca)	2021/12/31	0.11		%	20
				Dissolved Chromium (Cr)	2021/12/31	NC		%	20
				Dissolved Cobalt (Co)	2021/12/31	NC		%	20
				Dissolved Copper (Cu)	2021/12/31	NC		%	20
				Dissolved Iron (Fe)	2021/12/31	NC		%	20
				Dissolved Lead (Pb)	2021/12/31	NC		%	20
				Dissolved Magnesium (Mg)	2021/12/31	0.44		%	20
				Dissolved Manganese (Mn)	2021/12/31	NC		%	20
				Dissolved Molybdenum (Mo)	2021/12/31	NC		%	20
				Dissolved Nickel (Ni)	2021/12/31	NC		%	20
				Dissolved Phosphorus (P)	2021/12/31	NC		%	20
				Dissolved Potassium (K)	2021/12/31	0.95		%	20
				Dissolved Selenium (Se)	2021/12/31	NC		%	20
				Dissolved Silver (Ag)	2021/12/31	NC		%	20
				Dissolved Sodium (Na)	2021/12/31	0.71		%	20
				Dissolved Strontium (Sr)	2021/12/31	0.39		%	20
				Dissolved Thallium (Tl)	2021/12/31	NC		%	20
				Dissolved Tin (Sn)	2021/12/31	NC		%	20
				Dissolved Titanium (Ti)	2021/12/31	NC		%	20
				Dissolved Uranium (U)	2021/12/31	1.4		%	20
				Dissolved Vanadium (V)	2021/12/31	NC		%	20
				Dissolved Zinc (Zn)	2021/12/31	NC		%	20
7762792	BAN	Matrix Spike		Dissolved Aluminum (Al)	2022/01/04		102	%	80 - 120
				Dissolved Antimony (Sb)	2022/01/04		99	%	80 - 120
				Dissolved Arsenic (As)	2022/01/04		94	%	80 - 120
				Dissolved Barium (Ba)	2022/01/04		92	%	80 - 120
				Dissolved Beryllium (Be)	2022/01/04		99	%	80 - 120
				Dissolved Bismuth (Bi)	2022/01/04		94	%	80 - 120
				Dissolved Boron (B)	2022/01/04		99	%	80 - 120
				Dissolved Cadmium (Cd)	2022/01/04		94	%	80 - 120
				Dissolved Calcium (Ca)	2022/01/04		98	%	80 - 120
				Dissolved Chromium (Cr)	2022/01/04		95	%	80 - 120
				Dissolved Cobalt (Co)	2022/01/04		96	%	80 - 120
				Dissolved Copper (Cu)	2022/01/04		95	%	80 - 120
				Dissolved Iron (Fe)	2022/01/04		98	%	80 - 120
				Dissolved Lead (Pb)	2022/01/04		95	%	80 - 120
				Dissolved Magnesium (Mg)	2022/01/04		101	%	80 - 120
				Dissolved Manganese (Mn)	2022/01/04		93	%	80 - 120
				Dissolved Molybdenum (Mo)	2022/01/04		100	%	80 - 120



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QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Dissolved Nickel (Ni)	2022/01/04		94	%	80 - 120
			Dissolved Phosphorus (P)	2022/01/04		104	%	80 - 120
			Dissolved Potassium (K)	2022/01/04		100	%	80 - 120
			Dissolved Selenium (Se)	2022/01/04		96	%	80 - 120
			Dissolved Silver (Ag)	2022/01/04		94	%	80 - 120
			Dissolved Sodium (Na)	2022/01/04		NC	%	80 - 120
			Dissolved Strontium (Sr)	2022/01/04		NC	%	80 - 120
			Dissolved Thallium (Tl)	2022/01/04		96	%	80 - 120
			Dissolved Tin (Sn)	2022/01/04		100	%	80 - 120
			Dissolved Titanium (Ti)	2022/01/04		99	%	80 - 120
			Dissolved Uranium (U)	2022/01/04		100	%	80 - 120
			Dissolved Vanadium (V)	2022/01/04		98	%	80 - 120
			Dissolved Zinc (Zn)	2022/01/04		98	%	80 - 120
7762792	BAN	Spiked Blank	Dissolved Aluminum (Al)	2022/01/04		103	%	80 - 120
			Dissolved Antimony (Sb)	2022/01/04		98	%	80 - 120
			Dissolved Arsenic (As)	2022/01/04		94	%	80 - 120
			Dissolved Barium (Ba)	2022/01/04		95	%	80 - 120
			Dissolved Beryllium (Be)	2022/01/04		97	%	80 - 120
			Dissolved Bismuth (Bi)	2022/01/04		98	%	80 - 120
			Dissolved Boron (B)	2022/01/04		96	%	80 - 120
			Dissolved Cadmium (Cd)	2022/01/04		96	%	80 - 120
			Dissolved Calcium (Ca)	2022/01/04		98	%	80 - 120
			Dissolved Chromium (Cr)	2022/01/04		98	%	80 - 120
			Dissolved Cobalt (Co)	2022/01/04		97	%	80 - 120
			Dissolved Copper (Cu)	2022/01/04		98	%	80 - 120
			Dissolved Iron (Fe)	2022/01/04		100	%	80 - 120
			Dissolved Lead (Pb)	2022/01/04		98	%	80 - 120
			Dissolved Magnesium (Mg)	2022/01/04		103	%	80 - 120
			Dissolved Manganese (Mn)	2022/01/04		100	%	80 - 120
			Dissolved Molybdenum (Mo)	2022/01/04		100	%	80 - 120
			Dissolved Nickel (Ni)	2022/01/04		98	%	80 - 120
			Dissolved Phosphorus (P)	2022/01/04		104	%	80 - 120
			Dissolved Potassium (K)	2022/01/04		103	%	80 - 120
			Dissolved Selenium (Se)	2022/01/04		98	%	80 - 120
			Dissolved Silver (Ag)	2022/01/04		96	%	80 - 120
			Dissolved Sodium (Na)	2022/01/04		101	%	80 - 120
			Dissolved Strontium (Sr)	2022/01/04		99	%	80 - 120
			Dissolved Thallium (Tl)	2022/01/04		98	%	80 - 120
			Dissolved Tin (Sn)	2022/01/04		99	%	80 - 120
			Dissolved Titanium (Ti)	2022/01/04		101	%	80 - 120
			Dissolved Uranium (U)	2022/01/04		100	%	80 - 120
			Dissolved Vanadium (V)	2022/01/04		98	%	80 - 120
			Dissolved Zinc (Zn)	2022/01/04		100	%	80 - 120
7762792	BAN	Method Blank	Dissolved Aluminum (Al)	2022/01/04	<5.0		ug/L	
			Dissolved Antimony (Sb)	2022/01/04	<1.0		ug/L	
			Dissolved Arsenic (As)	2022/01/04	<1.0		ug/L	
			Dissolved Barium (Ba)	2022/01/04	<1.0		ug/L	
			Dissolved Beryllium (Be)	2022/01/04	<0.10		ug/L	
			Dissolved Bismuth (Bi)	2022/01/04	<2.0		ug/L	
			Dissolved Boron (B)	2022/01/04	<50		ug/L	
			Dissolved Cadmium (Cd)	2022/01/04	<0.010		ug/L	
			Dissolved Calcium (Ca)	2022/01/04	<100		ug/L	
			Dissolved Chromium (Cr)	2022/01/04	<1.0		ug/L	



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QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Dissolved Cobalt (Co)	2022/01/04	<0.40		ug/L	
			Dissolved Copper (Cu)	2022/01/04	<0.50		ug/L	
			Dissolved Iron (Fe)	2022/01/04	<50		ug/L	
			Dissolved Lead (Pb)	2022/01/04	<0.50		ug/L	
			Dissolved Magnesium (Mg)	2022/01/04	<100		ug/L	
			Dissolved Manganese (Mn)	2022/01/04	<2.0		ug/L	
			Dissolved Molybdenum (Mo)	2022/01/04	<2.0		ug/L	
			Dissolved Nickel (Ni)	2022/01/04	<2.0		ug/L	
			Dissolved Phosphorus (P)	2022/01/04	<100		ug/L	
			Dissolved Potassium (K)	2022/01/04	<100		ug/L	
			Dissolved Selenium (Se)	2022/01/04	<0.50		ug/L	
			Dissolved Silver (Ag)	2022/01/04	<0.10		ug/L	
			Dissolved Sodium (Na)	2022/01/04	<100		ug/L	
			Dissolved Strontium (Sr)	2022/01/04	<2.0		ug/L	
			Dissolved Thallium (Tl)	2022/01/04	<0.10		ug/L	
			Dissolved Tin (Sn)	2022/01/04	<2.0		ug/L	
			Dissolved Titanium (Ti)	2022/01/04	<2.0		ug/L	
			Dissolved Uranium (U)	2022/01/04	<0.10		ug/L	
			Dissolved Vanadium (V)	2022/01/04	<2.0		ug/L	
			Dissolved Zinc (Zn)	2022/01/04	<5.0		ug/L	
7762792	BAN	RPD	Dissolved Aluminum (Al)	2022/01/04	4.1		%	20
			Dissolved Antimony (Sb)	2022/01/04	NC		%	20
			Dissolved Arsenic (As)	2022/01/04	NC		%	20
			Dissolved Barium (Ba)	2022/01/04	2.0		%	20
			Dissolved Beryllium (Be)	2022/01/04	NC		%	20
			Dissolved Bismuth (Bi)	2022/01/04	NC		%	20
			Dissolved Boron (B)	2022/01/04	0.090		%	20
			Dissolved Cadmium (Cd)	2022/01/04	NC		%	20
			Dissolved Calcium (Ca)	2022/01/04	0.79		%	20
			Dissolved Chromium (Cr)	2022/01/04	NC		%	20
			Dissolved Cobalt (Co)	2022/01/04	NC		%	20
			Dissolved Copper (Cu)	2022/01/04	8.6		%	20
			Dissolved Iron (Fe)	2022/01/04	NC		%	20
			Dissolved Lead (Pb)	2022/01/04	NC		%	20
			Dissolved Magnesium (Mg)	2022/01/04	2.6		%	20
			Dissolved Manganese (Mn)	2022/01/04	2.9		%	20
			Dissolved Molybdenum (Mo)	2022/01/04	NC		%	20
			Dissolved Nickel (Ni)	2022/01/04	NC		%	20
			Dissolved Phosphorus (P)	2022/01/04	NC		%	20
			Dissolved Potassium (K)	2022/01/04	0.60		%	20
			Dissolved Selenium (Se)	2022/01/04	NC		%	20
			Dissolved Silver (Ag)	2022/01/04	NC		%	20
			Dissolved Sodium (Na)	2022/01/04	0.89		%	20
			Dissolved Strontium (Sr)	2022/01/04	0.81		%	20
			Dissolved Thallium (Tl)	2022/01/04	NC		%	20
			Dissolved Tin (Sn)	2022/01/04	NC		%	20
			Dissolved Titanium (Ti)	2022/01/04	NC		%	20
			Dissolved Uranium (U)	2022/01/04	NC		%	20
			Dissolved Vanadium (V)	2022/01/04	NC		%	20
			Dissolved Zinc (Zn)	2022/01/04	NC		%	20
7763841	FJO	Matrix Spike	Total Mercury (Hg)	2022/01/05		105	%	80 - 120
7763841	FJO	Spiked Blank	Total Mercury (Hg)	2022/01/05		92	%	80 - 120
7763841	FJO	Method Blank	Total Mercury (Hg)	2022/01/05	<0.013		ug/L	



BUREAU  
VERITAS

Bureau Veritas Job #: C1AF610  
Report Date: 2022/01/31

Dillon Consulting Limited  
Client Project #: 20-2862  
Site Location: HCP  
Sampler Initials: MS

### QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
7763841	FJO	RPD	Total Mercury (Hg)	2022/01/05	NC (2)		%	20
7767168	FJO	Matrix Spike	Total Mercury (Hg)	2022/01/10		93	%	80 - 120
7767168	FJO	Spiked Blank	Total Mercury (Hg)	2022/01/10		100	%	80 - 120
7767168	FJO	Method Blank	Total Mercury (Hg)	2022/01/10	<0.013		ug/L	
7767168	FJO	RPD	Total Mercury (Hg)	2022/01/10	NC		%	20
7772542	FJO	Matrix Spike [RMN141-02]	Total Mercury (Hg)	2022/01/12		94	%	80 - 120
7772542	FJO	Spiked Blank	Total Mercury (Hg)	2022/01/12		100	%	80 - 120
7772542	FJO	Method Blank	Total Mercury (Hg)	2022/01/12	<0.013		ug/L	
7772542	FJO	RPD [RMN140-02]	Total Mercury (Hg)	2022/01/12	NC (2)		%	20
7777257	FJO	Matrix Spike	Total Mercury (Hg)	2022/01/13		87	%	80 - 120
7777257	FJO	Spiked Blank	Total Mercury (Hg)	2022/01/13		97	%	80 - 120
7777257	FJO	Method Blank	Total Mercury (Hg)	2022/01/13	<0.013		ug/L	
7777257	FJO	RPD	Total Mercury (Hg)	2022/01/13	4.9 (2)		%	20

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.

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

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

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

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

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

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

(2) Mercury analyzed past recommended hold time.



BUREAU  
VERITAS

Bureau Veritas Job #: C1AF610  
Report Date: 2022/01/31

Dillon Consulting Limited  
Client Project #: 20-2862  
Site Location: HCP  
Sampler Initials: MS

### VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:

Colleen Acker, B.Sc, Scientific Service Specialist

Mike MacGillivray, Scientific Specialist (Inorganics)

Phil Deveau, Scientific Specialist (Organics)

---

BV Labs has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation please refer to the Validation Signature Page.



Your Project #: 20-2862  
 Site Location: HCP  
 Your C.O.C. #: D58817

**Attention: Nadine Wambolt**

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

**Report Date: 2022/01/17**  
 Report #: R6965157  
 Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**BV LABS JOB #: C1Z6147**

**Received: 2021/12/13, 16:55**

Sample Matrix: Water  
 # Samples Received: 8

Analyses	Quantity	Date	Date	Laboratory Method	Analytical Method
		Extracted	Analyzed		
Benzo(b/j)fluoranthene Sum (water) (1)	7	N/A	2021/12/23	N/A	Auto Calc.
TEH in Water (PIRI) (1)	8	2021/12/20	2021/12/21	ATL SOP 00113	Atl. RBCA v3.1 m
Mercury - Total (CVAA,LL) (1)	2	2022/01/11	2022/01/11	ATL SOP 00026	EPA 245.1 R3 m
Mercury - Total (CVAA,LL) (1)	1	2022/01/12	2022/01/13	ATL SOP 00026	EPA 245.1 R3 m
Mercury - Total (CVAA,LL) (1)	4	2022/01/13	2022/01/13	ATL SOP 00026	EPA 245.1 R3 m
Metals Water Diss. MS (as rec'd) (1)	4	N/A	2021/12/22	ATL SOP 00058	EPA 6020B R2 m
Metals Water Diss. MS (as rec'd) (1)	3	N/A	2021/12/24	ATL SOP 00058	EPA 6020B R2 m
PAH in Water by GC/MS (SIM) (1)	7	2021/12/16	2021/12/23	ATL SOP 00103	EPA 8270E R6 m
ModTPH (T1) Calc. for Water (1)	8	N/A	2021/12/22	N/A	Atl. RBCA v3 m
VPH in Water (PIRI) (1)	8	N/A	2021/12/18	ATL SOP 00130	Atl. RBCA v3.1 m

**Remarks:**

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCC, EPA, APHA.

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

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas 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 Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

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

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

This Certificate shall not be reproduced except in full, without the written approval of the laboratory.

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

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

(1) This test was performed by Bureau Veritas Bedford, 200 Bluewater Rd Suite 105, Bedford, NS, B4B 1G9





Your Project #: 20-2862  
Site Location: HCP  
Your C.O.C. #: D58817

**Attention: Nadine Wambolt**

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

**Report Date: 2022/01/17**  
Report #: R6965157  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**BV LABS JOB #: C1Z6147**  
**Received: 2021/12/13, 16:55**

Encryption Key

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

=====  
This report has been generated and distributed using a secure automated process.  
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**MERCURY BY COLD VAPOUR AA (WATER)**

<b>Bureau Veritas ID</b>		RKD967		RKD968		RKD969		RKD970		
<b>Sampling Date</b>		2021/12/13		2021/12/13		2021/12/13		2021/12/13		
<b>COC Number</b>		D58817		D58817		D58817		D58817		
	<b>UNITS</b>	<b>SCU18-007-MW</b>	<b>QC Batch</b>	<b>MCES-207-MW</b>	<b>QC Batch</b>	<b>MW20-1</b>	<b>QC Batch</b>	<b>MW20-2</b>	<b>RDL</b>	<b>QC Batch</b>

<b>Metals</b>										
Total Mercury (Hg)	ug/L	<0.013 (1)	7777022	<0.013 (1)	7777257	<0.013 (1)	7777022	<0.013 (1)	0.013	7772532

RDL = Reportable Detection Limit  
 QC Batch = Quality Control Batch  
 (1) Mercury analyzed past recommended hold time.

<b>Bureau Veritas ID</b>		RKD971	RKD972		RKD973		
<b>Sampling Date</b>		2021/12/13	2021/12/13		2021/12/13		
<b>COC Number</b>		D58817	D58817		D58817		
	<b>UNITS</b>	<b>MW20-4</b>	<b>SCU32-200-MW</b>	<b>QC Batch</b>	<b>SCU27-202-MW</b>	<b>RDL</b>	<b>QC Batch</b>

<b>Metals</b>							
Total Mercury (Hg)	ug/L	<0.013 (1)	<0.013 (1)	7777022	<0.013 (1)	0.013	7772532

RDL = Reportable Detection Limit  
 QC Batch = Quality Control Batch  
 (1) Mercury analyzed past recommended hold time.



BUREAU VERITAS

Bureau Veritas Job #: C1Z6147  
Report Date: 2022/01/17

Dillon Consulting Limited  
Client Project #: 20-2862  
Site Location: HCP  
Sampler Initials: MS

**ELEMENTS BY ICP/MS (WATER)**

Bureau Veritas ID		RKD967		RKD968		RKD969		RKD970		
Sampling Date		2021/12/13		2021/12/13		2021/12/13		2021/12/13		
COC Number		D58817		D58817		D58817		D58817		
	UNITS	SCU18-007-MW	RDL	MCES-207-MW	RDL	MW20-1	QC Batch	MW20-2	RDL	QC Batch
<b>Metals</b>										
Dissolved Aluminum (Al)	ug/L	6.5	5.0	<50	50	180	7747636	130	5.0	7747778
Dissolved Antimony (Sb)	ug/L	<1.0	1.0	<10	10	<1.0	7747636	<1.0	1.0	7747778
Dissolved Arsenic (As)	ug/L	2.1	1.0	11	10	<1.0	7747636	9.8	1.0	7747778
Dissolved Barium (Ba)	ug/L	45	1.0	6100	10	490	7747636	250	1.0	7747778
Dissolved Beryllium (Be)	ug/L	<0.10	0.10	<1.0	1.0	<0.10	7747636	<0.10	0.10	7747778
Dissolved Bismuth (Bi)	ug/L	<2.0	2.0	<20	20	<2.0	7747636	<2.0	2.0	7747778
Dissolved Boron (B)	ug/L	85	50	2900	500	<50	7747636	<50	50	7747778
Dissolved Cadmium (Cd)	ug/L	0.027	0.010	<0.10	0.10	<0.010	7747636	<0.010	0.010	7747778
Dissolved Calcium (Ca)	ug/L	43000	100	810000	1000	370000	7747636	360000	100	7747778
Dissolved Chromium (Cr)	ug/L	6.7	1.0	<10	10	<1.0	7747636	<1.0	1.0	7747778
Dissolved Cobalt (Co)	ug/L	<0.40	0.40	<4.0	4.0	<0.40	7747636	<0.40	0.40	7747778
Dissolved Copper (Cu)	ug/L	1.5	0.50	<5.0	5.0	<0.50	7747636	<0.50	0.50	7747778
Dissolved Iron (Fe)	ug/L	<50	50	18000	500	<50	7747636	570	50	7747778
Dissolved Lead (Pb)	ug/L	<0.50	0.50	<5.0	5.0	<0.50	7747636	<0.50	0.50	7747778
Dissolved Magnesium (Mg)	ug/L	20000	100	570000	1000	<100	7747636	<100	100	7747778
Dissolved Manganese (Mn)	ug/L	<2.0	2.0	1900	20	<2.0	7747636	<2.0	2.0	7747778
Dissolved Molybdenum (Mo)	ug/L	<2.0	2.0	<20	20	4.6	7747636	13	2.0	7747778
Dissolved Nickel (Ni)	ug/L	<2.0	2.0	<20	20	<2.0	7747636	<2.0	2.0	7747778
Dissolved Phosphorus (P)	ug/L	<100	100	1100	1000	<100	7747636	<100	100	7747778
Dissolved Potassium (K)	ug/L	1900	100	87000	1000	30000	7747636	56000	100	7747778
Dissolved Selenium (Se)	ug/L	0.50	0.50	<5.0	5.0	8.0	7747636	13	0.50	7747778
Dissolved Silver (Ag)	ug/L	<0.10	0.10	<1.0	1.0	<0.10	7747636	<0.10	0.10	7747778
Dissolved Sodium (Na)	ug/L	3900	100	4100000	1000	31000	7747636	140000	100	7747778
Dissolved Strontium (Sr)	ug/L	120	2.0	32000	20	2800	7747636	3300	2.0	7747778
Dissolved Thallium (Tl)	ug/L	<0.10	0.10	<1.0	1.0	<0.10	7747636	<0.10	0.10	7747778
Dissolved Tin (Sn)	ug/L	<2.0	2.0	<20	20	<2.0	7747636	<2.0	2.0	7747778
Dissolved Titanium (Ti)	ug/L	<2.0	2.0	<20	20	<2.0	7747636	<2.0	2.0	7747778
Dissolved Uranium (U)	ug/L	2.4	0.10	6.1	1.0	<0.10	7747636	<0.10	0.10	7747778
Dissolved Vanadium (V)	ug/L	10	2.0	<20	20	<2.0	7747636	<2.0	2.0	7747778
Dissolved Zinc (Zn)	ug/L	9.1	5.0	<50	50	<5.0	7747636	<5.0	5.0	7747778
RDL = Reportable Detection Limit										
QC Batch = Quality Control Batch										



BUREAU  
VERITAS

Bureau Veritas Job #: C1Z6147  
Report Date: 2022/01/17

Dillon Consulting Limited  
Client Project #: 20-2862  
Site Location: HCP  
Sampler Initials: MS

### ELEMENTS BY ICP/MS (WATER)

Bureau Veritas ID		RKD971		RKD972		RKD973		
Sampling Date		2021/12/13		2021/12/13		2021/12/13		
COC Number		D58817		D58817		D58817		
	UNITS	MW20-4	RDL	SCU32-200-MW	RDL	SCU27-202-MW	RDL	QC Batch
<b>Metals</b>								
Dissolved Aluminum (Al)	ug/L	150	5.0	31	5.0	52	50	7747778
Dissolved Antimony (Sb)	ug/L	<1.0	1.0	<1.0	1.0	<10	10	7747778
Dissolved Arsenic (As)	ug/L	4.9	1.0	1.2	1.0	22	10	7747778
Dissolved Barium (Ba)	ug/L	41	1.0	140	1.0	15000	10	7747778
Dissolved Beryllium (Be)	ug/L	<0.10	0.10	<0.10	0.10	<1.0	1.0	7747778
Dissolved Bismuth (Bi)	ug/L	<2.0	2.0	<2.0	2.0	<20	20	7747778
Dissolved Boron (B)	ug/L	430	50	54	50	4600	500	7747778
Dissolved Cadmium (Cd)	ug/L	0.026	0.010	<0.10 (1)	0.10	<0.10	0.10	7747778
Dissolved Calcium (Ca)	ug/L	180000	100	330000	100	940000	1000	7747778
Dissolved Chromium (Cr)	ug/L	7.5	1.0	<1.0	1.0	<10	10	7747778
Dissolved Cobalt (Co)	ug/L	<0.40	0.40	<0.40	0.40	<4.0	4.0	7747778
Dissolved Copper (Cu)	ug/L	2.5	0.50	<0.50	0.50	<5.0	5.0	7747778
Dissolved Iron (Fe)	ug/L	<50	50	<50	50	100000	500	7747778
Dissolved Lead (Pb)	ug/L	<0.50	0.50	<0.50	0.50	<5.0	5.0	7747778
Dissolved Magnesium (Mg)	ug/L	2600	100	<100	100	740000	1000	7747778
Dissolved Manganese (Mn)	ug/L	46	2.0	<2.0	2.0	5200	20	7747778
Dissolved Molybdenum (Mo)	ug/L	22	2.0	170	2.0	<20	20	7747778
Dissolved Nickel (Ni)	ug/L	<2.0	2.0	<2.0	2.0	<20	20	7747778
Dissolved Phosphorus (P)	ug/L	<100	100	<100	100	2200	1000	7747778
Dissolved Potassium (K)	ug/L	51000	100	110000	100	160000	1000	7747778
Dissolved Selenium (Se)	ug/L	2.4	0.50	5.3	0.50	<5.0	5.0	7747778
Dissolved Silver (Ag)	ug/L	<0.10	0.10	<0.10	0.10	<1.0	1.0	7747778
Dissolved Sodium (Na)	ug/L	110000	100	200000	100	560000	1000	7747778
Dissolved Strontium (Sr)	ug/L	1600	2.0	1900	2.0	35000	20	7747778
Dissolved Thallium (Tl)	ug/L	<0.10	0.10	<0.10	0.10	<1.0	1.0	7747778
Dissolved Tin (Sn)	ug/L	<2.0	2.0	<2.0	2.0	<20	20	7747778
Dissolved Titanium (Ti)	ug/L	<2.0	2.0	<2.0	2.0	<20	20	7747778
Dissolved Uranium (U)	ug/L	<0.10	0.10	<0.10	0.10	<1.0	1.0	7747778
Dissolved Vanadium (V)	ug/L	100	2.0	3.6	2.0	<20	20	7747778
Dissolved Zinc (Zn)	ug/L	6.3	5.0	<5.0	5.0	<50	50	7747778
RDL = Reportable Detection Limit								
QC Batch = Quality Control Batch								
(1) Elevated reporting limit due to sample matrix.								



BUREAU  
VERITAS

Bureau Veritas Job #: C1Z6147  
Report Date: 2022/01/17

Dillon Consulting Limited  
Client Project #: 20-2862  
Site Location: HCP  
Sampler Initials: MS

### SEMI-VOLATILE ORGANICS BY GC-MS (WATER)

Bureau Veritas ID		RKD967	RKD968	RKD969		RKD970		RKD971		
Sampling Date		2021/12/13	2021/12/13	2021/12/13		2021/12/13		2021/12/13		
COC Number		D58817	D58817	D58817		D58817		D58817		
	UNITS	SCU18-007-MW	MCES-207-MW	MW20-1	RDL	MW20-2	RDL	MW20-4	RDL	QC Batch
<b>Polyaromatic Hydrocarbons</b>										
1-Methylnaphthalene	ug/L	<0.050	<0.050	4.7	0.050	29	0.050	10	0.050	7747646
2-Methylnaphthalene	ug/L	<0.050	<0.050	5.8	0.050	31	0.050	3.4	0.050	7747646
Acenaphthene	ug/L	<0.010	0.019	0.45	0.010	23	0.010	5.6	0.010	7747646
Acenaphthylene	ug/L	<0.010	<0.010	0.56	0.010	4.0	0.010	4.8	0.010	7747646
Anthracene	ug/L	<0.010	<0.010	0.29	0.010	5.9	0.010	1.9	0.010	7747646
Benzo(a)anthracene	ug/L	<0.010	<0.010	0.018	0.010	1.2	0.010	0.14	0.010	7747646
Benzo(a)pyrene	ug/L	<0.010	<0.010	<0.010	0.010	0.59	0.010	0.032	0.010	7747646
Benzo(b)fluoranthene	ug/L	<0.010	<0.010	<0.010	0.010	0.44	0.010	0.027	0.010	7747646
Benzo(b/j)fluoranthene	ug/L	<0.020	<0.020	<0.020	0.020	0.77	0.020	<0.040	0.040	7734834
Benzo(g,h,i)perylene	ug/L	<0.010	<0.010	<0.010	0.010	0.20	0.010	0.011	0.010	7747646
Benzo(j)fluoranthene	ug/L	<0.010	<0.010	<0.010	0.010	0.33	0.010	<0.030 (1)	0.030	7747646
Benzo(k)fluoranthene	ug/L	<0.010	<0.010	<0.010	0.010	0.33	0.010	0.019	0.010	7747646
Chrysene	ug/L	<0.010	<0.010	0.019	0.010	1.0	0.010	0.11	0.010	7747646
Dibenzo(a,h)anthracene	ug/L	<0.010	<0.010	<0.010	0.010	0.043	0.010	<0.010	0.010	7747646
Fluoranthene	ug/L	0.013	0.014	0.41	0.010	7.7	0.010	2.2	0.010	7747646
Fluorene	ug/L	<0.010	0.021	0.99	0.010	21	0.010	8.0	0.010	7747646
Indeno(1,2,3-cd)pyrene	ug/L	<0.010	<0.010	<0.010	0.010	0.16	0.010	<0.010	0.010	7747646
Naphthalene	ug/L	<0.20	<0.20	3.5	0.20	100 (2)	2.0	22	0.20	7747646
Perylene	ug/L	<0.010	<0.010	<0.010	0.010	0.13	0.010	<0.010	0.010	7747646
Phenanthrene	ug/L	0.014	0.046	1.8	0.010	29	0.010	5.4	0.010	7747646
Pyrene	ug/L	0.011	<0.010	0.23	0.010	4.9	0.010	1.3	0.010	7747646
<b>Surrogate Recovery (%)</b>										
D10-Anthracene	%	96	91	92		78		80		7747646
D14-Terphenyl	%	97	72	92		92		90		7747646
D8-Acenaphthylene	%	104	95	110		95		105		7747646
RDL = Reportable Detection Limit QC Batch = Quality Control Batch (1) Elevated PAH RDL(s) due to matrix/ co-extractive interference. (2) Elevated PAH RDL(s) due to sample dilution.										



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### SEMI-VOLATILE ORGANICS BY GC-MS (WATER)

Bureau Veritas ID		RKD972	RKD973		
Sampling Date		2021/12/13	2021/12/13		
COC Number		D58817	D58817		
	UNITS	SCU32-200-MW	SCU27-202-MW	RDL	QC Batch
<b>Polyaromatic Hydrocarbons</b>					
1-Methylnaphthalene	ug/L	2.2	<0.050	0.050	7747646
2-Methylnaphthalene	ug/L	1.6	<0.050	0.050	7747646
Acenaphthene	ug/L	1.0	<0.010	0.010	7747646
Acenaphthylene	ug/L	1.1	<0.010	0.010	7747646
Anthracene	ug/L	1.0	<0.010	0.010	7747646
Benzo(a)anthracene	ug/L	0.11	<0.010	0.010	7747646
Benzo(a)pyrene	ug/L	0.012	<0.010	0.010	7747646
Benzo(b)fluoranthene	ug/L	0.011	<0.010	0.010	7747646
Benzo(b/j)fluoranthene	ug/L	<0.020	<0.020	0.020	7734834
Benzo(g,h,i)perylene	ug/L	<0.010	<0.010	0.010	7747646
Benzo(j)fluoranthene	ug/L	<0.010	<0.010	0.010	7747646
Benzo(k)fluoranthene	ug/L	<0.010	<0.010	0.010	7747646
Chrysene	ug/L	0.099	<0.010	0.010	7747646
Dibenzo(a,h)anthracene	ug/L	<0.010	<0.010	0.010	7747646
Fluoranthene	ug/L	2.2	0.018	0.010	7747646
Fluorene	ug/L	1.8	<0.010	0.010	7747646
Indeno(1,2,3-cd)pyrene	ug/L	<0.010	<0.010	0.010	7747646
Naphthalene	ug/L	5.3	<0.20	0.20	7747646
Perylene	ug/L	<0.010	0.013	0.010	7747646
Phenanthrene	ug/L	4.9	0.028	0.010	7747646
Pyrene	ug/L	1.3	0.012	0.010	7747646
<b>Surrogate Recovery (%)</b>					
D10-Anthracene	%	89	89		7747646
D14-Terphenyl	%	90	55 (1)		7747646
D8-Acenaphthylene	%	107	83		7747646
RDL = Reportable Detection Limit QC Batch = Quality Control Batch (1) PAH: sample contains sediment.					



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**ATLANTIC RBCA HYDROCARBONS (WATER)**

Bureau Veritas ID		RKD967	RKD968	RKD969	RKD970	RKD971		
Sampling Date		2021/12/13	2021/12/13	2021/12/13	2021/12/13	2021/12/13		
COC Number		D58817	D58817	D58817	D58817	D58817		
	UNITS	SCU18-007-MW	MCES-207-MW	MW20-1	MW20-2	MW20-4	RDL	QC Batch
<b>Petroleum Hydrocarbons</b>								
Benzene	mg/L	<0.0010	<0.0010	<0.0010	0.025	0.0073	0.0010	7738363
Toluene	mg/L	<0.0010	<0.0010	<0.0010	0.011	0.0020	0.0010	7738363
Ethylbenzene	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0010	7738363
Total Xylenes	mg/L	<0.0020	<0.0020	<0.0020	0.011	<0.0020	0.0020	7738363
C6 - C10 (less BTEX)	mg/L	<0.090	<0.090	<0.090	<0.090	<0.090	0.090	7738363
>C10-C16 Hydrocarbons	mg/L	<0.050	<0.050	0.18	0.56	0.16	0.050	7741415
>C16-C21 Hydrocarbons	mg/L	<0.050	<0.050	0.066	0.38	0.080	0.050	7741415
>C21-<C32 Hydrocarbons	mg/L	<0.090	<0.090	<0.090	0.41	0.12	0.090	7741415
Modified TPH (Tier1)	mg/L	<0.090	<0.090	0.25	1.4	0.36	0.090	7737089
Reached Baseline at C32	mg/L	NA	NA	Yes	Yes	Yes	N/A	7741415
Hydrocarbon Resemblance	mg/L	NA	NA	COMMENT (1)	COMMENT (2)	COMMENT (2)	N/A	7741415
<b>Surrogate Recovery (%)</b>								
Isobutylbenzene - Extractable	%	104	102	112	114	101		7741415
n-Dotriacontane - Extractable	%	93	94 (3)	96	98	90		7741415
Isobutylbenzene - Volatile	%	113	115	111	112	111		7738363

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





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### ATLANTIC RBCA HYDROCARBONS (WATER)

Bureau Veritas ID		RKD972	RKD973	RKD974		
Sampling Date		2021/12/13	2021/12/13	2021/12/13		
COC Number		D58817	D58817	D58817		
	<b>UNITS</b>	<b>SCU32-200-MW</b>	<b>SCU27-202-MW</b>	<b>TB-04</b>	<b>RDL</b>	<b>QC Batch</b>
<b>Petroleum Hydrocarbons</b>						
Benzene	mg/L	<0.0010	<0.0010	<0.0010	0.0010	7738363
Toluene	mg/L	<0.0010	<0.0010	<0.0010	0.0010	7738363
Ethylbenzene	mg/L	<0.0010	<0.0010	<0.0010	0.0010	7738363
Total Xylenes	mg/L	<0.0020	<0.0020	<0.0020	0.0020	7738363
C6 - C10 (less BTEX)	mg/L	<0.090	<0.090	<0.090	0.090	7738363
>C10-C16 Hydrocarbons	mg/L	0.18	<0.050	<0.050	0.050	7741415
>C16-C21 Hydrocarbons	mg/L	0.12	<0.050	<0.050	0.050	7741415
>C21-<C32 Hydrocarbons	mg/L	0.13	<0.090	<0.090	0.090	7741415
Modified TPH (Tier1)	mg/L	0.43	<0.090	<0.090	0.090	7737089
Reached Baseline at C32	mg/L	Yes	NA	NA	N/A	7741415
Hydrocarbon Resemblance	mg/L	COMMENT (1)	NA	NA	N/A	7741415
<b>Surrogate Recovery (%)</b>						
Isobutylbenzene - Extractable	%	95	105	104		7741415
n-Dotriacontane - Extractable	%	84	95 (2)	88		7741415
Isobutylbenzene - Volatile	%	110	113	110		7738363
RDL = Reportable Detection Limit QC Batch = Quality Control Batch N/A = Not Applicable (1) One product in fuel / lube range. (2) TEH sample contained sediment.						



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### GENERAL COMMENTS

Sample RKD968 [MCES-207-MW] : Elevated reporting limits for trace metals due to sample matrix.

Sample RKD973 [SCU27-202-MW] : Elevated reporting limits for trace metals due to sample matrix.

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



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### QUALITY ASSURANCE REPORT

QA/QC	Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
7738363	THL	Matrix Spike		Isobutylbenzene - Volatile	2021/12/18		113	%	70 - 130
				Benzene	2021/12/18		97	%	70 - 130
				Toluene	2021/12/18		96	%	70 - 130
				Ethylbenzene	2021/12/18		99	%	70 - 130
				Total Xylenes	2021/12/18		98	%	70 - 130
7738363	THL	Spiked Blank		Isobutylbenzene - Volatile	2021/12/18		112	%	70 - 130
				Benzene	2021/12/18		100	%	70 - 130
				Toluene	2021/12/18		103	%	70 - 130
				Ethylbenzene	2021/12/18		107	%	70 - 130
				Total Xylenes	2021/12/18		106	%	70 - 130
7738363	THL	Method Blank		Isobutylbenzene - Volatile	2021/12/18		111	%	70 - 130
				Benzene	2021/12/18	<0.0010		mg/L	
				Toluene	2021/12/18	<0.0010		mg/L	
				Ethylbenzene	2021/12/18	<0.0010		mg/L	
				Total Xylenes	2021/12/18	<0.0020		mg/L	
				C6 - C10 (less BTEX)	2021/12/18	<0.090		mg/L	
7738363	THL	RPD		Benzene	2021/12/18	NC		%	40
				Toluene	2021/12/18	NC		%	40
				Ethylbenzene	2021/12/18	NC		%	40
				Total Xylenes	2021/12/18	NC		%	40
				C6 - C10 (less BTEX)	2021/12/18	NC		%	40
7741415	MGN	Matrix Spike [RKD974-01]		Isobutylbenzene - Extractable	2021/12/21		103	%	70 - 130
				n-Dotriacontane - Extractable	2021/12/21		89	%	70 - 130
				>C10-C16 Hydrocarbons	2021/12/21		93	%	70 - 130
				>C16-C21 Hydrocarbons	2021/12/21		91	%	70 - 130
				>C21-<C32 Hydrocarbons	2021/12/21		86	%	70 - 130
7741415	MGN	Spiked Blank		Isobutylbenzene - Extractable	2021/12/21		87	%	70 - 130
				n-Dotriacontane - Extractable	2021/12/21		96	%	70 - 130
				>C10-C16 Hydrocarbons	2021/12/21		96	%	70 - 130
				>C16-C21 Hydrocarbons	2021/12/21		92	%	70 - 130
				>C21-<C32 Hydrocarbons	2021/12/21		91	%	70 - 130
7741415	MGN	Method Blank		Isobutylbenzene - Extractable	2021/12/21		97	%	70 - 130
				n-Dotriacontane - Extractable	2021/12/21		95	%	70 - 130
				>C10-C16 Hydrocarbons	2021/12/21	<0.050		mg/L	
				>C16-C21 Hydrocarbons	2021/12/21	<0.050		mg/L	
7741415	MGN	RPD		>C21-<C32 Hydrocarbons	2021/12/21	<0.090		mg/L	
				>C10-C16 Hydrocarbons	2021/12/21	NC		%	40
				>C16-C21 Hydrocarbons	2021/12/21	NC		%	40
7747636	BAN	Matrix Spike		>C21-<C32 Hydrocarbons	2021/12/21	NC		%	40
				Dissolved Aluminum (Al)	2021/12/22		95	%	80 - 120
				Dissolved Antimony (Sb)	2021/12/22		99	%	80 - 120
				Dissolved Arsenic (As)	2021/12/22		94	%	80 - 120
				Dissolved Barium (Ba)	2021/12/22		94	%	80 - 120
				Dissolved Beryllium (Be)	2021/12/22		95	%	80 - 120
				Dissolved Bismuth (Bi)	2021/12/22		94	%	80 - 120
				Dissolved Boron (B)	2021/12/22		92	%	80 - 120
				Dissolved Cadmium (Cd)	2021/12/22		97	%	80 - 120
				Dissolved Calcium (Ca)	2021/12/22		99	%	80 - 120
				Dissolved Chromium (Cr)	2021/12/22		97	%	80 - 120
				Dissolved Cobalt (Co)	2021/12/22		95	%	80 - 120
				Dissolved Copper (Cu)	2021/12/22		97	%	80 - 120
				Dissolved Iron (Fe)	2021/12/22		99	%	80 - 120
				Dissolved Lead (Pb)	2021/12/22		96	%	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 Magnesium (Mg)	2021/12/22		102	%	80 - 120
			Dissolved Manganese (Mn)	2021/12/22		95	%	80 - 120
			Dissolved Molybdenum (Mo)	2021/12/22		99	%	80 - 120
			Dissolved Nickel (Ni)	2021/12/22		97	%	80 - 120
			Dissolved Phosphorus (P)	2021/12/22		104	%	80 - 120
			Dissolved Potassium (K)	2021/12/22		98	%	80 - 120
			Dissolved Selenium (Se)	2021/12/22		98	%	80 - 120
			Dissolved Silver (Ag)	2021/12/22		96	%	80 - 120
			Dissolved Sodium (Na)	2021/12/22		98	%	80 - 120
			Dissolved Strontium (Sr)	2021/12/22		97	%	80 - 120
			Dissolved Thallium (Tl)	2021/12/22		98	%	80 - 120
			Dissolved Tin (Sn)	2021/12/22		97	%	80 - 120
			Dissolved Titanium (Ti)	2021/12/22		99	%	80 - 120
			Dissolved Uranium (U)	2021/12/22		103	%	80 - 120
			Dissolved Vanadium (V)	2021/12/22		97	%	80 - 120
			Dissolved Zinc (Zn)	2021/12/22		99	%	80 - 120
7747636	BAN	Spiked Blank	Dissolved Aluminum (Al)	2021/12/22		100	%	80 - 120
			Dissolved Antimony (Sb)	2021/12/22		99	%	80 - 120
			Dissolved Arsenic (As)	2021/12/22		93	%	80 - 120
			Dissolved Barium (Ba)	2021/12/22		96	%	80 - 120
			Dissolved Beryllium (Be)	2021/12/22		98	%	80 - 120
			Dissolved Bismuth (Bi)	2021/12/22		98	%	80 - 120
			Dissolved Boron (B)	2021/12/22		96	%	80 - 120
			Dissolved Cadmium (Cd)	2021/12/22		99	%	80 - 120
			Dissolved Calcium (Ca)	2021/12/22		99	%	80 - 120
			Dissolved Chromium (Cr)	2021/12/22		97	%	80 - 120
			Dissolved Cobalt (Co)	2021/12/22		96	%	80 - 120
			Dissolved Copper (Cu)	2021/12/22		98	%	80 - 120
			Dissolved Iron (Fe)	2021/12/22		102	%	80 - 120
			Dissolved Lead (Pb)	2021/12/22		98	%	80 - 120
			Dissolved Magnesium (Mg)	2021/12/22		103	%	80 - 120
			Dissolved Manganese (Mn)	2021/12/22		99	%	80 - 120
			Dissolved Molybdenum (Mo)	2021/12/22		101	%	80 - 120
			Dissolved Nickel (Ni)	2021/12/22		98	%	80 - 120
			Dissolved Phosphorus (P)	2021/12/22		105	%	80 - 120
			Dissolved Potassium (K)	2021/12/22		101	%	80 - 120
			Dissolved Selenium (Se)	2021/12/22		98	%	80 - 120
			Dissolved Silver (Ag)	2021/12/22		97	%	80 - 120
			Dissolved Sodium (Na)	2021/12/22		99	%	80 - 120
			Dissolved Strontium (Sr)	2021/12/22		96	%	80 - 120
			Dissolved Thallium (Tl)	2021/12/22		99	%	80 - 120
			Dissolved Tin (Sn)	2021/12/22		98	%	80 - 120
			Dissolved Titanium (Ti)	2021/12/22		101	%	80 - 120
			Dissolved Uranium (U)	2021/12/22		105	%	80 - 120
			Dissolved Vanadium (V)	2021/12/22		98	%	80 - 120
			Dissolved Zinc (Zn)	2021/12/22		99	%	80 - 120
7747636	BAN	Method Blank	Dissolved Aluminum (Al)	2021/12/22	<5.0		ug/L	
			Dissolved Antimony (Sb)	2021/12/22	<1.0		ug/L	
			Dissolved Arsenic (As)	2021/12/22	<1.0		ug/L	
			Dissolved Barium (Ba)	2021/12/22	<1.0		ug/L	
			Dissolved Beryllium (Be)	2021/12/22	<0.10		ug/L	
			Dissolved Bismuth (Bi)	2021/12/22	<2.0		ug/L	
			Dissolved Boron (B)	2021/12/22	<50		ug/L	



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QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Dissolved Cadmium (Cd)	2021/12/22	<0.010		ug/L	
			Dissolved Calcium (Ca)	2021/12/22	<100		ug/L	
			Dissolved Chromium (Cr)	2021/12/22	<1.0		ug/L	
			Dissolved Cobalt (Co)	2021/12/22	<0.40		ug/L	
			Dissolved Copper (Cu)	2021/12/22	<0.50		ug/L	
			Dissolved Iron (Fe)	2021/12/22	<50		ug/L	
			Dissolved Lead (Pb)	2021/12/22	<0.50		ug/L	
			Dissolved Magnesium (Mg)	2021/12/22	<100		ug/L	
			Dissolved Manganese (Mn)	2021/12/22	<2.0		ug/L	
			Dissolved Molybdenum (Mo)	2021/12/22	<2.0		ug/L	
			Dissolved Nickel (Ni)	2021/12/22	<2.0		ug/L	
			Dissolved Phosphorus (P)	2021/12/22	<100		ug/L	
			Dissolved Potassium (K)	2021/12/22	<100		ug/L	
			Dissolved Selenium (Se)	2021/12/22	<0.50		ug/L	
			Dissolved Silver (Ag)	2021/12/22	<0.10		ug/L	
			Dissolved Sodium (Na)	2021/12/22	<100		ug/L	
			Dissolved Strontium (Sr)	2021/12/22	<2.0		ug/L	
			Dissolved Thallium (Tl)	2021/12/22	<0.10		ug/L	
			Dissolved Tin (Sn)	2021/12/22	<2.0		ug/L	
			Dissolved Titanium (Ti)	2021/12/22	<2.0		ug/L	
			Dissolved Uranium (U)	2021/12/22	<0.10		ug/L	
			Dissolved Vanadium (V)	2021/12/22	<2.0		ug/L	
			Dissolved Zinc (Zn)	2021/12/22	<5.0		ug/L	
7747636	BAN	RPD	Dissolved Aluminum (Al)	2021/12/22	2.9		%	20
			Dissolved Antimony (Sb)	2021/12/22	NC		%	20
			Dissolved Arsenic (As)	2021/12/22	NC		%	20
			Dissolved Barium (Ba)	2021/12/22	1.1		%	20
			Dissolved Beryllium (Be)	2021/12/22	NC		%	20
			Dissolved Bismuth (Bi)	2021/12/22	NC		%	20
			Dissolved Boron (B)	2021/12/22	NC		%	20
			Dissolved Cadmium (Cd)	2021/12/22	16		%	20
			Dissolved Calcium (Ca)	2021/12/22	3.2		%	20
			Dissolved Chromium (Cr)	2021/12/22	NC		%	20
			Dissolved Cobalt (Co)	2021/12/22	NC		%	20
			Dissolved Copper (Cu)	2021/12/22	NC		%	20
			Dissolved Iron (Fe)	2021/12/22	0.39		%	20
			Dissolved Lead (Pb)	2021/12/22	NC		%	20
			Dissolved Magnesium (Mg)	2021/12/22	1.8		%	20
			Dissolved Manganese (Mn)	2021/12/22	0.26		%	20
			Dissolved Molybdenum (Mo)	2021/12/22	NC		%	20
			Dissolved Nickel (Ni)	2021/12/22	NC		%	20
			Dissolved Phosphorus (P)	2021/12/22	NC		%	20
			Dissolved Potassium (K)	2021/12/22	3.7		%	20
			Dissolved Selenium (Se)	2021/12/22	NC		%	20
			Dissolved Silver (Ag)	2021/12/22	NC		%	20
			Dissolved Sodium (Na)	2021/12/22	0.091		%	20
			Dissolved Strontium (Sr)	2021/12/22	1.0		%	20
			Dissolved Thallium (Tl)	2021/12/22	NC		%	20
			Dissolved Tin (Sn)	2021/12/22	NC		%	20
			Dissolved Titanium (Ti)	2021/12/22	NC		%	20
			Dissolved Uranium (U)	2021/12/22	NC		%	20
			Dissolved Vanadium (V)	2021/12/22	NC		%	20
			Dissolved Zinc (Zn)	2021/12/22	10		%	20



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### QUALITY ASSURANCE REPORT(CONT'D)

QA/QC								
Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
7747646	LGE	Matrix Spike	D10-Anthracene	2021/12/22		94	%	50 - 130
			D14-Terphenyl	2021/12/22		92	%	50 - 130
			D8-Acenaphthylene	2021/12/22		99	%	50 - 130
			1-Methylnaphthalene	2021/12/22		104	%	50 - 130
			2-Methylnaphthalene	2021/12/22		105	%	50 - 130
			Acenaphthene	2021/12/22		107	%	50 - 130
			Acenaphthylene	2021/12/22		115	%	50 - 130
			Anthracene	2021/12/22		108	%	50 - 130
			Benzo(a)anthracene	2021/12/22		98	%	50 - 130
			Benzo(a)pyrene	2021/12/22		91	%	50 - 130
			Benzo(b)fluoranthene	2021/12/22		100	%	50 - 130
			Benzo(g,h,i)perylene	2021/12/22		78	%	50 - 130
			Benzo(j)fluoranthene	2021/12/22		103	%	50 - 130
			Benzo(k)fluoranthene	2021/12/22		99	%	50 - 130
			Chrysene	2021/12/22		109	%	50 - 130
			Dibenzo(a,h)anthracene	2021/12/22		48 (1)	%	50 - 130
			Fluoranthene	2021/12/22		116	%	50 - 130
			Fluorene	2021/12/22		109	%	50 - 130
			Indeno(1,2,3-cd)pyrene	2021/12/22		64	%	50 - 130
			Naphthalene	2021/12/22		108	%	50 - 130
			Perylene	2021/12/22		97	%	50 - 130
			Phenanthrene	2021/12/22		122	%	50 - 130
			Pyrene	2021/12/22		119	%	50 - 130
			7747646	LGE	Spiked Blank	D10-Anthracene	2021/12/22	
D14-Terphenyl	2021/12/22					97	%	50 - 130
D8-Acenaphthylene	2021/12/22					100	%	50 - 130
1-Methylnaphthalene	2021/12/22					103	%	50 - 130
2-Methylnaphthalene	2021/12/22					105	%	50 - 130
Acenaphthene	2021/12/22					108	%	50 - 130
Acenaphthylene	2021/12/22					116	%	50 - 130
Anthracene	2021/12/22					113	%	50 - 130
Benzo(a)anthracene	2021/12/22					100	%	50 - 130
Benzo(a)pyrene	2021/12/22					95	%	50 - 130
Benzo(b)fluoranthene	2021/12/22					100	%	50 - 130
Benzo(g,h,i)perylene	2021/12/22					84	%	50 - 130
Benzo(j)fluoranthene	2021/12/22					105	%	50 - 130
Benzo(k)fluoranthene	2021/12/22					100	%	50 - 130
Chrysene	2021/12/22					110	%	50 - 130
Dibenzo(a,h)anthracene	2021/12/22					53	%	50 - 130
Fluoranthene	2021/12/22					116	%	50 - 130
Fluorene	2021/12/22					110	%	50 - 130
Indeno(1,2,3-cd)pyrene	2021/12/22					68	%	50 - 130
Naphthalene	2021/12/22					108	%	50 - 130
Perylene	2021/12/22					103	%	50 - 130
Phenanthrene	2021/12/22					123	%	50 - 130
Pyrene	2021/12/22					119	%	50 - 130
7747646	LGE	Method Blank				D10-Anthracene	2021/12/22	
			D14-Terphenyl	2021/12/22		100	%	50 - 130
			D8-Acenaphthylene	2021/12/22		101	%	50 - 130
			1-Methylnaphthalene	2021/12/22	<0.050		ug/L	
			2-Methylnaphthalene	2021/12/22	<0.050		ug/L	
Acenaphthene	2021/12/22	<0.010		ug/L				
Acenaphthylene	2021/12/22	<0.010		ug/L				



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Bureau Veritas Job #: C1Z6147  
Report Date: 2022/01/17

Dillon Consulting Limited  
Client Project #: 20-2862  
Site Location: HCP  
Sampler Initials: MS

### QUALITY ASSURANCE REPORT(CONT'D)

QA/QC	Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
				Anthracene	2021/12/22	<0.010		ug/L	
				Benzo(a)anthracene	2021/12/22	<0.010		ug/L	
				Benzo(a)pyrene	2021/12/22	<0.010		ug/L	
				Benzo(b)fluoranthene	2021/12/22	<0.010		ug/L	
				Benzo(g,h,i)perylene	2021/12/22	<0.010		ug/L	
				Benzo(j)fluoranthene	2021/12/22	<0.010		ug/L	
				Benzo(k)fluoranthene	2021/12/22	<0.010		ug/L	
				Chrysene	2021/12/22	<0.010		ug/L	
				Dibenzo(a,h)anthracene	2021/12/22	<0.010		ug/L	
				Fluoranthene	2021/12/22	<0.010		ug/L	
				Fluorene	2021/12/22	<0.010		ug/L	
				Indeno(1,2,3-cd)pyrene	2021/12/22	<0.010		ug/L	
				Naphthalene	2021/12/22	<0.20		ug/L	
				Perylene	2021/12/22	<0.010		ug/L	
				Phenanthrene	2021/12/22	<0.010		ug/L	
				Pyrene	2021/12/22	<0.010		ug/L	
7747646	LGE	RPD		1-Methylnaphthalene	2021/12/22	NC		%	40
				2-Methylnaphthalene	2021/12/22	NC		%	40
				Acenaphthene	2021/12/22	NC		%	40
				Acenaphthylene	2021/12/22	NC		%	40
				Anthracene	2021/12/22	NC		%	40
				Benzo(a)anthracene	2021/12/22	NC		%	40
				Benzo(a)pyrene	2021/12/22	NC		%	40
				Benzo(b)fluoranthene	2021/12/22	NC		%	40
				Benzo(g,h,i)perylene	2021/12/22	NC		%	40
				Benzo(j)fluoranthene	2021/12/22	NC		%	40
				Benzo(k)fluoranthene	2021/12/22	NC		%	40
				Chrysene	2021/12/22	NC		%	40
				Dibenzo(a,h)anthracene	2021/12/22	NC		%	40
				Fluoranthene	2021/12/22	NC		%	40
				Fluorene	2021/12/22	NC		%	40
				Indeno(1,2,3-cd)pyrene	2021/12/22	NC		%	40
				Naphthalene	2021/12/22	NC		%	40
				Perylene	2021/12/22	NC		%	40
				Phenanthrene	2021/12/22	NC		%	40
				Pyrene	2021/12/22	NC		%	40
7747778	BAN	Matrix Spike		Dissolved Aluminum (Al)	2021/12/22		101	%	80 - 120
				Dissolved Antimony (Sb)	2021/12/22		100	%	80 - 120
				Dissolved Arsenic (As)	2021/12/22		94	%	80 - 120
				Dissolved Barium (Ba)	2021/12/22		93	%	80 - 120
				Dissolved Beryllium (Be)	2021/12/22		96	%	80 - 120
				Dissolved Bismuth (Bi)	2021/12/22		96	%	80 - 120
				Dissolved Boron (B)	2021/12/22		95	%	80 - 120
				Dissolved Cadmium (Cd)	2021/12/22		98	%	80 - 120
				Dissolved Calcium (Ca)	2021/12/22		99	%	80 - 120
				Dissolved Chromium (Cr)	2021/12/22		96	%	80 - 120
				Dissolved Cobalt (Co)	2021/12/22		94	%	80 - 120
				Dissolved Copper (Cu)	2021/12/22		95	%	80 - 120
				Dissolved Iron (Fe)	2021/12/22		100	%	80 - 120
				Dissolved Lead (Pb)	2021/12/22		97	%	80 - 120
				Dissolved Magnesium (Mg)	2021/12/22		102	%	80 - 120
				Dissolved Manganese (Mn)	2021/12/22		96	%	80 - 120
				Dissolved Molybdenum (Mo)	2021/12/22		98	%	80 - 120





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Sampler Initials: MS

### QUALITY ASSURANCE REPORT(CONT'D)

QA/QC	Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
				Dissolved Nickel (Ni)	2021/12/22		96	%	80 - 120
				Dissolved Phosphorus (P)	2021/12/22		105	%	80 - 120
				Dissolved Potassium (K)	2021/12/22		100	%	80 - 120
				Dissolved Selenium (Se)	2021/12/22		99	%	80 - 120
				Dissolved Silver (Ag)	2021/12/22		94	%	80 - 120
				Dissolved Sodium (Na)	2021/12/22		100	%	80 - 120
				Dissolved Strontium (Sr)	2021/12/22		95	%	80 - 120
				Dissolved Thallium (Tl)	2021/12/22		98	%	80 - 120
				Dissolved Tin (Sn)	2021/12/22		99	%	80 - 120
				Dissolved Titanium (Ti)	2021/12/22		97	%	80 - 120
				Dissolved Uranium (U)	2021/12/22		102	%	80 - 120
				Dissolved Vanadium (V)	2021/12/22		97	%	80 - 120
				Dissolved Zinc (Zn)	2021/12/22		99	%	80 - 120
7747778	BAN		Spiked Blank	Dissolved Aluminum (Al)	2021/12/22		110	%	80 - 120
				Dissolved Antimony (Sb)	2021/12/22		98	%	80 - 120
				Dissolved Arsenic (As)	2021/12/22		93	%	80 - 120
				Dissolved Barium (Ba)	2021/12/22		93	%	80 - 120
				Dissolved Beryllium (Be)	2021/12/22		95	%	80 - 120
				Dissolved Bismuth (Bi)	2021/12/22		98	%	80 - 120
				Dissolved Boron (B)	2021/12/22		95	%	80 - 120
				Dissolved Cadmium (Cd)	2021/12/22		96	%	80 - 120
				Dissolved Calcium (Ca)	2021/12/22		100	%	80 - 120
				Dissolved Chromium (Cr)	2021/12/22		96	%	80 - 120
				Dissolved Cobalt (Co)	2021/12/22		95	%	80 - 120
				Dissolved Copper (Cu)	2021/12/22		97	%	80 - 120
				Dissolved Iron (Fe)	2021/12/22		100	%	80 - 120
				Dissolved Lead (Pb)	2021/12/22		97	%	80 - 120
				Dissolved Magnesium (Mg)	2021/12/22		103	%	80 - 120
				Dissolved Manganese (Mn)	2021/12/22		97	%	80 - 120
				Dissolved Molybdenum (Mo)	2021/12/22		100	%	80 - 120
				Dissolved Nickel (Ni)	2021/12/22		97	%	80 - 120
				Dissolved Phosphorus (P)	2021/12/22		106	%	80 - 120
				Dissolved Potassium (K)	2021/12/22		101	%	80 - 120
				Dissolved Selenium (Se)	2021/12/22		98	%	80 - 120
				Dissolved Silver (Ag)	2021/12/22		94	%	80 - 120
				Dissolved Sodium (Na)	2021/12/22		100	%	80 - 120
				Dissolved Strontium (Sr)	2021/12/22		96	%	80 - 120
				Dissolved Thallium (Tl)	2021/12/22		99	%	80 - 120
				Dissolved Tin (Sn)	2021/12/22		96	%	80 - 120
				Dissolved Titanium (Ti)	2021/12/22		98	%	80 - 120
				Dissolved Uranium (U)	2021/12/22		103	%	80 - 120
				Dissolved Vanadium (V)	2021/12/22		96	%	80 - 120
				Dissolved Zinc (Zn)	2021/12/22		100	%	80 - 120
7747778	BAN		Method Blank	Dissolved Aluminum (Al)	2021/12/22	<5.0		ug/L	
				Dissolved Antimony (Sb)	2021/12/22	<1.0		ug/L	
				Dissolved Arsenic (As)	2021/12/22	<1.0		ug/L	
				Dissolved Barium (Ba)	2021/12/22	<1.0		ug/L	
				Dissolved Beryllium (Be)	2021/12/22	<0.10		ug/L	
				Dissolved Bismuth (Bi)	2021/12/22	<2.0		ug/L	
				Dissolved Boron (B)	2021/12/22	<50		ug/L	
				Dissolved Cadmium (Cd)	2021/12/22	<0.010		ug/L	
				Dissolved Calcium (Ca)	2021/12/22	<100		ug/L	
				Dissolved Chromium (Cr)	2021/12/22	<1.0		ug/L	



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### QUALITY ASSURANCE REPORT(CONT'D)

QA/QC	Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
				Dissolved Cobalt (Co)	2021/12/22	<0.40		ug/L	
				Dissolved Copper (Cu)	2021/12/22	<0.50		ug/L	
				Dissolved Iron (Fe)	2021/12/22	<50		ug/L	
				Dissolved Lead (Pb)	2021/12/22	<0.50		ug/L	
				Dissolved Magnesium (Mg)	2021/12/22	<100		ug/L	
				Dissolved Manganese (Mn)	2021/12/22	<2.0		ug/L	
				Dissolved Molybdenum (Mo)	2021/12/22	<2.0		ug/L	
				Dissolved Nickel (Ni)	2021/12/22	<2.0		ug/L	
				Dissolved Phosphorus (P)	2021/12/22	<100		ug/L	
				Dissolved Potassium (K)	2021/12/22	<100		ug/L	
				Dissolved Selenium (Se)	2021/12/22	<0.50		ug/L	
				Dissolved Silver (Ag)	2021/12/22	<0.10		ug/L	
				Dissolved Sodium (Na)	2021/12/22	<100		ug/L	
				Dissolved Strontium (Sr)	2021/12/22	<2.0		ug/L	
				Dissolved Thallium (Tl)	2021/12/22	<0.10		ug/L	
				Dissolved Tin (Sn)	2021/12/22	<2.0		ug/L	
				Dissolved Titanium (Ti)	2021/12/22	<2.0		ug/L	
				Dissolved Uranium (U)	2021/12/22	<0.10		ug/L	
				Dissolved Vanadium (V)	2021/12/22	<2.0		ug/L	
				Dissolved Zinc (Zn)	2021/12/22	<5.0		ug/L	
7747778		BAN	RPD	Dissolved Aluminum (Al)	2021/12/22	0.28		%	20
				Dissolved Antimony (Sb)	2021/12/22	NC		%	20
				Dissolved Arsenic (As)	2021/12/22	NC		%	20
				Dissolved Barium (Ba)	2021/12/22	5.8		%	20
				Dissolved Beryllium (Be)	2021/12/22	5.4		%	20
				Dissolved Bismuth (Bi)	2021/12/22	NC		%	20
				Dissolved Boron (B)	2021/12/22	NC		%	20
				Dissolved Cadmium (Cd)	2021/12/22	4.6		%	20
				Dissolved Calcium (Ca)	2021/12/22	0.032		%	20
				Dissolved Chromium (Cr)	2021/12/22	NC		%	20
				Dissolved Cobalt (Co)	2021/12/22	NC		%	20
				Dissolved Copper (Cu)	2021/12/22	NC		%	20
				Dissolved Iron (Fe)	2021/12/22	NC		%	20
				Dissolved Lead (Pb)	2021/12/22	NC		%	20
				Dissolved Magnesium (Mg)	2021/12/22	1.4		%	20
				Dissolved Manganese (Mn)	2021/12/22	2.2		%	20
				Dissolved Molybdenum (Mo)	2021/12/22	NC		%	20
				Dissolved Nickel (Ni)	2021/12/22	NC		%	20
				Dissolved Phosphorus (P)	2021/12/22	NC		%	20
				Dissolved Potassium (K)	2021/12/22	0.28		%	20
				Dissolved Selenium (Se)	2021/12/22	NC		%	20
				Dissolved Silver (Ag)	2021/12/22	NC		%	20
				Dissolved Sodium (Na)	2021/12/22	0.75		%	20
				Dissolved Strontium (Sr)	2021/12/22	2.7		%	20
				Dissolved Thallium (Tl)	2021/12/22	NC		%	20
				Dissolved Tin (Sn)	2021/12/22	NC		%	20
				Dissolved Titanium (Ti)	2021/12/22	NC		%	20
				Dissolved Uranium (U)	2021/12/22	NC		%	20
				Dissolved Vanadium (V)	2021/12/22	NC		%	20
				Dissolved Zinc (Zn)	2021/12/22	NC		%	20
7772532	FJO		Matrix Spike	Total Mercury (Hg)	2022/01/11		93	%	80 - 120
7772532	FJO		Spiked Blank	Total Mercury (Hg)	2022/01/11		93	%	80 - 120
7772532	FJO		Method Blank	Total Mercury (Hg)	2022/01/11	<0.013		ug/L	



QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
7772532	FJO	RPD	Total Mercury (Hg)	2022/01/11	NC		%	20
7777022	FJO	Matrix Spike	Total Mercury (Hg)	2022/01/13		92	%	80 - 120
7777022	FJO	Spiked Blank	Total Mercury (Hg)	2022/01/13		100	%	80 - 120
7777022	FJO	Method Blank	Total Mercury (Hg)	2022/01/13	<0.013		ug/L	
7777022	FJO	RPD	Total Mercury (Hg)	2022/01/13	NC		%	20
7777257	FJO	Matrix Spike	Total Mercury (Hg)	2022/01/13		87	%	80 - 120
7777257	FJO	Spiked Blank	Total Mercury (Hg)	2022/01/13		97	%	80 - 120
7777257	FJO	Method Blank	Total Mercury (Hg)	2022/01/13	<0.013		ug/L	
7777257	FJO	RPD	Total Mercury (Hg)	2022/01/13	4.9 (2)		%	20

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.

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

(1) Matrix Spike: results are outside acceptance limit due to probable matrix interference.

(2) Mercury analyzed past recommended hold time.



### VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:

Colleen Acker, B.Sc, Scientific Service Specialist

Mike MacGillivray, Scientific Specialist (Inorganics)

Rosemarie MacDonald, Scientific Specialist (Organics)

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BV Labs has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation please refer to the Validation Signature Page.



February 3, 2022

## Re: Case Narrative – Hold Time Exceedance for the Analysis of Total Mercury in Environmental Media (soils and waters)

The analysis of total mercury in environmental samples is a routine test for compliance with provincial and federal regulations in Canada. The hold time, defined as the elapsed time between sample collection and commencement of laboratory analysis, is found in provincial regulations<sup>1</sup> and federal (CCME) guidelines<sup>2</sup>. It is 28 days for both soils and waters throughout. Soil samples are unpreserved, while waters are preserved (with either HCl or BrCl) and can either be field filtered (for dissolved phase impact) or unfiltered (for total analysis). In all cases, the references for the published hold time is SW-846 (Chapter 3, 2007) of the EPA<sup>3</sup>, as well as EPA method 1631<sup>4</sup> for analysis of mercury.

EPA's Guidance document for implementation of method 1631<sup>5</sup> indicates the holding time was reduced from 6 months (in the pre-2002 versions of the method) to 28 days (latest revision, 2002). The rationale for this change was that no reference was identified to support the stability of mercury in environmental samples for 6 months. However, the guidance document also doesn't reference any studies to support a hold time of 28 days.

More recently, studies have reported total mercury stability for at least 300 days<sup>6</sup> from time of collection, for water samples stored at 0.4-0.5% acidity. Furthermore, a 2018 study<sup>7</sup> showed no statistically significant differences between results of soil and peat samples analyzed upwards of 10 years apart, while stored under standard laboratory conditions (sealed jars, < 6C).

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<sup>1</sup> Ontario Ministry of Environment, Conservation and Parks, Laboratory Services Branch. 2021. Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act and Excess Soil Quality.

British Columbia Ministry of Environment, Environmental Laboratory Technical Advisory Committee. 2020. B.C. Environmental Laboratory Manual – Sample Preservation and Holding Time Requirements.

<sup>2</sup> Canadian Council of Ministers of the Environment. 2016. Guidance Manual for Environmental Site Characterization in Support of Environmental and Human Health Risk Assessment – Volume 4: Analytical Methods.

<sup>3</sup> United States Environmental Protection Agency. 2018. Test Methods for Evaluating Solid Waste: Physical/Chemical Methods Compendium, Chapter 3: Inorganic Analytes.

<sup>4</sup> United States Environmental Protection Agency. 2002. Method 1631, Revision E: Mercury in Water by Oxidation, Purge and Trap, and Cold Vapor Atomic Fluorescence Spectrometry.

<sup>5</sup> United States Environmental Protection Agency. 2001. Guidance for Implementation and Use of EPA Method 1631 for the Determination of Low-Level Mercury (40 CFR part 136)

<sup>6</sup> Parker J. L., Bloom N. S. 2005. Preservation and storage techniques for low-level aqueous mercury speciation. *Science of the Total Environment*. 337:253-263.

<sup>7</sup> Navratil T., Burns D. A., Novakova T., Kana J., Rohovec J., Roll M., Ettler V. Stability of mercury concentration measurements in archived soil and peat samples. *Chemosphere*. 208:707-711.



## Conclusion

Given the information provided by recent literature, it is Bureau Veritas' professional opinion that analysis of total mercury on properly preserved and stored samples beyond the published hold time of 28 days would not have any significant impact on the analytical data.

Sincerely,

Bureau Veritas Laboratories

Virgil Guran, M.A.Sc., C.Chem., EP  
Consulting Scientist, Site Assessment & Remediation  
Environmental Services

Terry Obal, Ph.D., C.Chem.  
Chief Science Advisor  
Environmental Services

## References

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- Nova Scotia Environment Tier I Environmental Quality Standards for Groundwater (Coarse Grained Soil, Non-potable Groundwater Commercial/Industrial Site) 2013.
- Ontario Ministry of Environment, Table 3 Full Depth Generic Site Condition Standards in a Non-potable Groundwater (Coarse Grained Soil) 2011.
- Harbourside Commercial Park, Sydney, NS, 2013 Groundwater Monitoring Program, SLR Consulting (Canada) Ltd., dated November 2014.
- Long Term Maintenance and Monitoring 2014 Groundwater Monitoring Event Harbourside Commercial Park Final Report, Dillon Consulting Limited, dated March 2015.
- Long Term Maintenance and Monitoring 2015 Groundwater Monitoring Event Harbourside Commercial Park Final Report, Dillon Consulting Limited, dated June 2016.
- Long Term Maintenance and Monitoring 2016 Groundwater Monitoring Event Harbourside Commercial Park Final Report, Dillon Consulting Limited, dated May 2017.
- Long Term Maintenance and Monitoring 2017 Groundwater Monitoring Event Harbourside Commercial Park Final Report, Dillon Consulting Limited, dated March 2018.
- Long Term Maintenance and Monitoring - 2018 Groundwater Monitoring Event Harbourside Commercial Park - Final Report, Dillon Consulting Limited, dated March 2019.