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NOVA SCOTIA LANDS

Long Term Maintenance and Monitoring 2016 Groundwater Monitoring Event Harbourside Commercial Park

Final Report

May 9th, 2017

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

ATTENTION: Mr. Frank Potter
Executive Director

*Long Term Maintenance and Monitoring 2016 Groundwater Monitoring Event
Harbourside Commercial Park (Draft)*

Dear Mr. Potter:

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

Yours sincerely,

DILLON CONSULTING LIMITED

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

NJW:kme

Enclosure

Our file: 14-1360-3000

Table of Contents

Executive Summary

1.0	Introduction	1
1.1	Scope of Work	1
2.0	Project Methodologies	4
2.1	Health and Safety Processes	4
2.2	Quality Control Process	4
2.3	LTMM Groundwater Monitoring Program	5
2.3.1	Measurement of Hydraulic Head Levels.....	5
2.3.2	Sample Collection.....	6
2.3.3	Groundwater Analysis	6
2.4	Data Compilation/Assessment.....	7
2.4.1	Regulatory Framework	7
2.4.2	Groundwater Quality Trend Analysis – Mann Kendall	7
3.0	Results	9
3.1	Weather Conditions and General Observations	9
3.2	Groundwater Flow and Hydraulic Head Levels.....	9
3.3	HCP Findings.....	9
3.3.1	HCP Groundwater Quality.....	12
3.3.2	Product Check	15
3.3.3	Trend Analysis.....	16
3.4	QC Summary	16
3.4.1	Relative Percent Difference	17
3.4.2	Laboratory Matrix Spikes, Spikes Blank and Method Blanks	17
3.4.3	Trip Blanks.....	17
3.4.4	Equipment and Field Blank	17
3.4.5	Holding Times.....	18
4.0	Summary	19
5.0	Recommendations	21

6.0	Disclaimer	22
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Figures

Figure 1-1	Site Location.....	2
Figure 1-2	Study Area.....	3
Figure 3-1	Equipotential Groundwater Contours Fill/Till.....	10
Figure 3-2	HCP Area Features.....	11
Figure 4-1	HCP Indicator Parameter Concentration Trend	20

Tables

Table 2-1	Water Quality Analytical Suite of Parameters	6
Table 3-1	HCP – Summary of Indicator Parameter Concentrations	12
Table 3-1	HCP Summary of Product Check	15
Table 3-3	HCP – Trend Analysis Summary	16
Table 4-1	Summary of 2016 Groundwater Exceedances – Organic Parameters	15
Table 4-2	Summary of 2016 Groundwater Exceedances – Inorganic Parameters.....	15

pg

Appendices

A	Analytical Tables
B	QC Tables
C	Laboratory Certificates
D	Mann-Kendall Tables

References

Executive Summary

Nova Scotia Lands (NS Lands) is a Crown Corporation of the Province of Nova Scotia responsible for the Long Term Maintenance and Monitoring Program (LTMM) implemented at Harbourside Commercial Park (HCP). NS Lands retained Dillon Consulting Limited (Dillon) to conduct the LTMM program, which consists of an annual groundwater sampling program. The LTMM event was completed between November 15 and 18, 2016. The groundwater monitoring program was scheduled to include the collection of twenty-five groundwater samples; however, during the 2016 program, groundwater samples were not collected from monitor wells SCU32-001-MWA and SCU32-003-MW due to the presence of free product. Therefore, twenty-three groundwater samples were submitted for select analysis (i.e., petroleum hydrocarbons (PHCs), polycyclic aromatic hydrocarbons (PAHs) and metals). Additionally, a sample of the free product (i.e., light non-aqueous phase liquid (LNAPL)) within SCU32-003-MW was submitted for characterization.

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

Analytical results indicate no exceedances of the Tier I EQS.

Five monitor wells contained PAH concentrations above the MOE standards (i.e., SCU10-004-MW, SCU20-013-MW, SCU20-014-MW, SCU20-016-MW and SCU20-017-MW). Groundwater quality trend analysis was performed for select monitor wells within the HCP area via Mann-Kendall analysis, which included select PAH indicator parameters (i.e., acenaphthylene and anthracene). Two monitor wells (i.e., SCU10-004-MW and SCU20-013-MW) contained concentration(s) of indicator parameters exhibiting an increasing or potentially increasing concentration trend during the 2016 monitoring event (i.e., acenaphthylene exhibited increasing and potentially increasing concentration trends in SCU10-004-MW and SCU20-013-MW, respectively; and anthracene exhibited a potentially increasing concentration trend in SCU10-004-MW).

One monitor well, SCU27-002-MW, contained a barium and sodium concentrations above the MOE standards. Groundwater quality trend analysis was performed for select monitor wells via Mann-Kendall analysis, which included select inorganic parameters (i.e., sodium, barium and/or selenium). One monitor well, SCU27-002-MW, exhibited a potentially increasing trend during the 2016 event (i.e., barium).

The 2016 monitoring event identified the presence of dense non-aqueous phase liquid (DNAPL) at one monitor well location, SCU10-004-MW. LNAPL was detected in SCU10-002-MW, SCU15-008-MWA/RW, RW1, SCU32-001-MWA and SCU32-003-MW.

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

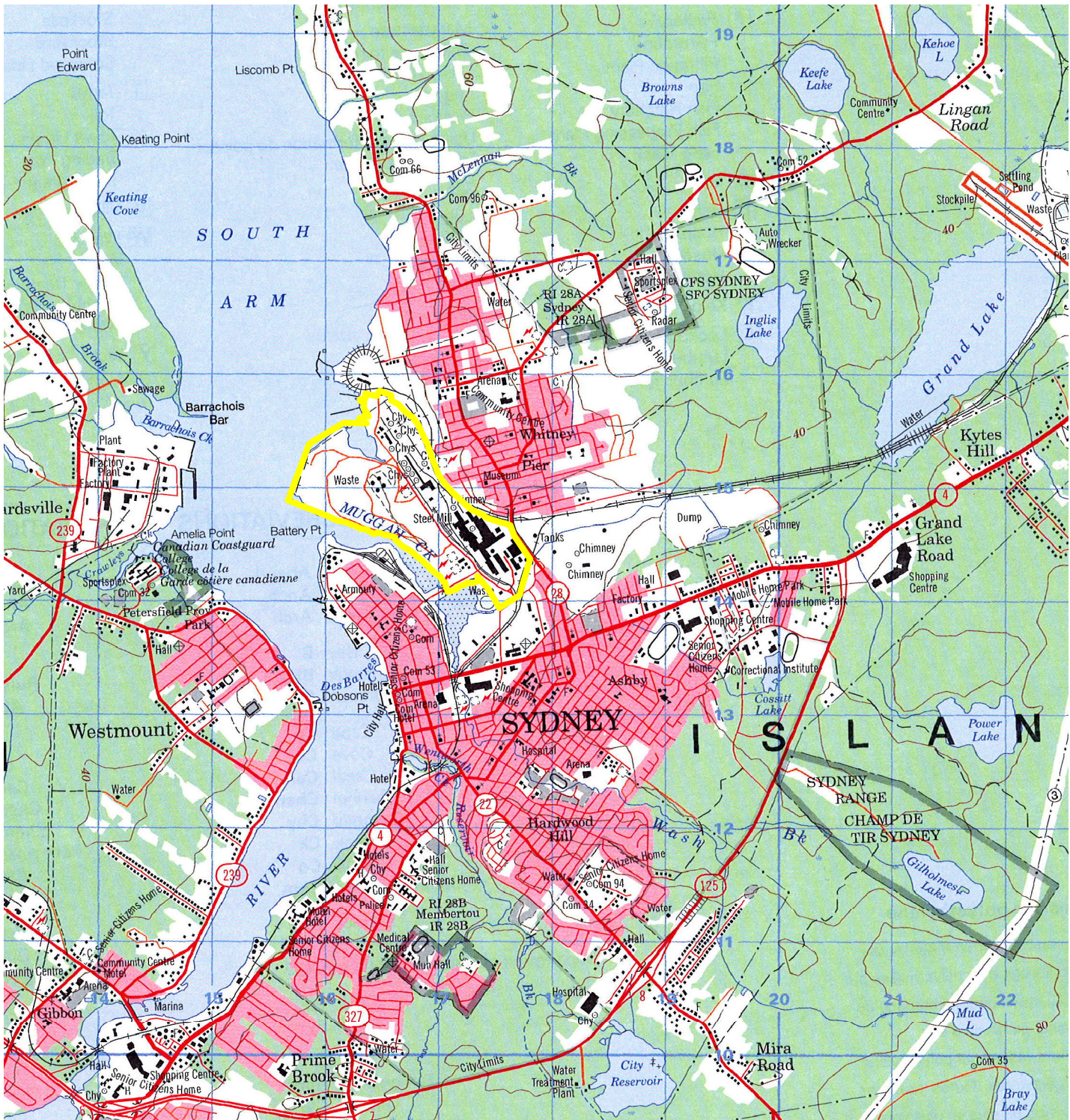
1.0 Introduction

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

Groundwater monitoring was completed between November 15 and 18, 2016 and included measurement of hydraulic head levels and sample collection (i.e., for PHCs, PAHs and metals analysis) from select monitor wells at HCP. This document details the 2016 groundwater monitoring event. Section 1.0 describes the scope of work. Methodologies are detailed in Section 2.0. Findings are presented in Section 3.0 and summarized in Section 4.0. Recommendations are provided in Section 5.0. Data tables and supporting information are found in Appendices referenced throughout the document.

1.1 Scope of Work

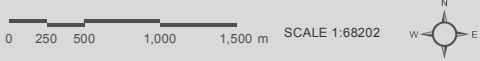
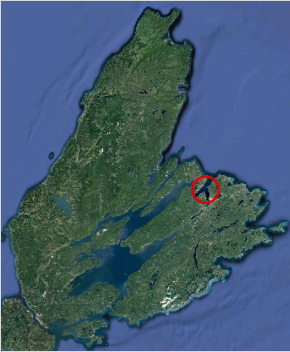
The LTMM program for the HCP consists of an annual groundwater sampling program. The 2016 program included measurement of hydraulic head levels and sample collection from specific monitor wells on the HCP site (Figure 1-2). In accordance with the request for proposal (RFP) NSLAND57 Groundwater Monitoring Services, the 2016 groundwater monitoring event included thirty-two water level measurements and checking eight monitor/recovery wells for product. The groundwater monitoring program was scheduled to include the collection of twenty-five groundwater samples; however, during the 2016 program, groundwater samples were not collected from monitor wells SCU32-001-MWA and SCU32-003-MW due to the presence of free product. Consequently, twenty-three groundwater samples were submitted for select analysis (i.e., PHCs, PAHs and metals). Additionally, a sample of the free product (i.e., LNAPL) within SCU32-003-MW was submitted for characterization. Free product in SCU32-001-MWA was previously sampled during the 2015 LTMM groundwater program.



HARBOURSIDE COMMERCIAL PARK
 2016 GROUNDWATER MONITORING EVENT

SITE LOCATION
 Figure 1-1

 Harbourside Commercial Park



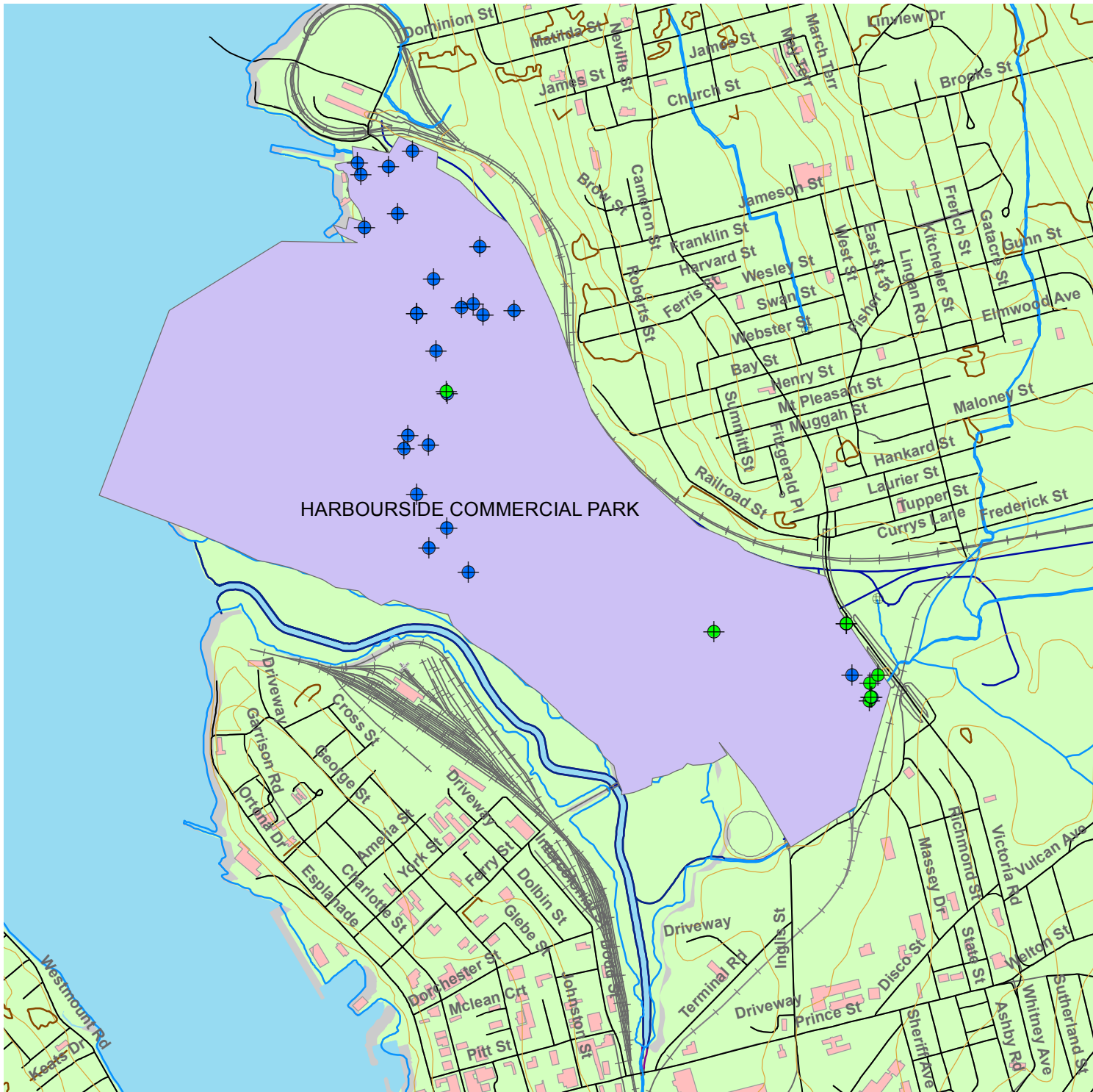
MAP DRAWING INFORMATION:
 Government of Canada, Natural Resources Canada,
 Earth Science Sector, Center for Topographic Information,
 Sydney 11 K/1
 Information current as of 1994.

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

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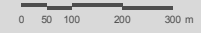
HARBOURSIDE COMMERCIAL PARK
 2016 GROUNDWATER MONITORING EVENT

STUDY AREA
 FIGURE 1-2

LEGEND

Monitoring Wells

- Active Water Level Only
- Active Sample and Water Level



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

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2.0 Project Methodologies

Methodologies are provided in the following sub-sections:

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

2.1 Health and Safety Processes

Dillon developed a site-specific health and safety plan (SSHSP) for groundwater monitoring. The SSHSP 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 PPE;
- Identification of safety training and first aid requirements; and,
- Identification of emergency response procedures.

The project manager reviewed the SSHSP with field personnel prior to their mobilizing to the site. Field personnel were responsible for following the SSHSP, including conducting a job hazard analysis upon arrival to the site. Dillon team members also abided by the procedures governing access to the NS Lands sites and the Portside Aggregates site, which is part of the HCP groundwater monitoring area.

2.2 Quality Control Process

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

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

Duplicate and Blank Collection

As summarized in Table B-1 (Appendix B), two field duplicates, four trip blanks, one equipment blank and one field blank were collected during the 2016 monitoring event. Relative percent differences were calculated between sample and associated field duplicate results, as discussed below in Section 3.4.

Laboratory QC

Analytical services were contracted by NS Lands to Maxxam Analytics Inc. (Maxxam) in Sydney, Nova Scotia. Maxxam is a Canadian Association for Laboratory Accreditation (CALA) certified ISO/IEC 17025:2005(E) laboratory. Laboratory SOPs are based on accepted (e.g., USEPA, EPS, Atlantic PIRI, MSAMS) standard referenced industry protocols and were validated by Maxxam prior to use. Maxxam also applied internal laboratory QC measures including:

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

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

2.3 LTMM Groundwater Monitoring Program

The HCP groundwater monitoring program has been ongoing since 2003 with the sampling program being reduced over time. The HCP program currently consists of 25 monitor wells requiring sampling. The field component of the 2016 groundwater monitoring event involved the following activities:

- Measurement of Hydraulic Head Levels;
- Low Flow Groundwater Sample Collection; and,
- Data Compilation/Assessment and Reporting.

2.3.1 Measurement of Hydraulic Head Levels

The number of monitor wells measured for water levels was 32 (i.e., 25 sampling and eight monitor/recovery wells that were checked for product). Depth to water and the presence of LNAPL and/or dense non-aqueous phase liquid (DNAPL) in wells were manually measured using an interface probe. Measurements were taken from established reference points and water level information was recorded on field sampling sheets during purging.

2.3.2 Sample Collection

Using a peristaltic pump, groundwater was removed from 18 of the 25 monitor wells scheduled for sampling in the HCP area until select field parameters stabilized, including water level. The rate of flow (0.1 to 0.4 L/minute) at each well was controlled by an in-line valve. A 12-volt stainless steel submersible pump (i.e., SS MONSOON) was used for the other 7 wells, which are installed at depths beyond the capacity of a peristaltic pump. The stainless steel pump was decontaminated prior to use in the first well and following sampling of each subsequent well. The water level was measured at 3-minute intervals and maintained at a constant head; if the water level started to drop, the flow rate was reduced to maintain a constant head. The sample tube was connected to a flow-through cell containing a Horiba U-22 multi-parameter probe. The general stabilization of the following parameters was used as indication that water representative of the groundwater in the aquifer was being collected:

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

The time required for sampling generally ranged from 15 to 30 minutes, and typically 6 to 12 liters 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. As indicated above, groundwater samples were not collected from monitor wells SCU32-001-MWA and SCU32-003-MW during the 2016 program due to the presence of free product.

2.3.3 Groundwater Analysis

Pursuant to RFP NSLAND57 Groundwater Monitoring Services, groundwater samples were analyzed for PHCs, PAHs and dissolved metals, as listed in Table 2-1. PHC and PAH sample bottles were filled with no head space. Metal aliquots were field filtered and preserved with nitric acid in order to maintain constituents in solution. Samples were delivered to Maxxam in Sydney, Nova Scotia for analysis.

Table 2-1 Water Quality Analytical Suite of Parameters

PHC	PAHs	Metals (dissolved)	
Benzene	Acenaphthene	Aluminum	Strontium
Toluene	Acenaphthylene	Antimony	Thallium
Ethylbenzene	Anthracene	Arsenic	Tin
Total Xylenes	Benzo(a)anthracene	Barium	Titanium
C6-C10 (Less BTEX)	Benzo(a)pyrene	Beryllium	Uranium
>C10-C16	Benzo(b)fluoranthene	Bismuth	Vanadium
Hydrocarbons	Benzo(j)fluoranthene	Boron	Zinc

Table 2-1 Water Quality Analytical Suite of Parameters

PHC	PAHs	Metals (dissolved)
>C16-C21 Hydrocarbons	Benzo(k)fluoranthene	Cadmium
>C21-<C32 Hydrocarbons	Benzo(g,h,i)perylene	Chromium
Modified TPH (Tier I)	Chrysene	Cobalt
	Dibenz(a,h)anthracene	Copper
	Fluoranthene	Iron
	Fluorene	Lead
	Indeno(1,2,3-cd)pyrene	Manganese
	Naphthalene	Mercury (Total)
	Perylene	Molybdenum
	Phenanthrene	Nickel
	Pyrene	Phosphorus
	1-Methylnaphthalene	Selenium
	2-Methylnaphthalene	Silver

2.4 Data Compilation/Assessment

Maxxam provided analytical results in a database compatible format, alleviating potential errors associated with manual entry. Data tables generated as part of the 2016 program also include historical groundwater monitoring data. Based on historical data, the following parameters with concentrations above applicable standards were selected as indicator parameters for HCP site:

- PAHs (acenaphthylene and anthracene); and,
- Metals (i.e., sodium, barium and/or selenium).

2.4.1 Regulatory Framework

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

2.4.2 Groundwater Quality Trend Analysis – Mann Kendall

Mann-Kendall analysis as a non-parametric statistic test routinely used to assess the stability of solute plume. At least four independent sampling events are required to evaluate groundwater quality trends via Mann-Kendall analysis. The Mann-Kendall test procedure starts by comparing the most recent round of water quality data with the results of earlier rounds. Non-detect data

values are typically assigned a value that is half the laboratory detection limit. The Mann-Kendall test is not designed to account for seasonal variation in data, rather Mann-Kendall identified the trend of concentrations in individual wells for individual parameters (e.g., stable, decreasing, increasing).

Based on a review of the analytical results from the 2016 monitoring event and historical monitoring events, select parameters with concentrations above applicable guidelines were selected for Mann-Kendall analysis. These include PAH indicator parameters acenaphthylene and/or anthracene and inorganic chemistry indicator parameters sodium, barium and /or selenium.

Up to six rounds (if available) of groundwater analytical data collected during historical monitoring events to the 2016 monitoring event were applied for performing the trend analysis for the indicator parameters. In certain situations, Mann-Kendall analysis results may be biased due to elevated laboratory detection limits. However, non-detected data used in the Mann-Kendall analysis of indicator parameters indicated that the influence of non-detected data is minimal.

3.0

Results

Results are presented in the following subsections:

- Section 3.1 Weather Conditions and General Observations
- Section 3.2 Groundwater Flow and Hydraulic Head Levels
- Section 3.3 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 historical recordings at the Sydney A station indicates that precipitation of approximately 1355.8 millimeters (mm) was recorded for 2016, which is less than the normal value of yearly precipitation (i.e., as recorded between 1981 and 2010) of 1517 mm (<http://climate.weather.gc.ca>). The monthly precipitation recorded for November 2016 was 125.8 mm, which is less than the monthly normal of 167 mm at the Sydney station (i.e., as recorded between 1981-2010).

3.2

Groundwater Flow and Hydraulic Head Levels

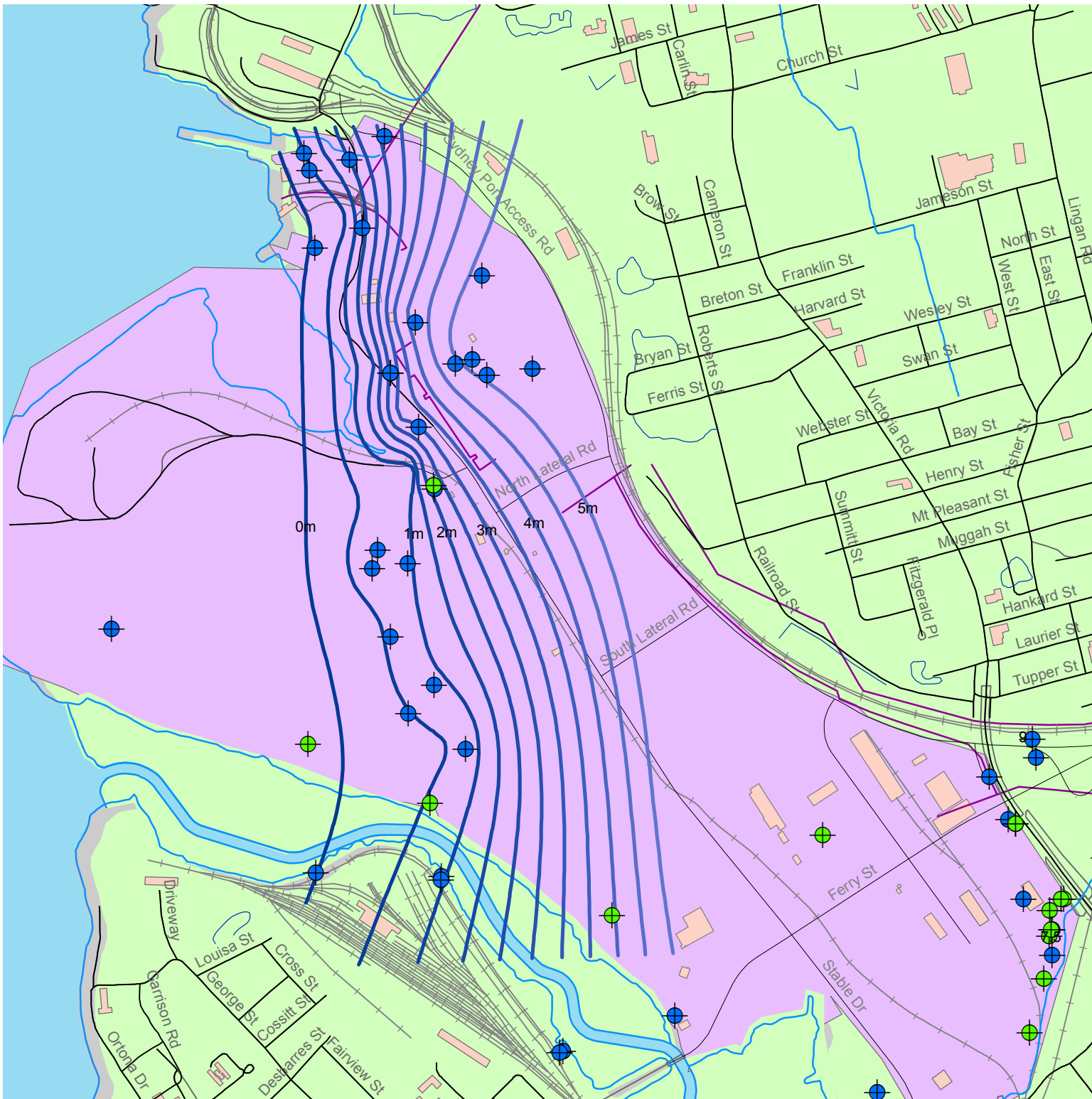
NS Lands provided Dillon with elevation survey for 29 of 33 monitor wells included in the LTMM program at the HCP site. Accordingly, the hydraulic heads of 29 wells were calculated to plot the equipotential groundwater contours for the 2016 monitoring event. The groundwater contours were applied to evaluate the groundwater flow pattern and direction within the unconsolidated till and/or fill unit (Figure 3-1).

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.

3.3

HCP Findings

Historical environmental site assessments conducted to date throughout HCP (Figure 3-2) have identified elevated concentrations of organic and inorganic parameters in groundwater above the applicable guidelines (e.g., PHCs, PAHs, mercury, various other metals and vinyl chloride). Results of the 2016 monitoring program indicate concentrations of PAHs above applicable criteria at five locations (i.e., SCU10-004-MW, SCU20-013-MW, SCU20-014-MW, SCU20-016-MW and SCU20-017-MW), and metals (i.e. sodium and barium) at one location (i.e., SCU27-002-MW) in groundwater. As stated above, groundwater samples were not collected from monitor wells SCU32-001-MWA and SCU32-003-MW due to the presence of LNAPL.



HARBOURSIDE COMMERCIAL
PARK
2016 GROUNDWATER MONITORING EVENT

**Equipotential Groundwater
Contours Fill TIII**
FIGURE 3-1

LEGEND

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



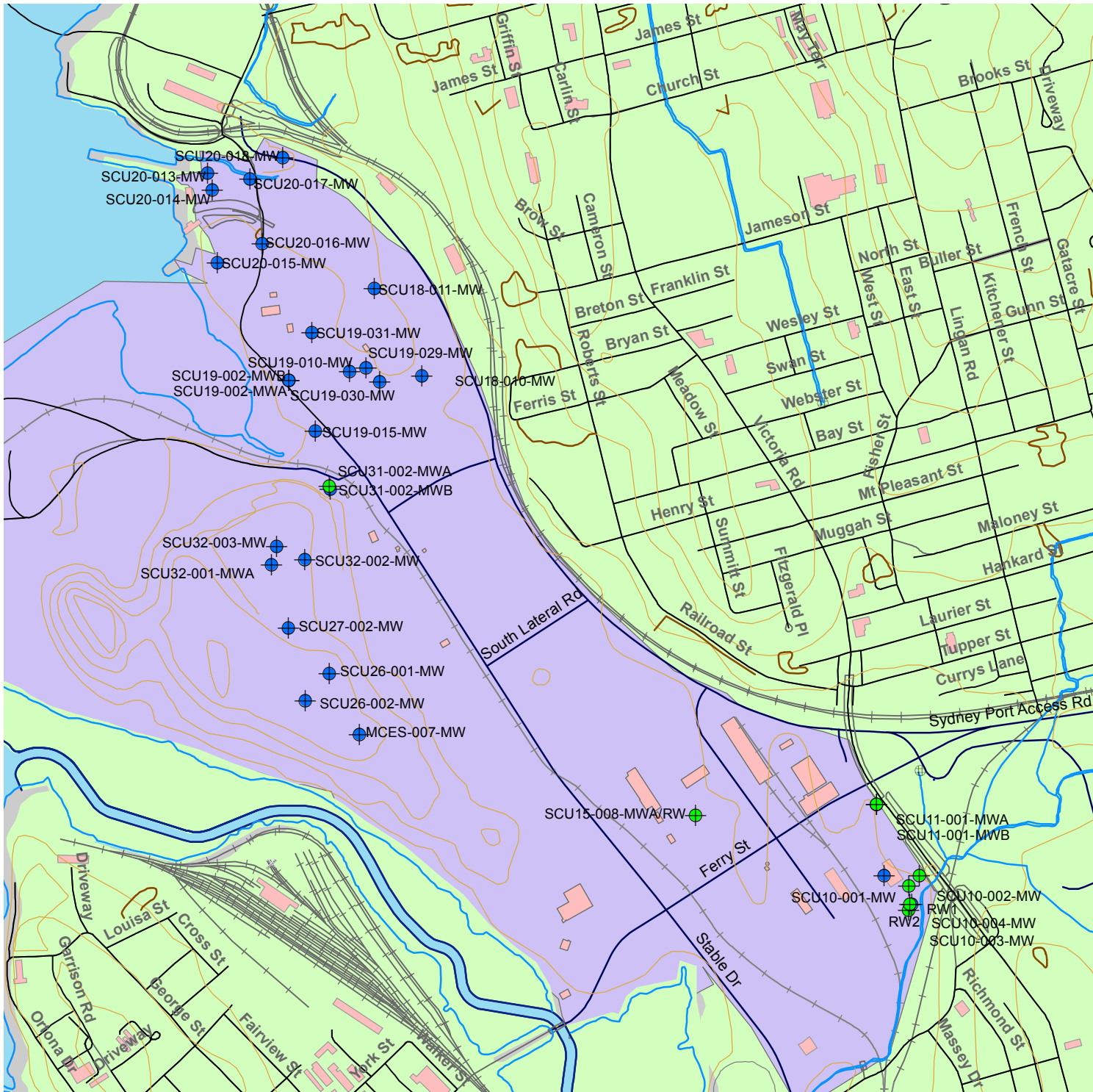
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Province of Nova Scotia Mapping
SLR Monitoring Recommendations drawing dated April 17, 2014

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HARBOURSIDE COMMERCIAL PARK
 2016 GROUNDWATER MONITORING EVENT

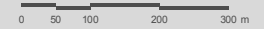
AREA FEATURES
 FIGURE 3-2

LEGEND

Harbourside Commercial Park

Monitoring Wells

- Active Water Level Only
- Active Sample and Water Level



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 Province of Nova Scotia Mapping
 SLR Monitoring Recommendations drawing dated April 17, 2014

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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)). As stated previously, the 2016 LTMM Groundwater Monitoring Program included the collection of 23 samples for analysis from monitor wells located on the HCP site. Table 3-1 summarizes the select indicator parameter concentrations for select monitor wells exhibiting concentrations above applicable guideline criteria.

Table 3-1 HCP – Summary of Indicator Parameter Concentrations

Well ID	Date	Organic Parameter	
		Acenaphthylene (ug/L)	Anthracene (ug/L)
NSE Tier I EQS ¹		750	-
MOE Table 3 ²		1.8	2.4
SCU10-004-MW	Nov 2010	7.5	2.4
	Oct 2011	10	13
	Nov 2012	34	38
	Dec 2013	20	4.0
	Dec 2015	410	1100
	Nov 2016	28	18
SCU20-013-MW	Nov 2010	26	2.7
	Oct 2011	18	3.1
	Nov 2012	29	2.0
	Nov 2013	34	4.0
	Dec 2014	29	2.2
	Nov 2015	32	3.7
	Nov 2016	31	2.7
SCU20-014-MW	Nov 2010	3.4	0.85
	Oct 2011	7.2	1.4
	Nov 2012	4.6	1.0
	Nov 2013	5.7	1.1
	Dec 2014	9.3	1.8
	Nov 2015	6.2	1.1
	Nov 2016	4.8	1.3
SCU20-016-MW	Nov 2010	1.2	0.27
	Oct 2011	3.7	0.55
	Nov 2012	2.2	0.40
	Nov 2013	3.1	0.37
	Dec 2014	2.4	0.21
	Nov 2015	2.8	0.33
	Nov 2016	1.9	0.44

Table 3-1 HCP – Summary of Indicator Parameter Concentrations

Well ID	Organic Parameter			
	Date	Acenaphthylene (ug/L)	Anthracene (ug/L)	
NSE Tier I EQS ¹		750	-	
MOE Table 3 ²		1.8	2.4	
SCU20-017-MW	Nov 2010	6.4	0.88	
	Oct 2011	4.4	1.5	
	Nov 2012	0.98	0.39	
	Nov 2013	3.7	1.2	
	Nov 2014	2.9	1.3	
	Nov 2015	3.6	1.2	
	Nov 2016	3.5	0.94	
SCU32-001-MWA	Nov 2011	0.81	0.84	
	Dec 2013	1.8	7.4	
	Dec 2014	0.91	1.4	
	Nov 2015	0.7	1.8	
	Nov 2016	Not Sampled Due to Presence of Free Product		
SCU32-003-MW	Nov 2011	0.56	0.76	
	Dec 2013	1.3	8.7	
	Dec 2014	1.9	0.89	
	Nov 2015	1.8	1.2	
	Nov 2016	Not Sampled Due to Presence of Free Product		
Well ID	Inorganic Parameters			
	Date	Sodium (ug/L)	Barium (ug/L)	Selenium
NSE Tier I EQS ¹		-	-	-
MOE Table 3 ²		2,300,000	29,000	63
SCU27-002-MW	July 2012	5,700,000	8700	<1.0
	Nov 2012	4,900,000	7300	21
	Dec 2013	5,200,000	23,000	<10
	Dec 2014	4,900,000	30,000	<1.0
	Nov 2015	4,900,000	30,000	<10
	Nov 2016	5,100,000	31,000	<10
SCU32-003-MW	Nov 2011	98,000	150	28
	Dec 2013	90,000	130	7.1
	Dec 2014	780,000	140	68
	Nov 2016	680,000	130	77

Notes:

- Denotes no value.

1 - NS Tier I EQS for Groundwater (Coarse Grained Soil, Non-potable Groundwater Commercial/Industrial Site) 2013.

2 - MOE, Table 3 Full Depth Generic Site Condition Standards, Non-potable Groundwater (Coarse Grained Soil) 2011.

Underline Exceeds NSE Tier I EQS.**Bold** exceeds MOE Table 3 Standards.

During the 2016 monitoring event there were no groundwater concentrations above the Tier I EQS standard.

Five of the twenty-three monitor wells sampled on the HCP site had organic parameter concentrations above the MOE standards, as follows:

- SCU10-004-MW: The acenaphthylene concentration of 28 ug/L, the anthracene concentration of 18 ug/L, the chrysene concentration of 2.1 ug/L and the naphthalene concentration of 3800 ug/L exceeded the MOE standards of 1.8 ug/L, 2.4 ug/L, 1 ug/L and 1400 ug/L, respectively;
- SCU20-013-MW: The acenaphthylene concentration of 31 ug/L exceeded the MOE standard of 1.8 ug/L and the anthracene concentration of 2.7 ug/L exceeded the MOE standard of 2.4 ug/L;
- SCU20-014-MW: The acenaphthylene concentration of 4.8 ug/L exceeded the MOE standard of 1.8 ug/L;
- SCU20-016-MW: The acenaphthylene concentration of 1.9 ug/L exceeded the MOE standard of 1.8 ug/L; and,
- SCU20-017-MW: The acenaphthylene concentration of 3.5 ug/L exceeded the MOE standard of 1.8 ug/L.

Review of the 2015 results indicates that 18 of the 20 PAH parameters analyzed from SCU10-004-MW exceeded the MOE standards. In comparison with 2016, only four PAH parameters exceeded MOE standards, which is generally more consistent with monitoring events prior to 2015. Consequently, the 2015 results suggest that the sample was more impacted by PAHs than is typically observed. Further review of the data indicates that a number of the PAHs were detected in SCU10-004-MW during the 2015 monitoring event at concentrations near their solubility limits, the sample needed to be diluted and there was potential product interference noted in the laboratory certificates. These indications suggest that the 2015 sample may have had sediment or trace levels of emulsified product that entered the sample during sample collection.

No Tier I EQS standards are available for inorganic parameters (i.e., on a non-potable site). One of the twenty-three monitor wells sampled on the HCP site had inorganic parameter concentrations above the MOE standards, as follows:

- SCU27-002-MW: The sodium and barium concentrations of 5,100,000 ug/L and 31,000 ug/L exceeded the MOE standards of 2,300,000 ug/L and 29,000 ug/L, respectively.

Due to their proximity to Sydney Harbour, analytical results for two monitor wells (i.e., SCU20-013-MW and SCU20-014-MW) were also compared to the Tier II EQS Pathway Specific Standards (PSS) for groundwater with 10X Tier I EQS surface water values and >10 meters from a surface water body (i.e., Sydney Harbour). Both monitor wells exhibited Modified TPH concentrations above the 10X Tier I EQS for surface water. Monitor well SCU20-013-MW exhibited PAH concentrations above the 10X Tier I EQS for surface water, including naphthalene, 1-methylnaphthalene, 2-methylnaphthalene and pyrene. Monitor well SCU20-014-MW exhibited PAH concentrations above the 10X Tier I EQS for surface water including naphthalene, 1-methylnaphthalene and pyrene. No other parameters (i.e. BTEX and metals)

contained concentrations above the 10X Tier I EQS at these two monitor well locations. As indicated below in Section 3.3.3, acenaphthylene exhibited a potentially increasing concentration trend in SCU20-013-MW.

3.3.2 Product Check

Observations recorded in the field during DNAPL and LNAPL checks are presented in Table 3-2.

Table 3-2 HCP Summary of Product Check

Well ID	Product Type/Thickness	Field Observations
SCU10-002-MW	LNAPL / 0.5 mm	Strong petroleum hydrocarbon odour.
SCU10-003-MW	No Product Detected	Oil/water interface probe did not detect product, no product observed and no petroleum hydrocarbon odour detected.
SCU10-004-MW*	DNAPL / ~1 mm	Oil/water interface probe did not detect product. DNAPL observed on the interface probe. Strong petroleum hydrocarbon odour.
SCU11-001-MWA	No Product Detected	Oil/water interface probe did not detect product, no product observed and no petroleum hydrocarbon odour detected.
SCU11-001-MWB	No Product Detected	Oil/water interface probe did not detect product, no product observed and no petroleum hydrocarbon odour detected.
SCU15-008-MWA/RW	LNAPL/ 0.5 mm	Slight petroleum hydrocarbon odour.
SCU31-002-MWA	No Product Detected	Oil/water interface probe did not detect product, no product observed, no petroleum hydrocarbon odour detected.
SCU32-001-MWA*	LNAPL / 1.5 mm	Oil/water interface probe did not detect product. Product observed on monitor well PVC and sample tubing. LNAPL product measurement obtained via bailer cut. Petroleum hydrocarbon odour.
SCU32-003-MW*	LNAPL / 3.0 mm	Oil/water interface probe did not detect product. Product observed on monitor well PVC and sample tubing. LNAPL product measurement obtained via bailer cut. Petroleum hydrocarbon odour. LNAPL sample collected and submitted for characterization. Results indicated fuel oil fraction and lube oil fraction.
RW1	LNAPL / 0.5 mm	Sheen visually noted on groundwater within the well; however, no petroleum hydrocarbon odour was noted.
RW2	No Product Detected	Oil/water interface probe did not detect product, no product observed and no petroleum hydrocarbon odour detected.

Notes:

* Denotes sampling well
mm - millimeters

3.3.3

Trend Analysis

The groundwater quality trend analysis for the 2016 monitoring event was based on the available analytical results (i.e., four rounds of sampling events are required) for select parameters with concentrations above the applicable guidelines. Three monitor wells (i.e., SCU10-004-MW, SCU20-013-MW and SCU27-002-MW) contained concentration(s) of indicator parameters exhibiting an increasing or potentially increasing concentration trend during the 2016 monitoring event (i.e., acenaphthylene exhibited increasing and potentially increasing concentration trends in SCU10-004-MW and SCU20-013-MW, respectively; anthracene exhibited an increasing trend in SCU10-004-MW and barium exhibited a potentially increasing trend in SCU27-002-MW).

Results of Mann-Kendall analysis for HCP are presented in Table 3-3. The Mann-Kendall analysis was conducted based on the available analytical data, including the 2016 analytical results.

Table 3-3 HCP – Trend Analysis Summary

Well ID	Parameters	Trend
SCU10-004-MW	Acenaphthylene	Increasing
	Anthracene	Increasing
SCU20-013-MW	Acenaphthylene	Potentially Increasing*
	Anthracene	Stable
SCU20-014-MW	Acenaphthylene	Stable
SCU20-016-MW	Acenaphthylene	Stable
SCU20-017-MW	Acenaphthylene	Stable
SCU27-002-MW	Barium	Potentially Increasing*
	Sodium	Stable

NOTE:

* Parameter is potentially increasing; however, likely fluctuating due to high concentrations above the linear calibration range for the laboratory instrument (i.e., where analytical precision is low and fluctuations are high). Further monitoring will be required to confirm.

3.4

QC Summary

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

- Section 3.4.1 Relative Percent Difference (RPD)
- Section 3.4.2 Laboratory Matrix Spikes, Spikes Blank and Method Blanks
- Section 3.4.3 Trip Blanks
- Section 3.4.4 Equipment Blanks
- Section 3.5.5 Holding Times

Two field duplicates, four trip blanks, one equipment blank and one field blank were collected during the 2016 monitoring event, as presented in Table B-1 (Appendix B).

3.4.1 Relative Percent Difference

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

Comparison of the field duplicate data to the original samples indicated the calculated RPDs were within established limits (i.e., less than 30% RPD), with the exception of iron, magnesium, manganese, sodium and strontium in SCU19-002-MWB as presented in Tables B-1 to B-4 (Appendix B). Although the groundwater sample collected from SCU19-002-MWB and the field duplicate sample exhibited RPD values outside of the acceptable RPD percent for the parameters noted above, the variability is not expected to impact the interpretation of the data given that both the original sample and the duplicate do not exceed the applicable criteria.

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. Review of the laboratory data quality revealed no identification of quality issues requiring further investigation or resampling. The laboratory certificates of analysis are attached in Appendix C.

3.4.3 Trip Blanks

Volatile organic compounds were not detected in the four trip blanks.

3.4.4 Equipment and Field Blank

One equipment blank was collected during the 2016 groundwater monitoring program. Results are as follows:

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

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

One field blank was collected during the 2016 groundwater monitoring program. The field blank was collected in conjunction with the equipment blank to determine if interference from the ambient

atmospheric particles was present. Concentrations of BTEX/TPH, PAHs and metals in the field blank were below laboratory detection limits.

3.4.5 Holding Times

There were no holding time exceedences.

Summary

The HCP 2016 monitoring event was conducted in accordance to RFP NSLAND57 Groundwater Monitoring Services. Findings were compared to July 2013 NS CSR Tier I EQS for groundwater. Where Tier I EQS were not available, applicable MOE standards were used.

During the 2016 monitoring event there were no groundwater concentrations above the Tier I EQS standard.

Table 4-1 presents the organic parameter concentrations above the MOE standards at five monitoring locations.

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

Parameter	Location (Concentration / MOE Standard)
Acenaphthylene	<ul style="list-style-type: none"> • SCU10-004-MW (28 ug/L / 1.8 ug/L) • SCU20-013-MW (31 ug/L / 1.8 ug/L) • SCU20-014-MW (4.8 ug/L / 1.8 ug/L) • SCU20-016-MW (1.9 ug/L / 1.8 ug/L) • SCU20-017-MW (3.5 ug/L / 1.8 ug/L)
Anthracene	<ul style="list-style-type: none"> • SCU10-004-MW (18 ug/L / 2.4 ug/L) • SCU20-013-MW (2.7 ug/L / 2.4 ug/L)
Chrysene	<ul style="list-style-type: none"> • SCU10-004-MW (2.1 ug/L / 1 ug/L)
Naphthalene	<ul style="list-style-type: none"> • SCU10-004-MW (3800 ug/L / 1400 ug/L)

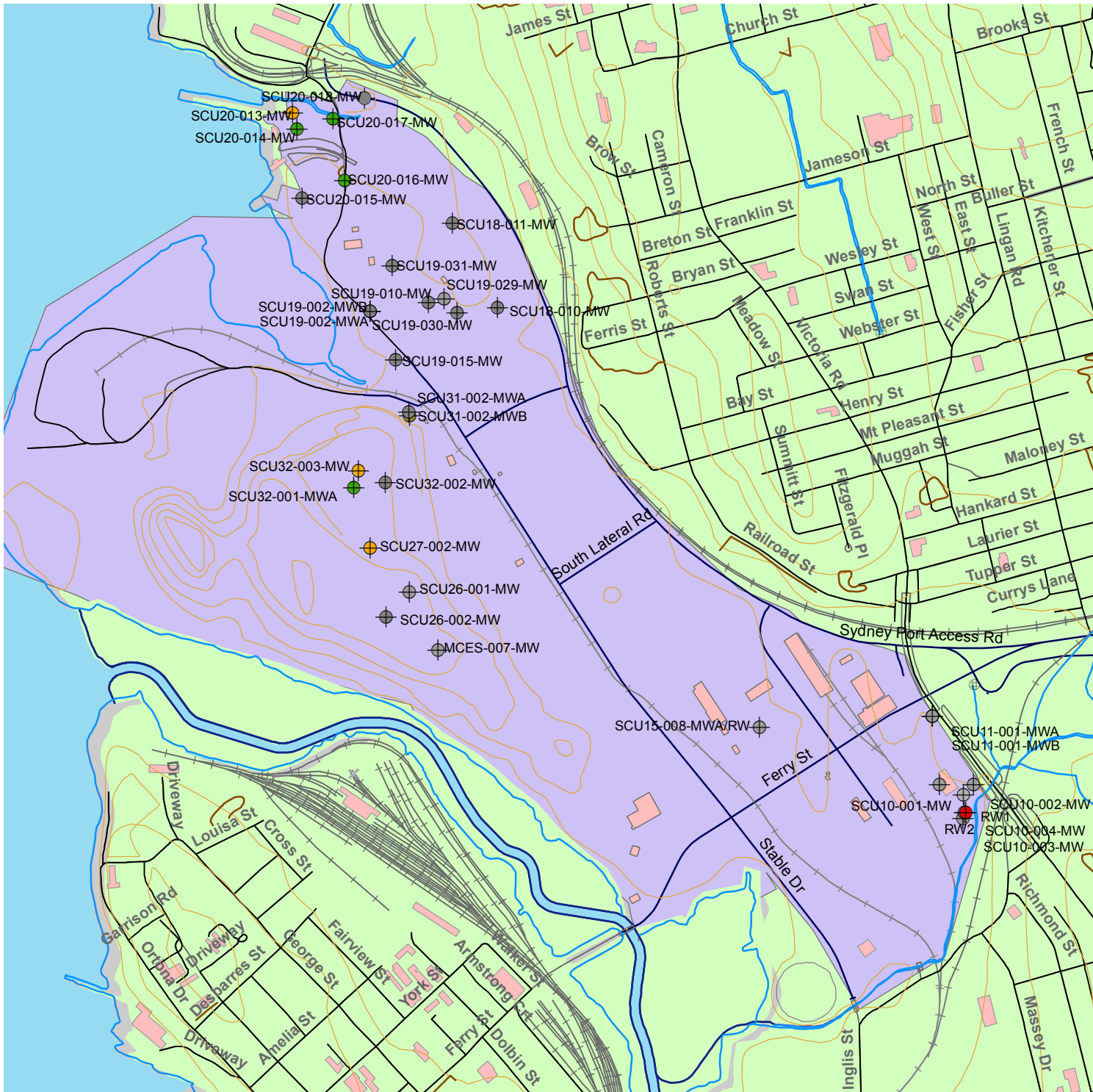
No Tier I EQS standards are available for inorganic parameters (i.e., on a non-potable site). Table 4-2 presents the inorganic parameter concentrations above the MOE standards at one monitoring location.

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

Parameter	Location (Concentration / MOE Standard)
Sodium	<ul style="list-style-type: none"> • SCU27-002-MW (5,100,000 ug/L / 2,300,000 ug/L)
Barium	<ul style="list-style-type: none"> • SCU27-002-MW (31,000 ug/L / 29,000 ug/L)

In most instances, concentrations were comparable to historical findings. Statistical analysis suggests that three monitor wells contained concentration(s) of select indicator parameters exhibiting an increasing or potentially increasing concentration trend during the 2016 monitoring (i.e., acenaphthylene exhibited increasing and potentially increasing concentration trends in SCU10-004-MW and SCU20-013-MW, respectively; anthracene exhibited an increasing trend in SCU10-004-MW and barium exhibited a potentially increasing trend in SCU27-002-MW) as presented in Figure 4-1.

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
 2016 GROUNDWATER MONITORING EVENT

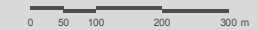
INDICATOR PARAMETER
 CONCENTRATION TREND
 FIGURE 4-1

LEGEND

Trend Analysis

-  Increasing
-  Fluctuating
-  Stable
-  Monitoring Well

 Harbourside Commercial Park



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

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

FILE LOCATION: \\DILLON\CAD\ILLON_DFS\SYDNEY
 \SYDNEY\CAD\GIS\141360



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

Recommendations

Review of the 2016 groundwater sampling results, considered in context of historical data associated with the HCP site, suggests that the Fall 2017 groundwater monitoring program continue to include the scheduled 32 water level measurements, checking eight monitor/recovery wells for product, and the collection of 25 groundwater samples for select analysis. It is recommended that the groundwater monitoring program continue to include sampling for PHCs, PAHs and metals parameters.

Disclaimer

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

Appendix A

Analytical Tables

TABLE A-1
 LTMM GROUNDWATER MONITORING EVENT NOVEMBER 2016 HCP
 GROUNDWATER ANALYTICAL RESULTS - BTEX/TPH

Sample Location (Total Well Depth)	Sample Date	BTEX Concentration (mg/L)				Petroleum Hydrocarbons (mg/L)					Modified TPH	Reached Baseline at C32
		Benzene	Toluene	E. Benzene	Xylenes	C6 - C10	C10 - C21	C10 - C16	C16-C21	C21 - C32		
NSE Tier 1 EQS ¹												
		20	20	20	20	-	-	-	-	-	20	-
SCU10-001-MW (1.80 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	-
SCU10-004-MW (2.42 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
SCU18-010-MW (2.53 m)	3/26/10	0.002	0.002	<0.0010	0.007	<0.010	-	<0.20	<0.20	<0.50	<0.50	Yes
	3/27/10	<0.0010	<0.0010	<0.0010	<0.0020	<0.010	-	<0.20	<0.20	<0.50	<0.50	-
	3/28/10	<0.0010	<0.0010	<0.0010	<0.0020	<0.010	-	0.10	0.07	0.1	0.3	Yes
	3/29/10	0.0014	0.0013	<0.0010	0.0036	<0.010	-	0.094	0.07	<0.50	0.16	Yes
	3/30/10	<0.0010	<0.0010	<0.0010	<0.0020	<0.010	-	<0.050	<0.050	<0.10	<0.10	-
	12/18/14	<0.001	<0.001	<0.001	<0.002	<0.01	-	0.056	0.058	0.14	0.25	Yes
	11/25/15	<0.0010	<0.0010	<0.0010	<0.0020	<0.010	-	0.067	<0.050	<0.10	<0.10	-
	11/17/16	<0.0010	<0.0010	<0.0010	<0.0020	<0.010	-	0.05	<0.050	<0.10	<0.10	-
	3/31/10	<0.0010	<0.0010	<0.0010	<0.0020	<0.010	-	<0.20	<0.20	<0.50	<0.50	-
SCU18-011-MW (1.62 m)	4/1/10	<0.0010	<0.0010	<0.0010	<0.0020	<0.010	-	<0.20	<0.20	<0.50	<0.50	-
	4/2/10 ^{FD}	<0.0010	<0.0010	<0.0010	<0.0020	<0.010	-	<0.20	<0.20	<0.50	<0.50	-
	4/3/10	<0.0010	<0.0010	<0.0010	<0.0020	<0.010	-	<0.20	<0.20	<0.50	<0.50	-
	4/4/10	<0.0010	<0.0010	<0.0010	<0.0020	<0.010	-	<0.20	<0.20	<0.50	<0.50	-
	4/5/10	<0.0010	<0.0010	<0.0010	<0.0020	<0.010	-	<0.050	<0.050	<0.10	<0.10	-
	12/18/14	<0.001	<0.001	<0.001	<0.002	<0.01	-	<0.05	0.056	<0.1	<0.1	-
	11/25/15	<0.0010	<0.0010	<0.0010	<0.0020	<0.010	-	<0.050	<0.050	<0.10	<0.10	-
	11/18/16	<0.0010	<0.0010	<0.0010	<0.0020	<0.010	-	0.14	0.12	0.10	0.35	Yes
	4/6/10	<0.0010	<0.0010	<0.0010	<0.0020	<0.010	<0.20	-	-	<0.50	<0.50	-
SCU19-002-MWA (6.43 m)	4/7/10	<0.0010	<0.0010	<0.0010	<0.0020	<0.010	-	<0.20	<0.20	<0.50	<0.50	-
	4/8/10	<0.0010	<0.0010	<0.0010	<0.0020	<0.010	-	<0.20	<0.20	<0.50	<0.50	-
	4/9/10	<0.0010	<0.0010	<0.0010	<0.0020	<0.010	-	<0.20	<0.20	<0.50	<0.50	-
	4/10/10	<0.0010	<0.0010	<0.0010	<0.0020	<0.010	-	<0.050	<0.050	<0.10	<0.10	-
	12/17/14	<0.001	<0.001	<0.001	<0.002	<0.01	-	<0.05	<0.05	<0.1	<0.1	-
	12/2/15	<0.0010	<0.0010	<0.0010	<0.0020	<0.010	-	<0.050	<0.050	<0.10	<0.10	-
	11/18/16	<0.0010	<0.0010	<0.0010	<0.0020	<0.010	-	<0.050	<0.050	<0.10	<0.10	-
	4/11/10	<0.0010	<0.0010	<0.0010	<0.0020	<0.010	<0.20	-	-	<0.50	<0.50	-
	4/12/10	<0.0010	<0.0010	<0.0010	<0.0020	<0.010	-	<0.20	<0.20	<0.50	<0.50	-
SCU19-002-MWB (6.38 m)	4/13/10	<0.0010	<0.0010	<0.0010	<0.0020	<0.010	-	<0.20	<0.20	<0.50	<0.50	-
	4/14/10	<0.0010	<0.0010	<0.0010	<0.0020	<0.010	-	<0.20	<0.20	<0.50	<0.50	-
	4/15/10 ^{FD}	<0.0010	<0.0010	<0.0010	<0.0020	<0.010	-	<0.20	<0.20	<0.50	<0.50	-
	4/16/10	<0.0010	<0.0010	<0.0010	<0.0020	<0.010	-	<0.050	<0.050	0.11	0.11	Yes
	12/17/14	<0.001	<0.001	<0.001	<0.002	<0.01	-	<0.05	<0.05	<0.1	<0.1	-
	11/30/15	<0.0010	<0.0010	<0.0010	<0.0020	<0.010	-	<0.050	<0.050	<0.10	<0.10	-
	11/18/16 ^{FD}	<0.0010	<0.0010	<0.0010	<0.0020	<0.010	-	<0.050	<0.050	<0.10	<0.10	-
	11/18/16	<0.0010	<0.0010	<0.0010	<0.0020	<0.010	-	<0.050	<0.050	<0.10	<0.10	-
	4/17/10	<0.0010	<0.0010	<0.0010	<0.0020	<0.010	<0.20	-	-	<0.50	<0.50	-
SCU19-010-MW (3.08 m)	4/18/10	<0.0010	<0.0010	<0.0010	<0.0020	<0.010	-	0.064	0.17	0.23	0.46	Yes
	4/19/10	<0.0010	<0.0010	<0.0010	<0.0020	<0.010	-	<0.050	0.084	0.14	0.23	Yes
	12/18/14	<0.001	<0.001	<0.001	<0.002	<0.01	-	<0.05	0.12	0.23	0.35	Yes
	11/30/15	<0.0010	<0.0010	<0.0010	<0.0020	<0.010	-	0.073	0.12	0.16	0.35	Yes
	11/17/16	<0.0010	<0.0010	<0.0010	<0.0020	<0.010	-	<0.050	0.094	0.14	0.23	Yes

TABLE A-1
 LTMM GROUNDWATER MONITORING EVENT NOVEMBER 2016 HCP
 GROUNDWATER ANALYTICAL RESULTS - BTEX/TPH

Sample Location (Total Well Depth)	Sample Date	BTEX Concentration (mg/L)				Petroleum Hydrocarbons (mg/L)					Modified TPH	Reached Baseline at C32
		Benzene	Toluene	E. Benzene	Xylenes	C6 - C10	C10 - C21	C10 - C16	C16-C21	C21 - C32		
NSE Tier 1 EQS ¹												
		20	20	20	20	-	-	-	-	-	20	-
SCU19-015-MW (5.91 m)	4/20/10	<0.0010	<0.0010	<0.0010	<0.0020	<0.010	<0.20	-	-	<0.50	<0.50	-
	4/21/10	<0.0010	<0.0010	<0.0010	<0.0020	<0.010	-	<0.20	<0.20	<0.50	<0.50	-
	4/22/10	<0.0010	<0.0010	<0.0010	<0.0020	<0.010	-	<0.20	<0.20	<0.50	<0.50	-
	4/23/10	<0.0010	<0.0010	<0.0010	<0.0020	<0.010	-	<0.20	<0.20	<0.50	<0.50	-
	4/24/10	<0.0010	<0.0010	<0.0010	<0.0020	<0.010	-	<0.20	<0.20	<0.50	<0.50	-
	4/25/10	<0.0010	<0.0010	<0.0010	<0.0020	<0.010	-	<0.050	<0.050	<0.10	<0.10	-
	12/18/14	<0.001	<0.001	<0.001	<0.002	<0.01	-	<0.05	<0.05	<0.1	<0.1	-
	12/2/15	<0.0010	<0.0010	<0.0010	<0.0020	<0.010	-	<0.050	<0.050	<0.10	<0.10	-
11/18/16	<0.0010	<0.0010	<0.0010	<0.0020	<0.010	-	<0.050	<0.050	<0.10	<0.10	-	
SCU19-029-MW (2.00 m)	4/26/10	<0.0010	<0.0010	<0.0010	<0.0020	<0.010	-	<0.20	<0.20	<0.50	<0.50	-
	4/27/10	<0.0010	<0.0010	<0.0010	<0.0020	<0.010	-	<0.20	<0.20	<0.50	<0.50	-
	4/28/10	<0.0010	<0.0010	<0.0010	<0.0020	<0.010	-	<0.20	<0.20	<0.50	<0.50	-
	4/29/10	<0.0010	<0.0010	<0.0010	<0.0020	<0.010	-	<0.050	<0.050	<0.10	<0.10	-
	12/18/14	<0.001	<0.001	<0.001	<0.002	<0.01	-	<0.05	0.085	0.13	0.21	Yes
	11/25/15	<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	-
	4/30/10	<0.0010	<0.0010	<0.0010	<0.0020	<0.010	-	0.28	0.4	0.2	0.8	Yes
SCU19-030-MW (2.48 m)	5/1/10	<0.0010	<0.0010	<0.0010	<0.0020	<0.010	-	0.24	0.33	0.1	0.7	Yes
	5/2/10	<0.0010	<0.0010	<0.0010	<0.0020	<0.010	-	0.17	0.21	0.15	0.53	Yes
	5/3/10	<0.0010	<0.0010	<0.0010	<0.0020	<0.010	-	0.15	0.19	0.15	0.49	Yes
	12/18/14	<0.001	<0.001	<0.001	<0.002	<0.01	-	0.15	0.19	0.16	0.5	Yes
	11/25/15	<0.0010	<0.0010	<0.0010	<0.0020	<0.010	-	0.12	0.11	<0.10	0.23	Yes
	11/17/16	<0.0010	<0.0010	<0.0010	<0.0020	<0.010	-	0.13	0.13	0.10	0.36	Yes
	5/4/10	<0.0010	<0.0010	<0.0010	<0.0020	<0.010	-	<0.20	<0.20	<0.50	<0.50	-
SCU19-031-MW (3.77 m)	5/5/10 ^{FD}	<0.0010	<0.0010	<0.0010	<0.0020	<0.010	-	<0.20	<0.20	<0.50	<0.50	-
	5/6/10	<0.0010	<0.0010	<0.0010	<0.0020	<0.010	-	<0.20	<0.20	<0.50	<0.50	-
	5/7/10	<0.0010	<0.0010	<0.0010	<0.0020	<0.010	-	<0.20	0.055	<0.50	<0.50	-
	5/8/10	<0.0010	<0.0010	<0.0010	<0.0020	<0.010	-	<0.050	<0.050	<0.10	<0.10	-
	12/16/14	<0.001	<0.001	<0.001	<0.002	<0.01	-	<0.05	0.057	0.12	0.18	Yes
	11/25/15	<0.0010	<0.0010	<0.0010	<0.0020	<0.010	-	<0.050	<0.050	<0.10	<0.10	-
	11/15/16	<0.0010	<0.0010	<0.0010	<0.0020	<0.010	-	<0.050	0.062	<0.10	<0.10	-
	5/9/10	0.014	0.026	0.011	0.077	0.12	-	1.3	0.6	<0.50	2.0	Yes
SCU20-013-MW (3.16 m)	5/10/10	0.016	0.028	0.012	0.081	0.13	-	2.9	1.6	1.5	6.2	Yes
	5/11/10	0.011	0.018	0.008	0.056	0.06	-	2.3	1.5	1.0	4.8	Yes
	5/12/10	0.01	0.016	0.0071	0.053	0.093	-	2.3	1.3	1.3	4.9	Yes
	5/13/10	0.011	0.016	0.0069	0.053	0.10	-	2.2	1.0	0.80	4.2	Yes
	12/16/14	0.011	0.016	0.0075	0.057	0.097	-	2.1	0.98	1.1	4.2	Yes
	11/25/15	0.012	0.017	0.0081	0.062	0.082	-	2.2	1.0	1.3	4.6	Yes
	11/15/16	0.012	0.016	0.0069	0.053	0.071	-	2.1	1.0	0.88	4.0	Yes
	5/14/10	0.002	0.003	<0.0010	0.006	<0.010	-	0.3	<0.20	<0.50	<0.50	-
SCU20-014-MW (3.84 m)	5/15/10	0.003	0.002	<0.0010	0.005	<0.010	-	0.3	<0.20	<0.50	<0.50	-
	5/16/10	0.003	0.002	<0.0010	0.005	<0.010	-	0.54	0.54	0.4	1.5	Yes
	5/17/10	0.0023	0.0021	<0.0010	0.0049	0.013	-	0.35	0.34	0.26	0.96	Yes
	5/18/10	0.0027	0.0021	<0.0010	0.0048	0.019	-	0.35	0.27	0.24	0.87	Yes
	12/16/14	0.004	0.0034	<0.001	0.0076	0.014	-	0.64	0.55	0.64	1.8	Yes
	11/25/15	0.0034	0.0029	<0.0010	0.0064	<0.010	-	0.48	0.43	0.46	1.4	Yes
	11/15/16	0.0025	0.0023	<0.0010	0.0061	0.012	-	0.73	0.35	0.34	1.4	Yes
	5/19/10	0.003	0.001	<0.0010	0.003	<0.010	-	0.3	<0.20	<0.50	<0.50	Yes
SCU20-015-MW (6.15 m)	5/20/10	0.003	0.001	<0.0010	<0.0020	<0.010	-	<0.20	<0.20	<0.50	<0.50	-
	5/21/10	0.002	<0.0010	<0.0010	<0.0020	<0.010	-	0.20	0.20	0.3	0.7	Yes
	5/22/10	0.0024	0.001	<0.0010	<0.0020	<0.010	-	0.099	0.13	0.16	0.39	Yes
	5/23/10	0.0021	<0.0010	<0.0010	<0.0020	<0.010	-	0.14	0.12	0.21	0.48	Yes
	12/16/14	0.0025	0.0012	<0.001	<0.002	0.011	-	0.32	0.3	0.52	1.2	Yes
	11/25/15	0.0024	<0.0010	<0.0010	<0.0020	<0.010	-	0.089	0.092	0.21	0.39	Yes
	11/15/16	0.0028	0.0010	<0.0010	<0.0020	<0.010	-	0.13	0.13	0.20	0.46	Yes

TABLE A-1
 LTMM GROUNDWATER MONITORING EVENT NOVEMBER 2016 HCP
 GROUNDWATER ANALYTICAL RESULTS - BTEX/TPH

Sample Location (Total Well Depth)	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	Reached Baseline at C32
NSE Tier 1 EQS ¹		20	20	20	20	-	-	-	-	-	20	-
SCU20-016-MW (4.60 m)	5/24/10	0.002	0.001	<0.0010	<0.0020	<0.010	-	0.7	0.2	<0.50	0.9	Yes
	5/25/10	0.001	<0.0010	<0.0010	<0.0020	<0.010	-	0.3	0.3	<0.50	0.5	Yes
	5/26/10	<0.0010	<0.0010	<0.0010	<0.0020	<0.010	-	0.35	0.33	0.3	1.0	Yes
	5/27/10	<0.0010	<0.0010	<0.0010	<0.0020	<0.010	-	0.21	0.2	0.19	0.59	Yes
	5/28/10	<0.0010	<0.0010	<0.0010	<0.0020	<0.010	-	0.32	0.29	0.27	0.87	Yes
	12/16/14	<0.001	<0.001	<0.001	<0.002	<0.01	-	0.25	0.33	0.39	0.97	Yes
	11/25/15	<0.0010	<0.0010	<0.0010	<0.0020	<0.010	-	0.30	0.31	0.42	1.0	Yes
SCU20-017-MW (2.97 m)	11/15/16	<0.0010	<0.0010	<0.0010	<0.0020	<0.010	-	0.29	0.31	0.35	0.95	Yes
	5/29/10	0.005	0.006	<0.0010	0.009	<0.010	-	0.4	<0.20	<0.50	<0.50	Yes
	5/30/10	0.002	0.002	<0.0010	0.005	<0.010	-	0.4	<0.20	<0.50	<0.50	Yes
	5/31/10	<0.0010	<0.0010	<0.0010	<0.0020	<0.010	-	0.21	0.09	0.1	0.4	Yes
	6/1/10	<0.0010	<0.0010	<0.0010	<0.0020	<0.010	-	0.093	<0.20	<0.50	<0.50	Yes
	6/2/10	0.0017	0.0015	<0.0010	<0.0020	0.011	-	0.26	0.15	0.19	0.61	Yes
	12/16/14	0.0012	0.0014	<0.001	<0.002	<0.01	-	0.33	0.21	0.29	0.83	Yes
SCU20-018-MW (2.17 m)	11/25/15	0.0014	0.0013	<0.0010	<0.0020	<0.010	-	0.23	0.13	0.14	0.50	Yes
	11/15/16	0.0012	0.0011	<0.0010	<0.0020	<0.010	-	0.22	0.12	0.11	0.44	Yes
	6/3/10	<0.0010	<0.0010	<0.0010	<0.0020	<0.010	-	<0.20	<0.20	<0.50	<0.50	-
	6/4/10	<0.0010	<0.0010	<0.0010	<0.0020	<0.010	-	<0.20	<0.20	<0.50	<0.50	-
	6/5/10	<0.0010	<0.0010	<0.0010	<0.0020	<0.010	-	<0.20	<0.20	<0.50	<0.50	-
	6/6/10	<0.0010	<0.0010	<0.0010	<0.0020	<0.010	-	<0.20	<0.20	<0.50	<0.50	-
	6/7/10	<0.0010	<0.0010	<0.0010	<0.0020	<0.010	-	<0.050	<0.050	<0.10	<0.10	-
SCU26-001-MW (22.27 m)	12/16/14	<0.001	<0.001	<0.001	<0.002	<0.01	-	<0.05	<0.05	<0.1	<0.1	-
	11/25/15	<0.0010	<0.0010	<0.0010	<0.0020	<0.010	-	<0.050	<0.050	<0.10	<0.10	-
	11/15/16	<0.0010	<0.0010	<0.0010	<0.0020	<0.010	-	<0.050	<0.050	<0.10	<0.10	-
	6/18/10	<0.0010	<0.0010	<0.0010	<0.0020	<0.010	<0.20	-	-	<0.50	<0.50	-
	6/19/10	0.005	0.003	<0.0010	0.008	5.3	12	-	-	4.5	26	Yes
	6/20/10	<0.0010	<0.0010	<0.0010	<0.0020	<0.010	-	<0.20	<0.20	<0.50	<0.50	-
	6/21/10	<0.0010	<0.0010	<0.0010	<0.0020	0.015	-	0.096	0.1	0.13	0.34	Yes
SCU26-002-MW (25.41 m)	6/22/10	<0.0010	<0.0010	<0.0010	<0.0020	<0.010	-	0.089	<0.050	0.12	0.21	Yes
	12/17/14	<0.001	<0.001	<0.001	<0.002	<0.01	-	0.063	<0.05	<0.1	<0.1	-
	11/27/15	<0.0010	<0.0010	<0.0010	<0.0020	<0.010	-	0.054	<0.050	<0.10	<0.10	Yes
	11/17/16	0.013	0.0087	<0.0010	0.0087	0.050	-	0.24	0.068	<0.10	0.36	Yes
	6/23/10	0.01	0.0061	<0.0010	0.0059	0.05	<0.20	-	-	<0.50	<0.50	-
	6/24/10	0.034	0.026	0.0015	0.022	0.050	-	0.29	0.070	<0.50	0.41	Yes
	6/25/10	0.018	0.015	<0.0010	0.013	0.052	-	0.37	0.18	0.13	0.72	Yes
SCU27-002-MW (21.13 m)	6/26/10 ^{FD}	0.017	0.014	<0.0010	0.012	0.049	-	0.35	0.16	0.18	0.74	Yes
	6/27/10	0.023	0.018	0.0011	0.016	0.066	-	0.31	0.13	0.12	0.63	Yes
	12/17/14 ^{FD}	0.014	0.010	<0.001	0.0084	0.027	-	0.15	<0.05	<0.1	0.18	Yes
	12/17/14	0.014	0.010	<0.001	0.0085	0.028	-	0.16	<0.05	<0.1	0.19	Yes
	11/27/15	0.016	0.011	<0.0010	0.0089	0.014	-	0.17	0.055	<0.10	0.24	Yes
	11/17/16	0.012	0.0091	<0.0010	0.0076	0.022	-	0.19	0.062	<0.10	0.27	Yes
	6/28/10	<0.0010	<0.0010	<0.0010	<0.0020	<0.010	-	<0.20	<0.20	<0.50	<0.50	-
SCU27-002-MW (21.13 m)	6/29/10 ^{FD}	<0.0010	<0.0010	<0.0010	<0.0020	<0.010	-	<0.20	0.053	0.14	0.19	Yes
	6/30/10	<0.0010	<0.0010	<0.0010	<0.0020	<0.010	-	<0.20	<0.20	<0.50	<0.50	-
	7/1/10	<0.0010	<0.0010	<0.0010	<0.0020	<0.010	-	<0.050	0.063	0.14	0.20	Yes
	12/17/14	<0.001	<0.001	<0.001	<0.002	<0.01	-	<0.05	<0.05	<0.1	<0.1	-
	11/27/15	<0.0010	<0.0010	<0.0010	<0.0020	<0.010	-	<0.050	<0.050	<0.10	<0.10	-
	11/16/16	<0.0010	<0.0010	<0.0010	<0.0020	<0.010	-	<0.050	<0.050	0.22	0.22	Yes

TABLE A-1
 LTMM GROUNDWATER MONITORING EVENT NOVEMBER 2016 HCP
 GROUNDWATER ANALYTICAL RESULTS - BTEX/TPH

Sample Location (Total Well Depth)	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	Reached Baseline at C32
NSE Tier 1 EQS ¹		20	20	20	20	-	-	-	-	-	20	-
SCU31-002-MWB (6.94 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 ^{FD}	<0.0010	<0.0010	<0.0010	<0.0020	<0.010	-	<0.050	<0.050	<0.10	<0.10	-
	12/18/14 ^{FD}	<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 ^{FD}	<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	-	
SCU32-001-MWA (16.24 m)	7/18/10	<0.0010	0.004	<0.0010	<0.0020	<0.0010	-	0.32	0.15	<0.10	0.5	Yes
	7/19/10	<0.0010	<0.0010	<0.0010	<0.0020	<0.010	-	0.99	0.82	0.56	2.4	Yes
	12/17/14	0.0013	<0.001	<0.001	<0.002	<0.01	-	0.50	0.44	0.41	1.4	Yes
	11/27/15	<0.0010	<0.0010	<0.0010	<0.0020	<0.010	-	0.51	0.53	0.43	1.5	Yes
SCU32-002-MW (14.96 m)	7/23/10	0.0011	<0.0010	<0.0010	<0.0020	<0.010	-	<0.050	<0.050	<0.10	<0.10	-
	12/18/14	0.0011	<0.001	<0.001	<0.002	<0.01	-	0.055	0.064	0.13	0.25	Yes
	11/30/15	0.0011	<0.0010	<0.0010	<0.0020	<0.010	-	0.056	0.059	<0.10	0.11	Yes
	11/16/16 ^{FD}	0.0011	<0.0010	<0.0010	<0.0020	<0.010	-	<0.050	<0.050	<0.10	<0.10	-
	11/16/16	0.0011	<0.0010	<0.0010	<0.0020	<0.010	-	<0.050	<0.050	<0.10	<0.10	-
SCU32-003-MW (16.13 m)	7/24/10	<0.0010	0.008	<0.0010	<0.0020	<0.010	-	0.22	0.1	<0.10	0.3	Yes
	7/25/10	<0.0010	<0.0010	<0.0010	<0.0020	<0.010	-	2.1	2.5	1.9	6.6	Yes
	12/18/14	0.0027	0.0013	<0.001	<0.002	<0.01	-	0.58	0.27	0.27	1.1	Yes
	11/30/15	0.0023	0.0012	<0.0010	<0.0020	<0.010	-	0.61	0.46	0.38	1.5	Yes
MCES-007-MW (21.77 m)	8/3/10	<0.0010	<0.0010	<0.0010	<0.0020	<0.010	<0.20	-	-	<0.50	<0.50	-
	8/4/10	<0.0010	<0.0010	<0.0010	<0.0020	<0.010	-	<0.20	<0.20	<0.50	<0.50	-
	8/5/10	<0.0010	<0.0010	<0.0010	<0.0020	<0.010	-	<0.20	<0.20	<0.50	<0.50	-
	8/6/10	<0.0010	<0.0010	<0.0010	<0.0020	<0.010	-	<0.050	<0.050	<0.10	<0.10	-
	12/17/14	<0.001	<0.001	<0.001	<0.002	<0.01	-	<0.05	<0.05	<0.1	<0.1	-
	11/27/15 ^{FD}	<0.0010	<0.0010	<0.0010	<0.0020	<0.010	-	<0.050	<0.050	<0.10	<0.10	-
	11/27/15	<0.0010	<0.0010	<0.0010	<0.0020	<0.010	-	<0.050	<0.050	<0.10	<0.10	-
	11/17/16	0.012	0.0098	<0.0010	0.0079	0.024	-	0.23	0.073	<0.10	0.32	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 1 Environmental Quality Standards for Groundwater (Coarse Grained Soil, Non-potable Groundwater Commercial/Industrial Site) 2013

2 - Underline Exceeds NSE Tier 1 EQS

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

4 - The 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.

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 - SCU32-001-MWA and SCU32-003-MW were not sampled during the 2016 monitoring event due to product in the well.

TABLE A-2
 LTMM GROUNDWATER MONITORING EVENT NOVEMBER 2016 HCP
 GROUNDWATER ANALYTICAL RESULTS - PAH

Sample Location (Total Well Depth)	Sample Date	Units																			
		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
NSE Tier 1 EQS ¹		-	750	-	-	-	-	-	-	-	-	-	-	-	-	38000	38000	7000	-	-	-
MOE Table 3 ²		600	1.8	2.4	4.7	0.81	0.75	0.2	-	0.4	1	0.52	130	400	0.2	1800	1800	1400	-	580	68
SCU31-002-MWB (6.94 m)	9/22/05	<0.01	<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	<0.05	<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	<0.01	NM	<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	<0.01	NM	<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 ^{FD}	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 ^{FD}	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 ^{FD}	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.050	<0.050	<0.20	<0.010	0.017	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
SCU32-001-MWA (16.24 m)	11/24/11	1.1	0.81	0.84	0.11	0.06	0.04	0.03	NM	0.02	1.2	<0.01	1.1	2.8	0.03	8.1	2.7	2.8	0.02	5.2	0.7
	12/5/13	5.3	1.8	7.4	13	8.0	6.1	3.1	4.0	3.8	12	0.91	23	8.8	3.0	15	4.1	3.3	1.9	39**	20
	12/17/14	1.1	0.91	1.4	1.4	1.1	0.87	0.54	0.55	0.55	1.6	0.15	5	2.4	0.5	2.5	2	6.6	0.26	7.2	3.6
	11/27/15	1.4	0.7	1.8	0.83	0.39	0.28	0.17	0.18	0.18	0.88	0.06	4.2	2.7	0.15	3.6	2.4	8.4	0.1	8.7	2.9
SCU32-002-MW (14.96 m)	11/25/11	0.23	0.34	0.41	0.14	0.09	0.04	0.04	NM	0.03	0.14	0.01	0.65	0.44	0.04	0.74	0.54	7.7	0.03	1.2	0.46
	12/5/13	0.65	0.62	1.5	2.7	2.8	2.1	1.4	1.3	1.3	2.6	0.38	6.9	1.2	1.2	0.91	0.8	6.7	0.68	6.7	5.80
	12/18/14	0.21	0.31	0.31	0.35	0.31	0.25	0.14	0.15	0.14	0.41	0.044	1.0	0.48	0.13	0.50	0.50	4.3	0.063	1.5	0.75
	11/30/15	0.23	0.38	0.21	0.023	<0.010	<0.010	<0.010	<0.010	<0.010	0.022	<0.010	0.3	0.48	<0.010	0.71	0.69	7.6	<0.010	1.1	0.21
	11/16/16 ^{FD}	0.21	0.37	0.25	0.021	<0.010	<0.010	<0.010	<0.010	<0.010	0.019	<0.010	0.38	0.42	<0.010	0.66	0.61	7.1	<0.010	1.1	0.23
11/16/16	0.21	0.38	0.21	0.018	<0.010	<0.010	<0.010	<0.010	<0.010	0.016	<0.010	0.31	0.43	<0.010	0.69	0.63	7.4	<0.010	0.97	0.19	
SCU32-003-MW (16.13 m)	11/25/11	0.89	0.56	0.76	0.07	0.01	<0.01	<0.01	NM	<0.01	0.07	<0.01	1.1	1.9	<0.01	3.5	1.50	2.4	<0.01	3.3	0.72
	12/5/13	4.4	1.3	8.7	19	11	8.4	4.3	5.6	5.3	17	1.3	33	6.7	4.2	5.2	2.9	4.0	2.6	3.5	27
	12/18/14	1.6	1.9	0.89	0.20	0.17	0.12	0.080	0.078	0.073	0.25	0.021	1.6	3.5	0.065	3.1	2.6	8.5	0.039	5.2	0.97
	11/30/15	1.5	1.8	1.2	0.12	0.11	0.076	0.057	0.05	0.045	0.13	0.02	1.4	3.2	0.046	2.4	2.2	7.6	0.028	5.9	0.86
MCES-007-MW (21.77 m)	7/26/03	0.27	0.7	<0.01	<0.01	<0.01	<0.01	<0.01	NM	<0.01	<0.01	<0.01	0.74	0.97	<0.01	1.4	1.2	3.9	0.34	<0.01	0.34
	7/11/12	0.020	<0.01	0.050	0.15	0.13	0.10	0.080	NM	0.12	0.16	0.020	0.29	0.030	0.080	<0.05	<0.05	<0.02	0.040	0.2***	0.25
	11/27/12	0.052	0.024	0.18	0.45	0.35	0.34	0.17	NM	0.30	0.39	0.048	0.72	0.077	0.23	0.050	0.063	<0.02	0.077	0.44	0.60
	12/5/13	<0.010	<0.010	0.015	0.015	0.019	0.014	0.014	<0.010	<0.010	0.018	<0.010	0.039	0.010	<0.010	<0.050	<0.050	<0.20	<0.010	0.015	0.042
	12/17/14	0.21	0.59	0.26	0.018	<0.01	<0.01	<0.01	<0.01	<0.01	0.016	<0.01	0.49	0.76	<0.01	0.93	0.97	3.0	<0.01	1.5	0.27
	11/27/15 ^{FD}	0.22	0.51	0.37	0.027	<0.010	<0.010	<0.010	<0.010	<0.010	0.021	<0.010	0.61	0.700	<0.010	0.76	0.85	2.5	<0.010	1.8	0.36
	11/27/15	0.2	0.45	0.33	0.03	0.01	<0.010	<0.010	<0.010	<0.010	0.021	<0.010	0.58	0.76	<0.010	0.75	0.81	2.1	<0.010	1.7	0.33
	11/17/16	0.32	0.66	0.32	0.061	<0.010	<0.010	<0.010	<0.010	<0.010	0.048	<0.010	0.62	1.1	<0.010	6.7	9.7	6.3	<0.010	1.9	0.36

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) 2013
- 2 - Ontario Ministry of Environment, Table 3 Full Depth Generic Site Condition Standards in a Non-potable Groundwater (Coarse Grained Soil) 2011
- 3 - Underline Exceeds NSE Tier I EQS
- 4 - Bold exceeds MOE Table 3 Standards
- 5 - Italicized RDL above applicable guideline
- 6 - Benzo(j)fluoranthene was historically not included in PAH analysis.
- 7 - * Elevated PAH RDL(s) due to matrix / co-extractive interference.
- 8 - **Elevated PAH RDL(s) due to sample dilution.
- 9 - *** PAH RDL(s) elevated due to detection of compound in blank.
- 10 - SCU10-004-MW was not sampled during the 2014 monitoring event due to product in the well
- 11 - The 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.
- 12 - Historical data (i.e., pre-2014) tabulated by SLR Consulting (Canada) Ltd. During historic assessment work.
- 13 - This summary is to be used in conjunction with, not as a replacement of, the Laboratory Certificates of Analysis, which contain QA/QC information
- 14 - SCU32-001-MWA and SCU32-003-MW were not sampled during the 2016 monitoring event due to product in the well.

TABLE A-3
 LTMM GROUNDWATER MONITORING EVENT NOVEMBER 2016 HCP
 GROUNDWATER ANALYTICAL RESULTS - INORGANIC CHEMISTRY

Sample Location (Total Well Depth)	Sample Date	Dissolved Aluminum (Al)	Dissolved Antimony (Sb)	Dissolved Arsenic (As)	Dissolved Barium (Ba)	Dissolved Beryllium (Be)	Dissolved Bismuth (Bi)	Dissolved Boron (B)	Dissolved Cadmium (Cd)	Dissolved Calcium (Ca)	Dissolved Chromium (Cr)	Dissolved Cobalt (Co)	Dissolved Copper (Cu)	Dissolved Iron (Fe)	Dissolved Lead (Pb)	Dissolved Magnesium (Mg)	Dissolved Manganese (Mn)	Mercury total (Hg)	Dissolved Molybdenum (Mo)	Dissolved Nickel (Ni)	Dissolved Phosphorus (P)	Dissolved Potassium (K)	Dissolved Selenium (Se)	Dissolved Silver (Ag)	Dissolved Sodium (Na)	Dissolved Strontium (Sr)	Dissolved Thallium (Tl)	Dissolved Tin (Sn)	Dissolved Titanium (Ti)	Dissolved Uranium (U)	Dissolved Vanadium (V)	Dissolved Zinc (Zn)
Units		ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
NSE Tier 1 EQS ¹		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Standard MOE Table 3 ²		-	20000	1900	29000	67	-	45000	2.7	-	810	66	87	-	25	-	-	0.29	9200	490	-	-	63	1.5	2300000	-	510	-	-	420	250	1100
SCU20-017-MW (2.97 m)	9/7/10	180	<0.40	4.6	62	<0.50	<2.0	<100	<0.017	160000	<1.0	<1.0	<2.0	<100	<1.0	<60	<4.0	NM	6.9	6.3	<100	11000	5.0	<0.10	27000	890	<0.80	<20	<3.0	<0.15	4.2	<5.0
	11/17/10	230	<0.40	6.4	59	<0.50	<2.0	<100	<0.017	160000	3.1	<1.0	<2.0	<100	<1.0	<60	<4.0	<0.013	30	8.6	<100	13000	14	<0.10	32000	820	<0.80	<20	<3.0	<0.15	3.1	<5.0
	10/27/11	49	0.86	5.2	62	<0.50	<2.0	<100	<0.017	110000	2.8	<1.0	<2.0	<100	<1.0	3200	<4.0	0.015	6.3	3.9	<100	7000	1.2	<0.10	18000	770	<0.80	<20	<3.0	0.32	<2.0	<5.0
	11/21/12	23	<0.40	4.4	69	<0.50	<2.0	<100	<0.017	140000	<1.0	<1.0	<2.0	<100	<1.0	7800	11	<0.013	8.8	<3.0	<100	8600	3.1	<0.10	21000	900	<0.80	<20	<3.0	1.2	4.8	<5.0
	11/26/13	100	<1.0	7.9	56	<1.0	<2.0	110	<0.010	160000	<1.0	<0.40	<2.0	<50	<0.50	<100	<2.0	<0.013	14	26	170	13000	2.4	<0.10	36000	910	<0.10	<2.0	<2.0	<0.10	2.7	7.6
	12/16/14	150	<1	6.7	52	<1	<2	90	0.053	150000	<1	<0.4	<2	<50	<0.5	<100	<2	0.025	18	16	120	12000	11	<0.1	26000	820	<0.1	<2	<2	<0.1	5.9	<5
	11/25/15	180	<1.0	6.9	58	<1.0	<2.0	94	<0.010	160000	<1.0	<0.40	<2.0	<50	<0.50	<100	<2.0	<0.013	7.0	12	<100	13000	3.4	<0.10	27000	910	<0.10	<2.0	<2.0	<0.10	3.7	<5.0
	11/15/16	200	<1.0	6.5	47	<1.0	<2.0	87	<0.010	140000	<1.0	<0.40	<2.0	<50	<0.50	<100	<2.0	<0.013	15	11	<100	13000	3.4	<0.10	23000	840	<0.10	<2.0	<2.0	<0.10	2.2	<5.0
SCU20-018-MW (2.17 m)	9/7/10	<50	<4.0	<6.0	38	5.0	20	1000	0.17	330000	<10	<10	<20	<1000	<10	13000	<40	NM	<40	<30	<1000	7700	<10	<1.0	13000	1100	<8.0	<200	<30	<1.5	<20	<5.0
	11/17/10	14	<0.40	2.4	37	<0.50	<2.0	<100	<0.017	290000	<1.0	<1.0	<2.0	<100	<1.0	21000	46	<0.013	6.9	<3.0	<100	6000	4.3	<0.10	10000	1700	<0.80	<20	<3.0	1.7	10	<5.0
	10/27/11	15	1.3	2.6	32	<0.50	<2.0	<100	<0.017	350000	<1.0	<1.0	<2.0	<100	<1.0	22000	160	<0.013	5.4	<3.0	<100	5500	<1.0	<0.10	14000	3700	<0.80	<20	3.3	2.6	8	<5.0
	11/21/12	100	<0.40	3.7	34	<0.50	<2.0	<100	<0.017	520000	<1.0	1.1	<2.0	<100	<1.0	22000	400	<0.013	4.8	<3.0	<100	4300	1.3	<0.10	16000	9300	<0.80	<20	4.2	2.1	4.8	<5.0
	11/26/13	13	<1.0	2.2	26	<1.0	<2.0	88	<0.010	380000	<1.0	<0.40	<2.0	180	<0.50	25000	300	<0.013	3.5	<2.0	<100	5100	1.2	<0.10	14000	5500	<0.10	<2.0	<2.0	2.3	6.7	7.5
	12/16/14	15	<1	2	24	<1	<2	73	0.092	460000	<1	0.44	<2	220	<0.5	26000	480	<0.013	3.1	<2	<100	3600	<1	<0.1	16000	8400	<0.1	<2	<2	2	3.4	7.6
	11/25/15	<5.0	<1.0	1.8	25	<1.0	<2.0	78	<0.010	330000	<1.0	<0.40	<2.0	75	<0.50	21000	250	<0.013	3.0	<2.0	<100	4200	1.1	<0.10	13000	4900	<0.10	<2.0	<2.0	1.8	6.5	<5.0
	11/15/16	6.8	<1.0	2.2	17	<1.0	<2.0	70	<0.010	550000	<1.0	0.49	<2.0	510	<0.50	28000	520	<0.013	2.1	<2.0	<100	3300	<1.0	<0.10	18000	12000	<0.10	<2.0	<2.0	2.1	<2.0	<5.0
SCU26-001-MW (22.27 m)	7/26/03	42	<0.40	<0.60	520	<0.50	<2.0	<100	<0.017	320000	<1.0	<1.0	<2.0	720	<1.0	<60	<4.0	<0.013	6.4	<3.0	<100	20000	1.5	<0.10	23000	2200	<0.80	<20	<3.0	<0.15	<2.0	<5.0
	7/11/12	42	<0.40	<0.60	450	<0.50	<2.0	<100	<0.017	420000	<1.0	<1.0	<2.0	150	<1.0	<60	<4.0	0.059	4.5	3.2	<100	28000	3.5	<0.10	28000	2700	<0.80	<20	<3.0	<0.15	<2.0	<5.0
	11/26/12	29	<0.40	1.7	440	<0.50	<2.0	<100	<0.017	380000	3.1	<1.0	<2.0	310	<1.0	110	<4.0	NM	4.2	<3.0	<100	26000	7.7	<0.10	31000	2900	<0.80	<20	<3.0	<0.15	7.5	<5.0
	12/5/13	25	<1.0	<1.0	440	<1.0	<2.0	<50	<0.010	370000	3.6	<0.40	<2.0	<50	0.53	<100	<2.0	0.027	3.8	<2.0	<100	27000	5.1	<0.10	29000	2700	<0.10	7.5	<2.0	<0.10	<2.0	<5.0
	12/17/14	19	<1	<1	480	<1	<2	<50	0.013	380000	<1	<0.4	<2	<50	<0.5	<100	<2	<0.013	4.2	<2	<100	27000	8.0	<0.1	26000	2800	<0.1	<2	<2	<0.1	<2	<5
	11/27/15	14	<1.0	<1.0	460	<1.0	<2.0	<50	<0.010	390000	<1.0	<0.40	<2.0	<50	<0.50	<100	<2.0	<0.013	4.4	<2.0	<100	26000	4.1	<0.10	26000	2800	<0.10	<2.0	<2.0	<0.10	<2.0	<5.0
SCU26-002-MW (25.41 m)	7/11/12	22	<0.40	<0.60	420	<0.50	<2.0	<100	<0.017	450000	<1.0	<1.0	<2.0	100	<1.0	<60	<4.0	<0.013	4.3	4.1	<100	37000	4.7	<0.10	30000	3200	<0.80	<20	<3.0	<0.15	<2.0	<5.0
	11/26/12	80	<0.40	<0.60	420	<0.50	<2.0	<100	<0.017	400000	<1.0	<1.0	<2.0	<100	<1.0	<60	<4.0	NM	<4.0	<3.0	<100	35000	<1.0	<0.10	32000	3100	<0.80	<20	<3.0	<0.15	<2.0	<5.0
	11/26/12 ^{FD}	94	<0.40	1	420	<0.50	<2.0	<100	<0.017	400000	2.5	<1.0	<2.0	<100	<1.0	<60	<4.0	NM	4.4	<3.0	<100	37000	5.4	<0.10	35000	3300	<0.80	<20	<3.0	<0.15	3.9	5.9
	12/5/13	49	<1.0	<1.0	420	<1.0	<2.0	<50	<0.010	390000	<1.0	<0.40	<2.0	<50	<0.50	<100	<2.0	0.045	5.1	<2.0	<100	35000	4.3	<0.10	33000	3100	<0.10	<2.0	<2.0	<0.10	<2.0	<5.0
	12/17/14 ^{FD}	27	<1	<1	490	<1	<2	<50	<0.01	410000	<1	<0.4	<2	<50	<0.5	<100	<2	<0.013	3.8	<2	<100	36000	9.7	<0.1	28000	3400	<0.1	<2	<2	<0.1	<2	<5
	12/17/14	28	<1	<1	510	<1	<2	<50	0.017	410000	<1	<0.4	<2	<50	0.53	<100	3	<0.013	3.4	<2	<100	37000	11	<0.1	28000	3300	<0.1	<2	<2	<0.1	<2	<5
11/27/15	20	<1.0	<1.0	460	<1.0	<2.0	<50	<0.010	430000	<1.0	<0.40	<2.0	<50	<0.50	<100	<2.0	<0.013	4.4	<2.0	<100	36000	4.3	<0.10	28000	3300	<0.10	<2.0	<2.0	<0.10	<2.0	<5.0	
SCU27-002-MW (21.13 m)	7/26/03	<5.0	<0.40	30	15000	<0.50	<2.0	3100	<0.017	1200000	<1.0	<1.0	<2.0	49000	<1.0	630000	8600	<0.013	4.5	1000	<100	91000	<1.0	<0.10	5100000	70000	<0.80	<20	9	14	<2.0	<5.0
	7/4/12	<5.0	<0.40	<0.60	8700	<0.50	<2.0	<100	<0.017	1400000	<1.0	<1.0	<2.0	63000	<1.0	770000	7300	<0.013	<4.0	<3.0	<100	110000	<1.0	<0.10	5700000	84000	<0.80	<20	<3.0	<0.15	<2.0	<5.0
	7/4/12 ^{FD}	<5.0	<0.40	21	9300	<0.50	<2.0	3100	<0.017	1400000	<1.0	<1.0	<2.0	61000	<1.0	7																

TABLE A-3
 LTMM GROUNDWATER MONITORING EVENT NOVEMBER 2016 HCP
 GROUNDWATER ANALYTICAL RESULTS - INORGANIC CHEMISTRY

Sample Location (Total Well Depth)	Sample Date	Dissolved Aluminum (Al)	Dissolved Antimony (Sb)	Dissolved Arsenic (As)	Dissolved Barium (Ba)	Dissolved Beryllium (Be)	Dissolved Bismuth (Bi)	Dissolved Boron (B)	Dissolved Cadmium (Cd)	Dissolved Calcium (Ca)	Dissolved Chromium (Cr)	Dissolved Cobalt (Co)	Dissolved Copper (Cu)	Dissolved Iron (Fe)	Dissolved Lead (Pb)	Dissolved Magnesium (Mg)	Dissolved Manganese (Mn)	Mercury total (Hg)	Dissolved Molybdenum (Mo)	Dissolved Nickel (Ni)	Dissolved Phosphorus (P)	Dissolved Potassium (K)	Dissolved Selenium (Se)	Dissolved Silver (Ag)	Dissolved Sodium (Na)	Dissolved Strontium (Sr)	Dissolved Thallium (Tl)	Dissolved Tin (Sn)	Dissolved Titanium (Ti)	Dissolved Uranium (U)	Dissolved Vanadium (V)	Dissolved Zinc (Zn)
Units		ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	
NSE Tier 1 EQS ¹		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Standard MOE Table 3 ²		-	20000	1900	29000	67	-	45000	2.7	-	810	66	87	-	25	-	-	0.29	9200	490	-	-	63	1.5	2300000	-	510	-	-	420	250	1100
SCU32-001-MWA (16.24 m)	11/24/11	25	<0.40	1	98	<0.50	<2.0	<100	<0.017	270000	<1.0	<1.0	<2.0	<100	<1.0	<60	<4.0	<0.013	71	<3.0	<100	68000	17	<0.10	97000	1900	<0.80	20	<3.0	<0.15	3.7	<5.0
	12/5/13	360	<1.0	1.6	94	<1.0	<2.0	<50	0.011	220000	<1.0	<0.40	5.8	<50	<0.50	180	2.0	<0.013	58	<2.0	<100	45000	4.7	<0.10	64000	2300	<0.10	8.6	<2.0	<0.10	9.4	5.2
	12/17/14	130	<1	1.0	120	<1	<2	<50	<0.1	250000	<1	<0.4	<2	180	0.78	200	10	0.018	620	<2	<100	340000	40	<0.1	400000	2100	<0.1	<2	4.5	<0.1	2.0	5.7
	11/27/15	16	<1.0	<1.0	99	<1.0	<2.0	<50	<0.10	280000	<1.0	<0.40	<2.0	<50	<0.50	<100	<2.0	<0.013	190	<2.0	<100	150000	8.5	<0.10	190000	2000	<0.10	<2.0	<2.0	<0.10	<2.0	<5.0
SCU32-002-MW (14.96 m)	11/25/11	680	<0.40	4.7	46	<0.50	<2.0	<100	<0.017	210000	<1.0	<1.0	<2.0	<100	<1.0	<60	<4.0	<0.013	48	<3.0	<100	24000	7.3	<0.10	84000	960	<0.80	<20	<3.0	<0.15	<2.0	<5.0
	12/5/13	670	<1.0	5.0	47	<1.0	<2.0	<50	<0.010	200000	<1.0	<0.40	<2.0	180	<0.50	<100	2.1	<0.013	42	<2.0	<100	29000	3.9	<0.10	76000	920	<0.10	7.8	<2.0	<0.10	<2.0	<5.0
	12/18/14	700	<1	2.8	61	<1	<2	<50	0.054	230000	<1	<0.4	<2	<50	<0.5	<100	<2	<0.013	21	<2	<100	29000	9.5	<0.1	72000	1100	<0.1	<2	<2	<0.1	<2	<5
	11/30/15	510	<1.0	4.6	42	<1.0	<2.0	<50	<0.010	200000	<1.0	<0.40	<2.0	<50	<0.50	<100	<2.0	<0.013	41	<2.0	<100	27000	2.6	<0.10	59000	890	<0.10	<2.0	<2.0	<0.10	<2.0	<5.0
	11/16/16 ^{FD}	450	<1.0	4.7	42	<1.0	<2.0	<50	<0.010	200000	<1.0	<0.40	<2.0	<50	<0.50	<100	<2.0	<0.013	78	<2.0	<100	30000	3.7	<0.10	65000	890	<0.10	<2.0	<2.0	<0.10	<2.0	<5.0
11/16/16	440	<1.0	4.7	40	<1.0	<2.0	<50	0.013	190000	<1.0	<0.40	<2.0	<50	<0.50	<100	<2.0	<0.013	76	<2.0	<100	29000	4.4	<0.10	67000	910	<0.10	<2.0	<2.0	<0.10	<2.0	<5.0	
SCU32-003-MW (16.13 m)	11/25/11	<50	<4.0	<6.0	150	<5.0	<20	<100	<0.17	250000	<10	<10	<20	<1000	<10	<600	<40	<0.013	130	<30	<1000	80000	28	<1.0	98000	2200	<8.0	<200	<30	<1.5	<20	<50
	12/5/13	79	<1.0	<1.0	130	<1.0	<2.0	<50	0.014	250000	<1.0	<0.40	<2.0	<50	<0.50	<100	<2.0	<0.013	58	<2.0	<100	67000	7.1	<0.10	90000	2700	<0.10	6.9	<2.0	<0.10	3.9	<5.0
	12/18/14	40	<1	<1	140	<1	<2	<50	<0.1	240000	<1	<0.4	<2	<50	<0.5	<100	<2	<0.013	83	<2	<1000	630000	68	<0.1	780000	2100	<0.1	<2	<2	<0.1	2.9	<5
	11/30/15	<50	<10	<10	130	<10	<20	<500	<0.10	240000	<10	<4.0	31	<500	<5.0	<1000	<20	<0.013	580	<20	<1000	530000	77	<1.0	680000	1900	<1.0	<20	<20	<1.0	<20	<50
MCES-007-MW (21.77 m)	7/26/03	<5.0	<0.40	<0.60	490	<0.50	<2.0	<100	<0.017	380000	<1.0	<1.0	<2.0	690	<1.0	<60	<4.0	<0.013	1.8	<3.0	<100	31000	<1.0	<0.10	35000	2500	<0.80	<20	<3.0	<0.15	<2.0	-
	7/11/12	10	1.2	2.3	23	<0.50	<2.0	<100	<0.017	22000	3.8	<1.0	<2.0	<100	<1.0	600	<4.0	0.013	<4.0	<3.0	<100	4100	1.2	<0.10	21000	160	<0.80	<20	<3.0	0.24	32	<5.0
	11/27/12	38	1.1	2.2	63	<0.50	<2.0	<100	<0.017	56000	9.6	<1.0	<2.0	<100	<1.0	<60	<4.0	NM	6.2	<3.0	<100	8200	1.1	<0.10	54000	510	<0.80	<20	<3.0	<0.15	34	<5.0
	12/5/13	5.0	1.0	1.0	1.0	1.0	2.0	50	0.010	100	1.0	0.40	2.0	50	0.50	100	2.0	<0.013	2.0	2.0	100	100	1.0	0.10	100	2.0	0.10	2.0	2.0	0.10	2.0	5.0
	12/17/14	24	<1	<1	580	<1	<2	<50	0.022	410000	<1	<0.4	<2	<50	<0.5	<100	<2	<0.013	2.1	<2	<100	35000	12	<0.1	33000	3400	<0.1	<2	<2	<0.1	<2	<5
	11/27/15 ^{FD}	52	<1.0	<1.0	580	<1.0	<2.0	<50	<0.010	430000	<1.0	<0.40	<2.0	<50	<0.50	<100	2.8	<0.013	2.7	<2.0	<100	34000	4.5	<0.10	30000	3200	<0.10	<2.0	<2.0	<0.10	<2.0	<5.0
11/27/15	57	<1.0	<1.0	580	<1.0	<2.0	<50	<0.010	430000	<1.0	<0.40	<2.0	<50	<0.50	<100	5.5	0.020	2.3	<2.0	<100	34000	5.5	<0.10	30000	3200	<0.10	<2.0	<2.0	<0.10	<2.0	<5.0	

NOTES:

- FD - Field Duplicate
- NM - Not Measured or not analyzed
- ug/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) 2013
- 2 - Ontario Ministry of Environment, Table 3 Full Depth Generic Site Condition Standards in a Non-potable Groundwater (Coarse Grained Soil) 2011
- 3 - Currently there are no NSE Tier I EQS for inorganic parameters on a non-potable site.
- 4 - **Bold exceeds MOE Table 3 Standards**
- 5 - SCU10-004-MW was not sampled during the 2014 monitoring event due to product in the well
- 6 - The 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.
- 7 - Historical data (i.e., pre-2014) tabulated by SLR Consulting (Canada) Ltd. During historic assessment work.
- 8 - This summary is to be used in conjunction with, not as a replacement of, the Laboratory Certificates of Analysis, which contain QA/QC information
- 9 - SCU32-001-MWA and SCU32-003-MW were not sampled during the 2016 monitoring event due to product in the well.

Appendix B

QC Tables

TABLE B-1
LTMM GROUNDWATER MONITORING EVENT NOVEMBER 2016 HCP
SUMMARY OF FIELD DUPLICATES AND TRIP BLANKS

FD	Date Sampled	TB	Date Sampled	EB	Date Sampled	FB	Date Sampled
FD-017 - B6O9943	11/16/2016	TB-024 - B6O8892	11/15/2016	EB-003 - B6P1164	11/17/2016	FB-002 - B6P1164	11/17/2016
FD-018 - B6P2570	11/18/2016	TB-025 - B6O9943	11/16/2016				
		TB-026 - B6P1164	11/17/2016				
		TB-027 - B6P2570	11/18/2016				

Notes:

- FD - Field Duplicate
- TB - Trip Blank
- EB - Equipment Blank
- FB - Field Blank

**TABLE B-2
LTMM GROUNDWATER MONITORING EVENT NOVEMBER 2016 HCP
RPD FOR FIELD DUPLICATES (GROUNDWATER) - BTEX/TPH**

Sample Location	Sample	Type	Sample Date	Benzene	Toluene	E. Benzene	Xylenes	C6-C10	C10-C16	C16-C21	C21-C32	Modified TPH
				mg/L								
SCU32-002-MW	FD-017	Field Duplicate	11/16/2016	0.0011	<0.0010	<0.0010	<0.0020	<0.010	<0.050	<0.050	<0.10	<0.10
	FD-017	Regular	11/16/2016	0.0011	<0.0010	<0.0010	<0.0020	<0.010	<0.050	<0.050	<0.10	<0.10
	FD-017	RPD (%)	11/16/2016	NA	NA	NA	NA	NA	NA	NA	NA	NA
SCU19-002-MWB	FD-018	Field Duplicate	11/18/2016	<0.0010	<0.0010	<0.0010	<0.0020	<0.010	<0.050	<0.050	<0.10	<0.10
	FD-018	Regular	11/18/2016	<0.0010	<0.0010	<0.0010	<0.0020	<0.010	<0.050	<0.050	<0.10	<0.10
	FD-018	RPD (%)	11/18/2016	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:

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

Bold - Calculation is outside of the acceptable RPD range.

FD - Field Duplicate

RPD - Relative Percent Difference

TABLE B-3
 LTMM GROUNDWATER MONITORING EVENT NOVEMBER 2016 HCP
 RPD FOR FIELD DUPLICATES (GROUNDWATER) - PAHs

Sample Location	Sample	Type	Sample Date	Acenaphthene	Acenaphthylene	Anthracene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(j)fluoranthene	Benzo(k)fluoranthene	Chrysene	Dibenzo(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-cd)pyrene	1-Methylnaphthalene	2-Methylnaphthalene	Naphthalene	Perylene	Phenanthrene	Pyrene
				µg/L																			
SCU32-002-MW	FD-017	Field Duplicate	11/16/2016	0.21	0.37	0.25	0.021	<0.010	<0.010	<0.010	<0.010	<0.010	0.02	<0.010	0.38	0.4	<0.010	0.66	0.61	7.10	<0.010	1.1	0.23
	FD-017	Regular	11/16/2016	0.21	0.38	0.21	0.018	<0.010	<0.010	<0.010	<0.010	<0.010	0.02	<0.010	0.31	0.4	<0.010	0.69	0.63	7.40	<0.010	1.0	0.19
	FD-017	RPD (%)	11/16/2016	0	3	17	NA	NA	NA	NA	NA	NA	NA	NA	20	2	NA	2	3	4	NA	13	19
SCU19-002-MWB	FD-018	Field Duplicate	11/18/2016	<0.010	<0.010	<0.010	0.012	<0.010	<0.010	<0.010	<0.010	<0.010	0.01	<0.010	0.03	<0.010	<0.010	<0.050	<0.050	<0.20	<0.010	0.024	0.025
	FD-018	Regular	11/18/2016	0.26	0.083	0.087	0.16	0.110	0.090	0.069	0.061	0.057	0.150	0.021	0.35	0.240	0.060	0.28	0.072	<0.20	0.027	0.32	0.27
	FD-018	RPD (%)	11/18/2016	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:

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

Bold - Calculation is outside of the acceptable RPD range.

FD - Field Duplicate

RPD - Relative Percent Difference

TABLE B-4
 LTMM GROUNDWATER MONITORING EVENT NOVEMBER 2016 HCP
 RPD FOR FIELD DUPLICATES (GROUNDWATER) - INORGANIC CHEMISTRY

Sample Location	Sample	Type	Sample Date	Al	Sb	As	Ba	Be	Bi	B	Cd	Ca	Cr	Co	Cu	Fe	Pb	Mg	Mn
				ug/L															
SCU32-002-MW	FD-017	Field Duplicate	11/16/2016	450	<1.0	4.7	42	<1.0	<2.0	<50	<0.010	200000	<1.0	<0.40	<2.0	<50	<0.50	<100	<2.0
	FD-017	Regular	11/16/2016	440	<1.0	5	40	<1.0	<2.0	<50	0.013	190000	<1.0	<0.40	<2.0	<50	<0.50	<100	<2.0
	FD-017	RPD (%)	11/16/2016	2	NA	NA	5	NA	NA	NA	NA	5	NA	NA	NA	NA	NA	NA	NA
SCU19-002-MWB	FD-018	Field Duplicate	11/18/2016	<50	<10	<10	66	<10	<20	<500	<0.10	1700000	<10	<4.0	<20	2200	<5.0	180000	550
	FD-018	Regular	11/18/2016	27	<1.0	1.1	46	<1.0	<2.0	350	<0.010	380000	<1.0	<0.40	<2.0	390	<0.50	66000	66
	FD-018	RPD (%)	11/18/2016	NA	NA	NA	36	NA	NA	NA	NA	127	NA	NA	NA	140	40	93	157

Sample Location	Sample	Type	Sample Date	Hg	Mo	Ni	P	K	Se	Ag	Na	Sr	Tl	Sn	Ti	U	V	Zn
				ug/L														
SCU32-002-MW	FD-017	Field Duplicate	11/16/2016	<0.013	78	<2.0	<100	30000	3.7	<0.10	65000	890	<0.10	<2.0	<2.0	<0.10	<2.0	<5.0
	FD-017	Regular	11/16/2016	<0.013	76	<2.0	<100	29000	4.4	<0.10	67000	910	<0.10	<2.0	<2.0	<0.10	<2.0	<5.0
	FD-017	RPD (%)	11/16/2016	NA	3	NA	NA	3	17	NA	3	0	NA	NA	NA	NA	NA	NA
SCU19-002-MWB	FD-018	Field Duplicate	11/18/2016	<0.013	<20	<20	<1000	22000	<10	<1.0	250000	160000	<1.0	<20	<20	1.2	<20	<50
	FD-018	Regular	11/18/2016	0.015	8.2	<2.0	<100	20000	<1.0	<0.10	410000	20000	<0.10	<2.0	<2.0	0.42	<2.0	<5.0
	FD-018	RPD (%)	11/18/2016	NA	NA	NA	NA	5	NA	30	48	156	NA	NA	NA	NA	NA	NA

Notes:

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

Bold - Calculation is outside of the acceptable RPD range.

FD - Field Duplicate

RPD - Relative Percent Difference

Appendix C

Laboratory Certificates

Your Project #: 4104251070
 Site Location: HARBOURSIDE COMMERCIAL PARK
 Your C.O.C. #: 585517

Attention:Nadine Wambolt

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

Report Date: 2016/11/24

Report #: R4258924

Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B6O8892

Received: 2016/11/16, 11:29

Sample Matrix: Water
 # Samples Received: 8

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Reference
TEH in Water (PIRI) (1)	8	2016/11/18	2016/11/22	ATL SOP 00113	Atl. RBCA v3 m
Mercury - Total (CVAA,LL) (1)	7	2016/11/21	2016/11/22	ATL SOP 00026	EPA 245.1 R3 m
Metals Water Diss. MS (as rec'd) (1)	6	N/A	2016/11/21	ATL SOP 00058	EPA 6020A R1 m
Metals Water Diss. MS (as rec'd) (1)	1	N/A	2016/11/22	ATL SOP 00058	EPA 6020A R1 m
PAH in Water by GC/MS (SIM) (1)	5	2016/11/18	2016/11/19	ATL SOP 00103	EPA 8270D 2007 m
PAH in Water by GC/MS (SIM) (1)	1	2016/11/18	2016/11/21	ATL SOP 00103	EPA 8270D 2007 m
PAH in Water by GC/MS (SIM) (1)	1	2016/11/18	2016/11/23	ATL SOP 00103	EPA 8270D 2007 m
VPH in Water (PIRI) (1)	1	N/A	2016/11/22	ATL SOP 00118	Atl. RBCA v3 m
VPH in Water (PIRI) (1)	7	N/A	2016/11/23	ATL SOP 00118	Atl. RBCA v3 m
ModTPH (T1) Calc. for Water (1)	2	N/A	2016/11/23	N/A	Atl. RBCA v3 m
ModTPH (T1) Calc. for Water (1)	6	N/A	2016/11/24	N/A	Atl. RBCA v3 m

Remarks:

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

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

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

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

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

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

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

(1) This test was performed by Maxxam Bedford

Your Project #: 4104251070
Site Location: HARBOURSIDE COMMERCIAL PARK
Your C.O.C. #: 585517

Attention:Nadine Wambolt

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

Report Date: 2016/11/24
Report #: R4258924
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B6O8892
Received: 2016/11/16, 11:29

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Candace Hillier, CI Svc - Sydney
Email: chillier@maxxam.ca
Phone# (902) 567 1255

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

MERCURY BY COLD VAPOUR AA (WATER)

Maxxam ID		DLO263	DLO274	DLO275	DLO276		
Sampling Date		2016/11/15 10:42	2016/11/15 11:52	2016/11/15 12:52	2016/11/15 13:33		
COC Number		585517	585517	585517	585517		
	UNITS	SCU20-013-MW	SCU20-014-MW	SCU20-017-MW	SCU20-018-MW	RDL	QC Batch
Metals							
Total Mercury (Hg)	ug/L	<0.013	0.14	<0.013	<0.013	0.013	4757451
RDL = Reportable Detection Limit							
QC Batch = Quality Control Batch							

Maxxam ID		DLO277	DLO278	DLO279		
Sampling Date		2016/11/15 15:22	2016/11/15 14:33	2016/11/15 16:02		
COC Number		585517	585517	585517		
	UNITS	SCU20-015-MW	SCU20-016-MW	SCU19-031-MW	RDL	QC Batch
Metals						
Total Mercury (Hg)	ug/L	<0.013	<0.013	<0.013	0.013	4757453
RDL = Reportable Detection Limit						
QC Batch = Quality Control Batch						

ELEMENTS BY ICP/MS (WATER)

Maxxam ID		DLO263	DLO274	DLO275		DLO276		
Sampling Date		2016/11/15 10:42	2016/11/15 11:52	2016/11/15 12:52		2016/11/15 13:33		
COC Number		585517	585517	585517		585517		
	UNITS	SCU20-013-MW	SCU20-014-MW	SCU20-017-MW	RDL	SCU20-018-MW	RDL	QC Batch
Metals								
Dissolved Aluminum (Al)	ug/L	160	190	200	5.0	6.8	5.0	4756978
Dissolved Antimony (Sb)	ug/L	<1.0	<1.0	<1.0	1.0	<1.0	1.0	4756978
Dissolved Arsenic (As)	ug/L	13	3.3	6.5	1.0	2.2	1.0	4756978
Dissolved Barium (Ba)	ug/L	97	75	47	1.0	17	1.0	4756978
Dissolved Beryllium (Be)	ug/L	<1.0	<1.0	<1.0	1.0	<1.0	1.0	4756978
Dissolved Bismuth (Bi)	ug/L	<2.0	<2.0	<2.0	2.0	<2.0	2.0	4756978
Dissolved Boron (B)	ug/L	<50	<50	87	50	70	50	4756978
Dissolved Cadmium (Cd)	ug/L	<0.010	0.037	<0.010	0.010	<0.010	0.010	4756978
Dissolved Calcium (Ca)	ug/L	120000	150000	140000	100	550000	100	4756978
Dissolved Chromium (Cr)	ug/L	<1.0	<1.0	<1.0	1.0	<1.0	1.0	4756978
Dissolved Cobalt (Co)	ug/L	<0.40	<0.40	<0.40	0.40	0.49	0.40	4756978
Dissolved Copper (Cu)	ug/L	<2.0	<2.0	<2.0	2.0	<2.0	2.0	4756978
Dissolved Iron (Fe)	ug/L	<50	<50	<50	50	510	50	4756978
Dissolved Lead (Pb)	ug/L	<0.50	<0.50	<0.50	0.50	<0.50	0.50	4756978
Dissolved Magnesium (Mg)	ug/L	<100	<100	<100	100	28000	100	4756978
Dissolved Manganese (Mn)	ug/L	<2.0	<2.0	<2.0	2.0	520	2.0	4756978
Dissolved Molybdenum (Mo)	ug/L	63	18	15	2.0	2.1	2.0	4756978
Dissolved Nickel (Ni)	ug/L	35	32	11	2.0	<2.0	2.0	4756978
Dissolved Phosphorus (P)	ug/L	<100	190	<100	100	<100	100	4756978
Dissolved Potassium (K)	ug/L	51000	24000	13000	100	3300	100	4756978
Dissolved Selenium (Se)	ug/L	1.9	2.7	3.4	1.0	<1.0	1.0	4756978
Dissolved Silver (Ag)	ug/L	<0.10	<0.10	<0.10	0.10	<0.10	0.10	4756978
Dissolved Sodium (Na)	ug/L	120000	26000	23000	100	18000	100	4756978
Dissolved Strontium (Sr)	ug/L	1500	1100	840	2.0	12000	20	4756978
Dissolved Thallium (Tl)	ug/L	<0.10	<0.10	<0.10	0.10	<0.10	0.10	4756978
Dissolved Tin (Sn)	ug/L	<2.0	<2.0	<2.0	2.0	<2.0	2.0	4756978
Dissolved Titanium (Ti)	ug/L	<2.0	<2.0	<2.0	2.0	<2.0	2.0	4756978
Dissolved Uranium (U)	ug/L	<0.10	<0.10	<0.10	0.10	2.1	0.10	4756978
Dissolved Vanadium (V)	ug/L	19	120	2.2	2.0	<2.0	2.0	4756978
Dissolved Zinc (Zn)	ug/L	<5.0	<5.0	<5.0	5.0	<5.0	5.0	4756978
RDL = Reportable Detection Limit								
QC Batch = Quality Control Batch								

ELEMENTS BY ICP/MS (WATER)

Maxxam ID		DLO277	DLO278	DLO279		
Sampling Date		2016/11/15 15:22	2016/11/15 14:33	2016/11/15 16:02		
COC Number		585517	585517	585517		
	UNITS	SCU20-015-MW	SCU20-016-MW	SCU19-031-MW	RDL	QC Batch
Metals						
Dissolved Aluminum (Al)	ug/L	41	190	7.6	5.0	4756978
Dissolved Antimony (Sb)	ug/L	<1.0	<1.0	<1.0	1.0	4756978
Dissolved Arsenic (As)	ug/L	18	7.5	2.7	1.0	4756978
Dissolved Barium (Ba)	ug/L	19	36	34	1.0	4756978
Dissolved Beryllium (Be)	ug/L	<1.0	<1.0	<1.0	1.0	4756978
Dissolved Bismuth (Bi)	ug/L	<2.0	<2.0	<2.0	2.0	4756978
Dissolved Boron (B)	ug/L	82	120	360	50	4756978
Dissolved Cadmium (Cd)	ug/L	<0.010	<0.010	0.024	0.010	4756978
Dissolved Calcium (Ca)	ug/L	170000	130000	110000	100	4756978
Dissolved Chromium (Cr)	ug/L	<1.0	<1.0	2.7	1.0	4756978
Dissolved Cobalt (Co)	ug/L	<0.40	<0.40	<0.40	0.40	4756978
Dissolved Copper (Cu)	ug/L	<2.0	<2.0	<2.0	2.0	4756978
Dissolved Iron (Fe)	ug/L	<50	<50	<50	50	4756978
Dissolved Lead (Pb)	ug/L	<0.50	<0.50	<0.50	0.50	4756978
Dissolved Magnesium (Mg)	ug/L	<100	<100	40000	100	4756978
Dissolved Manganese (Mn)	ug/L	<2.0	<2.0	340	2.0	4756978
Dissolved Molybdenum (Mo)	ug/L	37	31	9.3	2.0	4756978
Dissolved Nickel (Ni)	ug/L	5.6	16	<2.0	2.0	4756978
Dissolved Phosphorus (P)	ug/L	<100	<100	<100	100	4756978
Dissolved Potassium (K)	ug/L	14000	23000	33000	100	4756978
Dissolved Selenium (Se)	ug/L	<1.0	1.5	2.2	1.0	4756978
Dissolved Silver (Ag)	ug/L	<0.10	<0.10	<0.10	0.10	4756978
Dissolved Sodium (Na)	ug/L	40000	31000	99000	100	4756978
Dissolved Strontium (Sr)	ug/L	410	810	770	2.0	4756978
Dissolved Thallium (Tl)	ug/L	<0.10	<0.10	<0.10	0.10	4756978
Dissolved Tin (Sn)	ug/L	<2.0	<2.0	<2.0	2.0	4756978
Dissolved Titanium (Ti)	ug/L	<2.0	<2.0	<2.0	2.0	4756978
Dissolved Uranium (U)	ug/L	<0.10	<0.10	3.2	0.10	4756978
Dissolved Vanadium (V)	ug/L	2.2	23	<2.0	2.0	4756978
Dissolved Zinc (Zn)	ug/L	<5.0	<5.0	<5.0	5.0	4756978
RDL = Reportable Detection Limit						
QC Batch = Quality Control Batch						

SEMI-VOLATILE ORGANICS BY GC-MS (WATER)

Maxxam ID		DLO263		DLO274		DLO275	DLO276		
Sampling Date		2016/11/15 10:42		2016/11/15 11:52		2016/11/15 12:52	2016/11/15 13:33		
COC Number		585517		585517		585517	585517		
	UNITS	SCU20-013-MW	RDL	SCU20-014-MW	RDL	SCU20-017-MW	SCU20-018-MW	RDL	QC Batch
Polyaromatic Hydrocarbons									
1-Methylnaphthalene	ug/L	36	0.070	12	0.050	5.6	<0.050	0.050	4754331
2-Methylnaphthalene	ug/L	50 (1)	0.70	15	0.050	5.8	<0.050	0.050	4754331
Acenaphthene	ug/L	6.0	0.014	2.1	0.010	1.7	0.010	0.010	4754331
Acenaphthylene	ug/L	31	0.014	4.8	0.010	3.5	<0.010	0.010	4754331
Anthracene	ug/L	2.7	0.014	1.3	0.010	0.94	0.020	0.010	4754331
Benzo(a)anthracene	ug/L	0.079	0.014	0.074	0.010	0.070	0.017	0.010	4754331
Benzo(a)pyrene	ug/L	0.019	0.014	0.034	0.010	0.030	0.012	0.010	4754331
Benzo(b)fluoranthene	ug/L	0.015	0.014	0.027	0.010	0.022	<0.010	0.010	4754331
Benzo(g,h,i)perylene	ug/L	<0.014	0.014	0.013	0.010	0.014	<0.010	0.010	4754331
Benzo(j)fluoranthene	ug/L	<0.014	0.014	0.019	0.010	0.016	<0.010	0.010	4754331
Benzo(k)fluoranthene	ug/L	<0.014	0.014	0.017	0.010	0.014	<0.010	0.010	4754331
Chrysene	ug/L	0.080	0.014	0.087	0.010	0.069	0.017	0.010	4754331
Dibenz(a,h)anthracene	ug/L	<0.014	0.014	<0.010	0.010	<0.010	<0.010	0.010	4754331
Fluoranthene	ug/L	1.2	0.014	0.79	0.010	0.79	0.053	0.010	4754331
Fluorene	ug/L	12	0.014	4.3	0.010	3.4	0.021	0.010	4754331
Indeno(1,2,3-cd)pyrene	ug/L	<0.014	0.014	0.014	0.010	0.013	<0.010	0.010	4754331
Naphthalene	ug/L	580 (1)	14	290 (1)	2.0	39	<0.20	0.20	4754331
Perylene	ug/L	<0.014	0.014	<0.010	0.010	<0.010	<0.010	0.010	4754331
Phenanthrene	ug/L	9.3	0.014	4.9	0.010	3.4	0.030	0.010	4754331
Pyrene	ug/L	0.69	0.014	0.61	0.010	0.51	0.044	0.010	4754331
Surrogate Recovery (%)									
D10-Anthracene	%	91		80		87	82		4754331
D14-Terphenyl	%	91 (2)		95		90	106		4754331
D8-Acenaphthylene	%	109		97		96	95		4754331
RDL = Reportable Detection Limit QC Batch = Quality Control Batch (1) Elevated PAH RDL(s) due to sample dilution. (2) Elevated PAH RDL(s) due to matrix interference.									

SEMI-VOLATILE ORGANICS BY GC-MS (WATER)

Maxxam ID		DLO277	DLO278	DLO279		
Sampling Date		2016/11/15 15:22	2016/11/15 14:33	2016/11/15 16:02		
COC Number		585517	585517	585517		
	UNITS	SCU20-015-MW	SCU20-016-MW	SCU19-031-MW	RDL	QC Batch
Polyaromatic Hydrocarbons						
1-Methylnaphthalene	ug/L	1.9	3.7	<0.050	0.050	4754331
2-Methylnaphthalene	ug/L	2.3	4.3	<0.050	0.050	4754331
Acenaphthene	ug/L	0.60	2.0	<0.010	0.010	4754331
Acenaphthylene	ug/L	0.81	1.9	<0.010	0.010	4754331
Anthracene	ug/L	0.48	0.44	<0.010	0.010	4754331
Benzo(a)anthracene	ug/L	0.16	0.010	<0.010	0.010	4754331
Benzo(a)pyrene	ug/L	0.082	<0.010	<0.010	0.010	4754331
Benzo(b)fluoranthene	ug/L	0.062	<0.010	<0.010	0.010	4754331
Benzo(g,h,i)perylene	ug/L	0.040	<0.010	<0.010	0.010	4754331
Benzo(j)fluoranthene	ug/L	0.043	<0.010	<0.010	0.010	4754331
Benzo(k)fluoranthene	ug/L	0.040	<0.010	<0.010	0.010	4754331
Chrysene	ug/L	0.17	0.016	<0.010	0.010	4754331
Dibenz(a,h)anthracene	ug/L	0.014	<0.010	<0.010	0.010	4754331
Fluoranthene	ug/L	0.53	0.30	0.016	0.010	4754331
Fluorene	ug/L	0.93	2.4	<0.010	0.010	4754331
Indeno(1,2,3-cd)pyrene	ug/L	0.036	<0.010	<0.010	0.010	4754331
Naphthalene	ug/L	11	39	<0.20	0.20	4754331
Perylene	ug/L	0.020	<0.010	<0.010	0.010	4754331
Phenanthrene	ug/L	1.5	1.7	<0.010	0.010	4754331
Pyrene	ug/L	0.39	0.27	0.017	0.010	4754331
Surrogate Recovery (%)						
D10-Anthracene	%	97	87	80		4754331
D14-Terphenyl	%	100	91	90		4754331
D8-Acenaphthylene	%	100	90	91		4754331
RDL = Reportable Detection Limit QC Batch = Quality Control Batch						

ATLANTIC RBCA HYDROCARBONS (WATER)

Maxxam ID		DLO263		DLO274	DLO275	DLO276		
Sampling Date		2016/11/15 10:42		2016/11/15 11:52	2016/11/15 12:52	2016/11/15 13:33		
COC Number		585517		585517	585517	585517		
	UNITS	SCU20-013-MW	QC Batch	SCU20-014-MW	SCU20-017-MW	SCU20-018-MW	RDL	QC Batch

Petroleum Hydrocarbons								
Benzene	mg/L	0.012	4752409	0.0025	0.0012	<0.0010	0.0010	4757082
Toluene	mg/L	0.016	4752409	0.0023	0.0011	<0.0010	0.0010	4757082
Ethylbenzene	mg/L	0.0069	4752409	<0.0010	<0.0010	<0.0010	0.0010	4757082
Total Xylenes	mg/L	0.053	4752409	0.0061	<0.0020	<0.0020	0.0020	4757082
C6 - C10 (less BTEX)	mg/L	0.071	4752409	0.012	<0.010	<0.010	0.010	4757082
>C10-C16 Hydrocarbons	mg/L	2.1	4754242	0.73	0.22	<0.050	0.050	4754242
>C16-C21 Hydrocarbons	mg/L	0.95	4754242	0.35	0.12	<0.050	0.050	4754242
>C21-<C32 Hydrocarbons	mg/L	0.88	4754242	0.34	0.11	<0.10	0.10	4754242
Modified TPH (Tier1)	mg/L	4.0	4750345	1.4	0.44	<0.10	0.10	4750345
Reached Baseline at C32	mg/L	Yes	4754242	Yes	Yes	NA	N/A	4754242
Hydrocarbon Resemblance	mg/L	COMMENT (1)	4754242	COMMENT (2)	COMMENT (2)	NA	N/A	4754242
Surrogate Recovery (%)								
Isobutylbenzene - Extractable	%	108	4754242	107	108	112		4754242
n-Dotriacontane - Extractable	%	104	4754242	105	116	128		4754242
Isobutylbenzene - Volatile	%	89	4752409	96	98	96		4757082

RDL = Reportable Detection Limit

QC Batch = Quality Control Batch

N/A = Not Applicable

(1) Unidentified compound(s) in fuel / lube range. One product in fuel / lube range.

(2) Unidentified compound(s) in fuel oil range. One product in fuel / lube range.

ATLANTIC RBCA HYDROCARBONS (WATER)

Maxxam ID		DLO277	DLO278	DLO279		DLO469		
Sampling Date		2016/11/15 15:22	2016/11/15 14:33	2016/11/15 16:02				
COC Number		585517	585517	585517		585517		
	UNITS	SCU20-015-MW	SCU20-016-MW	SCU19-031-MW	QC Batch	TB-024	RDL	QC Batch
Petroleum Hydrocarbons								
Benzene	mg/L	0.0028	<0.0010	<0.0010	4757082	<0.0010	0.0010	4752409
Toluene	mg/L	0.0010	<0.0010	<0.0010	4757082	<0.0010	0.0010	4752409
Ethylbenzene	mg/L	<0.0010	<0.0010	<0.0010	4757082	<0.0010	0.0010	4752409
Total Xylenes	mg/L	<0.0020	<0.0020	<0.0020	4757082	<0.0020	0.0020	4752409
C6 - C10 (less BTEX)	mg/L	<0.010	<0.010	<0.010	4757082	<0.010	0.010	4752409
>C10-C16 Hydrocarbons	mg/L	0.13	0.29	<0.050	4754242	<0.050	0.050	4754242
>C16-C21 Hydrocarbons	mg/L	0.13	0.31	0.062	4754242	<0.050	0.050	4754242
>C21-<C32 Hydrocarbons	mg/L	0.20	0.35	<0.10	4754242	<0.10	0.10	4754242
Modified TPH (Tier1)	mg/L	0.46	0.95	<0.10	4750345	<0.10	0.10	4750345
Reached Baseline at C32	mg/L	Yes	Yes	NA	4754242	NA	N/A	4754242
Hydrocarbon Resemblance	mg/L	COMMENT (1)	COMMENT (1)	NA	4754242	NA	N/A	4754242
Surrogate Recovery (%)								
Isobutylbenzene - Extractable	%	92	106	105	4754242	102		4754242
n-Dotriacontane - Extractable	%	117	108	119	4754242	122		4754242
Isobutylbenzene - Volatile	%	100	96	97	4757082	84		4752409
RDL = Reportable Detection Limit QC Batch = Quality Control Batch N/A = Not Applicable (1) Unidentified compound(s) in fuel oil range. One product in fuel / lube range.								

GENERAL COMMENTS

Results relate only to the items tested.

QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
4752409	MSK	Matrix Spike	Isobutylbenzene - Volatile	2016/11/22		84	%	70 - 130
			Benzene	2016/11/22		122	%	70 - 130
			Toluene	2016/11/22		118	%	70 - 130
			Ethylbenzene	2016/11/22		109	%	70 - 130
			Total Xylenes	2016/11/22		108	%	70 - 130
4752409	MSK	Spiked Blank	Isobutylbenzene - Volatile	2016/11/22		89	%	70 - 130
			Benzene	2016/11/22		103	%	70 - 130
			Toluene	2016/11/22		107	%	70 - 130
			Ethylbenzene	2016/11/22		104	%	70 - 130
			Total Xylenes	2016/11/22		102	%	70 - 130
4752409	MSK	Method Blank	Isobutylbenzene - Volatile	2016/11/22		94	%	70 - 130
			Benzene	2016/11/22	<0.0010		mg/L	
			Toluene	2016/11/22	<0.0010		mg/L	
			Ethylbenzene	2016/11/22	<0.0010		mg/L	
			Total Xylenes	2016/11/22	<0.0020		mg/L	
4752409	MSK	RPD	C6 - C10 (less BTEX)	2016/11/22	<0.010		mg/L	
			Benzene	2016/11/22	NC		%	40
			Toluene	2016/11/22	NC		%	40
			Ethylbenzene	2016/11/22	NC		%	40
			Total Xylenes	2016/11/22	NC		%	40
4754242	MGN	Matrix Spike	C6 - C10 (less BTEX)	2016/11/22	NC		%	40
			Isobutylbenzene - Extractable	2016/11/22		112	%	30 - 130
			n-Dotriacontane - Extractable	2016/11/22		121	%	30 - 130
			>C10-C16 Hydrocarbons	2016/11/22		100	%	70 - 130
			>C16-C21 Hydrocarbons	2016/11/22		92	%	70 - 130
4754242	MGN	Spiked Blank	>C21-<C32 Hydrocarbons	2016/11/22		101	%	70 - 130
			Isobutylbenzene - Extractable	2016/11/22		106	%	30 - 130
			n-Dotriacontane - Extractable	2016/11/22		113	%	30 - 130
			>C10-C16 Hydrocarbons	2016/11/22		100	%	70 - 130
			>C16-C21 Hydrocarbons	2016/11/22		94	%	70 - 130
4754242	MGN	Method Blank	>C21-<C32 Hydrocarbons	2016/11/22		103	%	70 - 130
			Isobutylbenzene - Extractable	2016/11/22		102	%	30 - 130
			n-Dotriacontane - Extractable	2016/11/22		110	%	30 - 130
			>C10-C16 Hydrocarbons	2016/11/22	<0.050		mg/L	
			>C16-C21 Hydrocarbons	2016/11/22	<0.050		mg/L	
4754242	MGN	RPD	>C21-<C32 Hydrocarbons	2016/11/22	<0.10		mg/L	
			>C10-C16 Hydrocarbons	2016/11/22	NC		%	40
			>C16-C21 Hydrocarbons	2016/11/22	NC		%	40
			>C21-<C32 Hydrocarbons	2016/11/22	NC		%	40
4754331	GTH	Matrix Spike	D10-Anthracene	2016/11/18		75	%	30 - 130
			D14-Terphenyl	2016/11/18		86	%	30 - 130
			D8-Acenaphthylene	2016/11/18		94	%	30 - 130
			1-Methylnaphthalene	2016/11/18		90	%	30 - 130
			2-Methylnaphthalene	2016/11/18		93	%	30 - 130
			Acenaphthene	2016/11/18		100	%	30 - 130
			Acenaphthylene	2016/11/18		94	%	30 - 130
			Anthracene	2016/11/18		107	%	30 - 130
			Benzo(a)anthracene	2016/11/18		85	%	30 - 130
			Benzo(a)pyrene	2016/11/18		86	%	30 - 130
			Benzo(b)fluoranthene	2016/11/18		81	%	30 - 130
			Benzo(g,h,i)perylene	2016/11/18		101	%	30 - 130
			Benzo(j)fluoranthene	2016/11/18		75	%	30 - 130
			Benzo(k)fluoranthene	2016/11/18		83	%	30 - 130

QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
4754331	GTH	Spiked Blank	Chrysene	2016/11/18		80	%	30 - 130
			Dibenz(a,h)anthracene	2016/11/18		88	%	30 - 130
			Fluoranthene	2016/11/18		88	%	30 - 130
			Fluorene	2016/11/18		104	%	30 - 130
			Indeno(1,2,3-cd)pyrene	2016/11/18		90	%	30 - 130
			Naphthalene	2016/11/18		90	%	30 - 130
			Perylene	2016/11/18		83	%	30 - 130
			Phenanthrene	2016/11/18		93	%	30 - 130
			Pyrene	2016/11/18		86	%	30 - 130
			D10-Anthracene	2016/11/18		100	%	30 - 130
			D14-Terphenyl	2016/11/18		99	%	30 - 130
			D8-Acenaphthylene	2016/11/18		100	%	30 - 130
			1-Methylnaphthalene	2016/11/18		86	%	30 - 130
			2-Methylnaphthalene	2016/11/18		88	%	30 - 130
			Acenaphthene	2016/11/18		98	%	30 - 130
			Acenaphthylene	2016/11/18		93	%	30 - 130
			Anthracene	2016/11/18		104	%	30 - 130
			Benzo(a)anthracene	2016/11/18		90	%	30 - 130
			Benzo(a)pyrene	2016/11/18		88	%	30 - 130
			Benzo(b)fluoranthene	2016/11/18		86	%	30 - 130
			Benzo(g,h,i)perylene	2016/11/18		92	%	30 - 130
			Benzo(j)fluoranthene	2016/11/18		81	%	30 - 130
			Benzo(k)fluoranthene	2016/11/18		84	%	30 - 130
			Chrysene	2016/11/18		86	%	30 - 130
			Dibenz(a,h)anthracene	2016/11/18		84	%	30 - 130
			Fluoranthene	2016/11/18		93	%	30 - 130
			Fluorene	2016/11/18		100	%	30 - 130
			Indeno(1,2,3-cd)pyrene	2016/11/18		89	%	30 - 130
			Naphthalene	2016/11/18		85	%	30 - 130
			Perylene	2016/11/18		84	%	30 - 130
			Phenanthrene	2016/11/18		97	%	30 - 130
			Pyrene	2016/11/18		91	%	30 - 130
4754331	GTH	Method Blank	D10-Anthracene	2016/11/18		80	%	30 - 130
			D14-Terphenyl	2016/11/18		92	%	30 - 130
			D8-Acenaphthylene	2016/11/18		96	%	30 - 130
			1-Methylnaphthalene	2016/11/18	<0.050		ug/L	
			2-Methylnaphthalene	2016/11/18	<0.050		ug/L	
			Acenaphthene	2016/11/18	<0.010		ug/L	
			Acenaphthylene	2016/11/18	<0.010		ug/L	
			Anthracene	2016/11/18	<0.010		ug/L	
			Benzo(a)anthracene	2016/11/18	<0.010		ug/L	
			Benzo(a)pyrene	2016/11/18	<0.010		ug/L	
			Benzo(b)fluoranthene	2016/11/18	<0.010		ug/L	
			Benzo(g,h,i)perylene	2016/11/18	<0.010		ug/L	
			Benzo(j)fluoranthene	2016/11/18	<0.010		ug/L	
			Benzo(k)fluoranthene	2016/11/18	<0.010		ug/L	
			Chrysene	2016/11/18	<0.010		ug/L	
			Dibenz(a,h)anthracene	2016/11/18	<0.010		ug/L	
			Fluoranthene	2016/11/18	<0.010		ug/L	
			Fluorene	2016/11/18	<0.010		ug/L	
			Indeno(1,2,3-cd)pyrene	2016/11/18	<0.010		ug/L	
			Naphthalene	2016/11/18	<0.20		ug/L	
Perylene	2016/11/18	<0.010		ug/L				

QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
4754331	GTH	RPD	Phenanthrene	2016/11/18	<0.010		ug/L	
			Pyrene	2016/11/18	<0.010		ug/L	
			Benzo(a)pyrene	2016/11/18	NC		%	40
4756978	BAN	Matrix Spike [DLO275-04]	Dissolved Aluminum (Al)	2016/11/22		100	%	80 - 120
			Dissolved Antimony (Sb)	2016/11/22		103	%	80 - 120
			Dissolved Arsenic (As)	2016/11/22		97	%	80 - 120
			Dissolved Barium (Ba)	2016/11/22		94	%	80 - 120
			Dissolved Beryllium (Be)	2016/11/22		95	%	80 - 120
			Dissolved Bismuth (Bi)	2016/11/22		82	%	80 - 120
			Dissolved Boron (B)	2016/11/22		97	%	80 - 120
			Dissolved Cadmium (Cd)	2016/11/22		100	%	80 - 120
			Dissolved Calcium (Ca)	2016/11/22		NC	%	80 - 120
			Dissolved Chromium (Cr)	2016/11/22		97	%	80 - 120
			Dissolved Cobalt (Co)	2016/11/22		98	%	80 - 120
			Dissolved Copper (Cu)	2016/11/22		95	%	80 - 120
			Dissolved Iron (Fe)	2016/11/22		100	%	80 - 120
			Dissolved Lead (Pb)	2016/11/22		96	%	80 - 120
			Dissolved Magnesium (Mg)	2016/11/22		102	%	80 - 120
			Dissolved Manganese (Mn)	2016/11/22		99	%	80 - 120
			Dissolved Molybdenum (Mo)	2016/11/22		NC	%	80 - 120
			Dissolved Nickel (Ni)	2016/11/22		96	%	80 - 120
			Dissolved Phosphorus (P)	2016/11/22		105	%	80 - 120
			Dissolved Potassium (K)	2016/11/22		NC	%	80 - 120
			Dissolved Selenium (Se)	2016/11/22		67 (1)	%	80 - 120
			Dissolved Silver (Ag)	2016/11/22		81	%	80 - 120
			Dissolved Sodium (Na)	2016/11/22		NC	%	80 - 120
			Dissolved Strontium (Sr)	2016/11/22		NC	%	80 - 120
			Dissolved Thallium (Tl)	2016/11/22		100	%	80 - 120
			Dissolved Tin (Sn)	2016/11/22		104	%	80 - 120
			Dissolved Titanium (Ti)	2016/11/22		98	%	80 - 120
Dissolved Uranium (U)	2016/11/22		105	%	80 - 120			
Dissolved Vanadium (V)	2016/11/22		98	%	80 - 120			
Dissolved Zinc (Zn)	2016/11/22		99	%	80 - 120			
4756978	BAN	Spiked Blank	Dissolved Aluminum (Al)	2016/11/21		104	%	80 - 120
			Dissolved Antimony (Sb)	2016/11/21		102	%	80 - 120
			Dissolved Arsenic (As)	2016/11/21		96	%	80 - 120
			Dissolved Barium (Ba)	2016/11/21		96	%	80 - 120
			Dissolved Beryllium (Be)	2016/11/21		94	%	80 - 120
			Dissolved Bismuth (Bi)	2016/11/21		101	%	80 - 120
			Dissolved Boron (B)	2016/11/21		96	%	80 - 120
			Dissolved Cadmium (Cd)	2016/11/21		98	%	80 - 120
			Dissolved Calcium (Ca)	2016/11/21		99	%	80 - 120
			Dissolved Chromium (Cr)	2016/11/21		96	%	80 - 120
			Dissolved Cobalt (Co)	2016/11/21		97	%	80 - 120
			Dissolved Copper (Cu)	2016/11/21		97	%	80 - 120
			Dissolved Iron (Fe)	2016/11/21		100	%	80 - 120
			Dissolved Lead (Pb)	2016/11/21		97	%	80 - 120
			Dissolved Magnesium (Mg)	2016/11/21		102	%	80 - 120
			Dissolved Manganese (Mn)	2016/11/21		98	%	80 - 120
			Dissolved Molybdenum (Mo)	2016/11/21		103	%	80 - 120
Dissolved Nickel (Ni)	2016/11/21		98	%	80 - 120			
Dissolved Phosphorus (P)	2016/11/21		103	%	80 - 120			
Dissolved Potassium (K)	2016/11/21		105	%	80 - 120			

QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Dissolved Selenium (Se)	2016/11/21		97	%	80 - 120
			Dissolved Silver (Ag)	2016/11/21		97	%	80 - 120
			Dissolved Sodium (Na)	2016/11/21		98	%	80 - 120
			Dissolved Strontium (Sr)	2016/11/21		99	%	80 - 120
			Dissolved Thallium (Tl)	2016/11/21		101	%	80 - 120
			Dissolved Tin (Sn)	2016/11/21		104	%	80 - 120
			Dissolved Titanium (Ti)	2016/11/21		100	%	80 - 120
			Dissolved Uranium (U)	2016/11/21		105	%	80 - 120
			Dissolved Vanadium (V)	2016/11/21		97	%	80 - 120
			Dissolved Zinc (Zn)	2016/11/21		98	%	80 - 120
4756978	BAN	Method Blank	Dissolved Aluminum (Al)	2016/11/21	<5.0		ug/L	
			Dissolved Antimony (Sb)	2016/11/21	<1.0		ug/L	
			Dissolved Arsenic (As)	2016/11/21	<1.0		ug/L	
			Dissolved Barium (Ba)	2016/11/21	<1.0		ug/L	
			Dissolved Beryllium (Be)	2016/11/21	<1.0		ug/L	
			Dissolved Bismuth (Bi)	2016/11/21	<2.0		ug/L	
			Dissolved Boron (B)	2016/11/21	<50		ug/L	
			Dissolved Cadmium (Cd)	2016/11/21	<0.010		ug/L	
			Dissolved Calcium (Ca)	2016/11/21	<100		ug/L	
			Dissolved Chromium (Cr)	2016/11/21	<1.0		ug/L	
			Dissolved Cobalt (Co)	2016/11/21	<0.40		ug/L	
			Dissolved Copper (Cu)	2016/11/21	<2.0		ug/L	
			Dissolved Iron (Fe)	2016/11/21	<50		ug/L	
			Dissolved Lead (Pb)	2016/11/21	<0.50		ug/L	
			Dissolved Magnesium (Mg)	2016/11/21	<100		ug/L	
			Dissolved Manganese (Mn)	2016/11/21	<2.0		ug/L	
			Dissolved Molybdenum (Mo)	2016/11/21	<2.0		ug/L	
			Dissolved Nickel (Ni)	2016/11/21	<2.0		ug/L	
			Dissolved Phosphorus (P)	2016/11/21	<100		ug/L	
			Dissolved Potassium (K)	2016/11/21	<100		ug/L	
			Dissolved Selenium (Se)	2016/11/21	<1.0		ug/L	
			Dissolved Silver (Ag)	2016/11/21	<0.10		ug/L	
			Dissolved Sodium (Na)	2016/11/21	<100		ug/L	
			Dissolved Strontium (Sr)	2016/11/21	<2.0		ug/L	
			Dissolved Thallium (Tl)	2016/11/21	<0.10		ug/L	
			Dissolved Tin (Sn)	2016/11/21	<2.0		ug/L	
			Dissolved Titanium (Ti)	2016/11/21	<2.0		ug/L	
			Dissolved Uranium (U)	2016/11/21	<0.10		ug/L	
			Dissolved Vanadium (V)	2016/11/21	<2.0		ug/L	
			Dissolved Zinc (Zn)	2016/11/21	<5.0		ug/L	
4756978	BAN	RPD [DLO275-04]	Dissolved Aluminum (Al)	2016/11/21	2.1		%	20
			Dissolved Antimony (Sb)	2016/11/21	NC		%	20
			Dissolved Arsenic (As)	2016/11/21	0.92		%	20
			Dissolved Barium (Ba)	2016/11/21	0.91		%	20
			Dissolved Beryllium (Be)	2016/11/21	NC		%	20
			Dissolved Bismuth (Bi)	2016/11/21	NC		%	20
			Dissolved Boron (B)	2016/11/21	NC		%	20
			Dissolved Cadmium (Cd)	2016/11/21	NC		%	20
			Dissolved Calcium (Ca)	2016/11/21	1.1		%	20
			Dissolved Chromium (Cr)	2016/11/21	NC		%	20
			Dissolved Cobalt (Co)	2016/11/21	NC		%	20
			Dissolved Copper (Cu)	2016/11/21	NC		%	20
			Dissolved Iron (Fe)	2016/11/21	NC		%	20

QUALITY ASSURANCE REPORT(CONT'D)

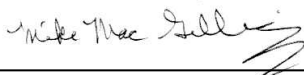
QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Dissolved Lead (Pb)	2016/11/21	NC		%	20
			Dissolved Magnesium (Mg)	2016/11/21	NC		%	20
			Dissolved Manganese (Mn)	2016/11/21	NC		%	20
			Dissolved Molybdenum (Mo)	2016/11/21	1.9		%	20
			Dissolved Nickel (Ni)	2016/11/21	4.8		%	20
			Dissolved Phosphorus (P)	2016/11/21	NC		%	20
			Dissolved Potassium (K)	2016/11/21	2.2		%	20
			Dissolved Selenium (Se)	2016/11/21	NC		%	20
			Dissolved Silver (Ag)	2016/11/21	NC		%	20
			Dissolved Sodium (Na)	2016/11/21	0.32		%	20
			Dissolved Strontium (Sr)	2016/11/21	0.29		%	20
			Dissolved Thallium (Tl)	2016/11/21	NC		%	20
			Dissolved Tin (Sn)	2016/11/21	NC		%	20
			Dissolved Titanium (Ti)	2016/11/21	NC		%	20
			Dissolved Uranium (U)	2016/11/21	NC		%	20
			Dissolved Vanadium (V)	2016/11/21	NC		%	20
			Dissolved Zinc (Zn)	2016/11/21	NC		%	20
4757082	ASL	Matrix Spike [DLO274-03]	Isobutylbenzene - Volatile	2016/11/23		96	%	70 - 130
			Benzene	2016/11/23		110	%	70 - 130
			Toluene	2016/11/23		111	%	70 - 130
			Ethylbenzene	2016/11/23		112	%	70 - 130
			Total Xylenes	2016/11/23		110	%	70 - 130
4757082	ASL	Spiked Blank	Isobutylbenzene - Volatile	2016/11/23		97	%	70 - 130
			Benzene	2016/11/23		107	%	70 - 130
			Toluene	2016/11/23		110	%	70 - 130
			Ethylbenzene	2016/11/23		113	%	70 - 130
			Total Xylenes	2016/11/23		112	%	70 - 130
4757082	ASL	Method Blank	Isobutylbenzene - Volatile	2016/11/23		96	%	70 - 130
			Benzene	2016/11/23	<0.0010		mg/L	
			Toluene	2016/11/23	<0.0010		mg/L	
			Ethylbenzene	2016/11/23	<0.0010		mg/L	
			Total Xylenes	2016/11/23	<0.0020		mg/L	
			C6 - C10 (less BTEX)	2016/11/23	<0.010		mg/L	
4757082	ASL	RPD	Benzene	2016/11/23	NC		%	40
			Toluene	2016/11/23	NC		%	40
			Ethylbenzene	2016/11/23	NC		%	40
			Total Xylenes	2016/11/23	NC		%	40
			C6 - C10 (less BTEX)	2016/11/23	NC		%	40
4757451	ARS	Matrix Spike	Total Mercury (Hg)	2016/11/22		100	%	80 - 120
4757451	ARS	Spiked Blank	Total Mercury (Hg)	2016/11/22		101	%	80 - 120
4757451	ARS	Method Blank	Total Mercury (Hg)	2016/11/22	<0.013		ug/L	
4757451	ARS	RPD	Total Mercury (Hg)	2016/11/22	NC		%	20
4757453	ARS	Matrix Spike [DLO278-05]	Total Mercury (Hg)	2016/11/22		101	%	80 - 120
4757453	ARS	Spiked Blank	Total Mercury (Hg)	2016/11/22		105	%	80 - 120
4757453	ARS	Method Blank	Total Mercury (Hg)	2016/11/22	<0.013		ug/L	

QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
4757453	ARS	RPD [DLO277-05]	Total Mercury (Hg)	2016/11/22	NC		%	20
<p>Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.</p> <p>Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.</p> <p>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.</p> <p>Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.</p> <p>Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.</p> <p>NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spiked amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than 2x that of the native sample concentration).</p> <p>NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (one or both samples < 5x RDL).</p> <p>(1) Low recovery due to sample matrix. Recovery confirmed with repeat analysis.</p>								

VALIDATION SIGNATURE PAGE

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



Mike MacGillivray, Scientific Specialist (Inorganics)



Rosemarie MacDonald, Scientific Specialist (Organics)

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

Your Project #: 4104251070
 Site Location: HARBOURSIDE COMMERCIAL PARK
 Your C.O.C. #: 585517

Attention:Nadine Wambolt

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

Report Date: 2016/11/25
 Report #: R4260637
 Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B6O9943
Received: 2016/11/16, 16:10

Sample Matrix: Water
 # Samples Received: 4

Analyses	Quantity	Date		Laboratory Method	Reference
		Extracted	Analyzed		
TEH in Water (PIRI) (1)	1	2016/11/23	2016/11/23	ATL SOP 00113	Atl. RBCA v3 m
TEH in Water (PIRI) (1)	3	2016/11/23	2016/11/24	ATL SOP 00113	Atl. RBCA v3 m
Mercury - Total (CVAA,LL) (1)	3	2016/11/22	2016/11/23	ATL SOP 00026	EPA 245.1 R3 m
Metals Water Diss. MS (as rec'd) (1)	1	N/A	2016/11/22	ATL SOP 00058	EPA 6020A R1 m
Metals Water Diss. MS (as rec'd) (1)	2	N/A	2016/11/23	ATL SOP 00058	EPA 6020A R1 m
PAH in Water by GC/MS (SIM) (1)	3	2016/11/21	2016/11/23	ATL SOP 00103	EPA 8270D 2007 m
VPH in Water (PIRI) (1)	3	N/A	2016/11/23	ATL SOP 00118	Atl. RBCA v3 m
VPH in Water (PIRI) (1)	1	N/A	2016/11/24	ATL SOP 00118	Atl. RBCA v3 m
ModTPH (T1) Calc. for Water (1)	1	N/A	2016/11/24	N/A	Atl. RBCA v3 m
ModTPH (T1) Calc. for Water (1)	3	N/A	2016/11/25	N/A	Atl. RBCA v3 m

Remarks:

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

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

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

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

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

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

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

(1) This test was performed by Maxxam Bedford

Your Project #: 4104251070
Site Location: HARBOURSIDE COMMERCIAL PARK
Your C.O.C. #: 585517

Attention:Nadine Wambolt

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

Report Date: 2016/11/25
Report #: R4260637
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B6O9943
Received: 2016/11/16, 16:10

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Candace Hillier, CI Svc - Sydney
Email: chillier@maxxam.ca
Phone# (902) 567 1255

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

MERCURY BY COLD VAPOUR AA (WATER)

Maxxam ID		DLS873	DLS889	DLS890		
Sampling Date		2016/11/16	2016/11/16	2016/11/16		
COC Number		585517	585517	585517		
	UNITS	SCU27-002-MW	SCU32-002-MW	FD-017	RDL	QC Batch
Metals						
Total Mercury (Hg)	ug/L	<0.013	<0.013	<0.013	0.013	4759297
RDL = Reportable Detection Limit						
QC Batch = Quality Control Batch						

ELEMENTS BY ICP/MS (WATER)

Maxxam ID		DLS873		DLS889	DLS890		
Sampling Date		2016/11/16		2016/11/16	2016/11/16		
COC Number		585517		585517	585517		
	UNITS	SCU27-002-MW	RDL	SCU32-002-MW	FD-017	RDL	QC Batch
Metals							
Dissolved Aluminum (Al)	ug/L	<50	50	440	450	5.0	4759692
Dissolved Antimony (Sb)	ug/L	<10	10	<1.0	<1.0	1.0	4759692
Dissolved Arsenic (As)	ug/L	<10	10	4.7	4.7	1.0	4759692
Dissolved Barium (Ba)	ug/L	31000	100	40	42	1.0	4759692
Dissolved Beryllium (Be)	ug/L	<10	10	<1.0	<1.0	1.0	4759692
Dissolved Bismuth (Bi)	ug/L	<20	20	<2.0	<2.0	2.0	4759692
Dissolved Boron (B)	ug/L	2600	500	<50	<50	50	4759692
Dissolved Cadmium (Cd)	ug/L	<0.10	0.10	0.013	<0.010	0.010	4759692
Dissolved Calcium (Ca)	ug/L	1300000	1000	190000	200000	100	4759692
Dissolved Chromium (Cr)	ug/L	<10	10	<1.0	<1.0	1.0	4759692
Dissolved Cobalt (Co)	ug/L	<4.0	4.0	<0.40	<0.40	0.40	4759692
Dissolved Copper (Cu)	ug/L	<20	20	<2.0	<2.0	2.0	4759692
Dissolved Iron (Fe)	ug/L	57000	500	<50	<50	50	4759692
Dissolved Lead (Pb)	ug/L	<5.0	5.0	<0.50	<0.50	0.50	4759692
Dissolved Magnesium (Mg)	ug/L	700000	1000	<100	<100	100	4759692
Dissolved Manganese (Mn)	ug/L	5000	20	<2.0	<2.0	2.0	4759692
Dissolved Molybdenum (Mo)	ug/L	<20	20	76	78	2.0	4759692
Dissolved Nickel (Ni)	ug/L	<20	20	<2.0	<2.0	2.0	4759692
Dissolved Phosphorus (P)	ug/L	<1000	1000	<100	<100	100	4759692
Dissolved Potassium (K)	ug/L	93000	1000	29000	30000	100	4759692
Dissolved Selenium (Se)	ug/L	<10	10	4.4	3.7	1.0	4759692
Dissolved Silver (Ag)	ug/L	<1.0	1.0	<0.10	<0.10	0.10	4759692
Dissolved Sodium (Na)	ug/L	5100000	1000	67000	65000	100	4759692
Dissolved Strontium (Sr)	ug/L	93000	200	910	890	2.0	4759692
Dissolved Thallium (Tl)	ug/L	<1.0	1.0	<0.10	<0.10	0.10	4759692
Dissolved Tin (Sn)	ug/L	<20	20	<2.0	<2.0	2.0	4759692
Dissolved Titanium (Ti)	ug/L	<20	20	<2.0	<2.0	2.0	4759692
Dissolved Uranium (U)	ug/L	5.1	1.0	<0.10	<0.10	0.10	4759692
Dissolved Vanadium (V)	ug/L	<20	20	<2.0	<2.0	2.0	4759692
Dissolved Zinc (Zn)	ug/L	66	50	<5.0	<5.0	5.0	4759692
RDL = Reportable Detection Limit							
QC Batch = Quality Control Batch							

SEMI-VOLATILE ORGANICS BY GC-MS (WATER)

Maxxam ID		DLS873	DLS889	DLS890		
Sampling Date		2016/11/16	2016/11/16	2016/11/16		
COC Number		585517	585517	585517		
	UNITS	SCU27-002-MW	SCU32-002-MW	FD-017	RDL	QC Batch
Polyaromatic Hydrocarbons						
1-Methylnaphthalene	ug/L	<0.050	0.69	0.66	0.050	4759135
2-Methylnaphthalene	ug/L	<0.050	0.63	0.61	0.050	4759135
Acenaphthene	ug/L	<0.010	0.21	0.21	0.010	4759135
Acenaphthylene	ug/L	<0.010	0.38	0.37	0.010	4759135
Anthracene	ug/L	<0.010	0.21	0.25	0.010	4759135
Benzo(a)anthracene	ug/L	0.022	0.018	0.021	0.010	4759135
Benzo(a)pyrene	ug/L	0.014	<0.010	<0.010	0.010	4759135
Benzo(b)fluoranthene	ug/L	0.011	<0.010	<0.010	0.010	4759135
Benzo(g,h,i)perylene	ug/L	<0.010	<0.010	<0.010	0.010	4759135
Benzo(j)fluoranthene	ug/L	<0.010	<0.010	<0.010	0.010	4759135
Benzo(k)fluoranthene	ug/L	0.028	<0.010	<0.010	0.010	4759135
Chrysene	ug/L	0.022	0.016	0.019	0.010	4759135
Dibenz(a,h)anthracene	ug/L	<0.010	<0.010	<0.010	0.010	4759135
Fluoranthene	ug/L	0.045	0.31	0.38	0.010	4759135
Fluorene	ug/L	<0.010	0.43	0.42	0.010	4759135
Indeno(1,2,3-cd)pyrene	ug/L	<0.010	<0.010	<0.010	0.010	4759135
Naphthalene	ug/L	<0.20	7.4	7.1	0.20	4759135
Perylene	ug/L	<0.010	<0.010	<0.010	0.010	4759135
Phenanthrene	ug/L	0.031	0.97	1.1	0.010	4759135
Pyrene	ug/L	0.040	0.19	0.23	0.010	4759135
Surrogate Recovery (%)						
D10-Anthracene	%	82	87	107		4759135
D14-Terphenyl	%	91	92	113		4759135
D8-Acenaphthylene	%	82	86	89		4759135
RDL = Reportable Detection Limit						
QC Batch = Quality Control Batch						

ATLANTIC RBCA HYDROCARBONS (WATER)

Maxxam ID		DLS873		DLS889	DLS890	DLS892		
Sampling Date		2016/11/16		2016/11/16	2016/11/16	2016/11/16		
COC Number		585517		585517	585517	585517		
	UNITS	SCU27-002-MW	QC Batch	SCU32-002-MW	FD-017	TB-025	RDL	QC Batch
Petroleum Hydrocarbons								
Benzene	mg/L	<0.0010	4757082	0.0011	0.0011	<0.0010	0.0010	4757082
Toluene	mg/L	<0.0010	4757082	<0.0010	<0.0010	<0.0010	0.0010	4757082
Ethylbenzene	mg/L	<0.0010	4757082	<0.0010	<0.0010	<0.0010	0.0010	4757082
Total Xylenes	mg/L	<0.0020	4757082	<0.0020	<0.0020	<0.0020	0.0020	4757082
C6 - C10 (less BTEX)	mg/L	<0.010	4757082	<0.010	<0.010	<0.010	0.010	4757082
>C10-C16 Hydrocarbons	mg/L	<0.050	4761098	<0.050	<0.050	<0.050	0.050	4760763
>C16-C21 Hydrocarbons	mg/L	<0.050	4761098	<0.050	<0.050	<0.050	0.050	4760763
>C21-<C32 Hydrocarbons	mg/L	0.22	4761098	<0.10	<0.10	<0.10	0.10	4760763
Modified TPH (Tier1)	mg/L	0.22	4752211	<0.10	<0.10	<0.10	0.10	4752211
Reached Baseline at C32	mg/L	Yes	4761098	NA	NA	NA	N/A	4760763
Hydrocarbon Resemblance	mg/L	COMMENT (1)	4761098	NA	NA	NA	N/A	4760763
Surrogate Recovery (%)								
Isobutylbenzene - Extractable	%	109	4761098	114	108	98		4760763
n-Dotriacontane - Extractable	%	130	4761098	124	118	114		4760763
Isobutylbenzene - Volatile	%	89	4757082	106	100	95		4757082
RDL = Reportable Detection Limit QC Batch = Quality Control Batch N/A = Not Applicable (1) Lube oil fraction.								

GENERAL COMMENTS

Sample DLS873 [SCU27-002-MW] : Elevated reporting limits for trace metals due to sample matrix.

Results relate only to the items tested.

QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
4757082	ASL	Matrix Spike	Isobutylbenzene - Volatile	2016/11/23		96	%	70 - 130
			Benzene	2016/11/23		110	%	70 - 130
			Toluene	2016/11/23		111	%	70 - 130
			Ethylbenzene	2016/11/23		112	%	70 - 130
			Total Xylenes	2016/11/23		110	%	70 - 130
4757082	ASL	Spiked Blank	Isobutylbenzene - Volatile	2016/11/23		97	%	70 - 130
			Benzene	2016/11/23		107	%	70 - 130
			Toluene	2016/11/23		110	%	70 - 130
			Ethylbenzene	2016/11/23		113	%	70 - 130
			Total Xylenes	2016/11/23		112	%	70 - 130
4757082	ASL	Method Blank	Isobutylbenzene - Volatile	2016/11/23		96	%	70 - 130
			Benzene	2016/11/23	<0.0010		mg/L	
			Toluene	2016/11/23	<0.0010		mg/L	
			Ethylbenzene	2016/11/23	<0.0010		mg/L	
			Total Xylenes	2016/11/23	<0.0020		mg/L	
4757082	ASL	RPD	C6 - C10 (less BTEX)	2016/11/23	<0.010		mg/L	
			Benzene	2016/11/23	NC		%	40
			Toluene	2016/11/23	NC		%	40
			Ethylbenzene	2016/11/23	NC		%	40
			Total Xylenes	2016/11/23	NC		%	40
4759135	KKE	Matrix Spike	C6 - C10 (less BTEX)	2016/11/23	NC		%	40
			D10-Anthracene	2016/11/22		74	%	30 - 130
			D14-Terphenyl	2016/11/22		82	%	30 - 130
			D8-Acenaphthylene	2016/11/22		77	%	30 - 130
			1-Methylnaphthalene	2016/11/22		72	%	30 - 130
			2-Methylnaphthalene	2016/11/22		75	%	30 - 130
			Acenaphthene	2016/11/22		76	%	30 - 130
			Acenaphthylene	2016/11/22		82	%	30 - 130
			Anthracene	2016/11/22		78	%	30 - 130
			Benzo(a)anthracene	2016/11/22		84	%	30 - 130
			Benzo(a)pyrene	2016/11/22		71	%	30 - 130
			Benzo(b)fluoranthene	2016/11/22		69	%	30 - 130
			Benzo(g,h,i)perylene	2016/11/22		71	%	30 - 130
			Benzo(j)fluoranthene	2016/11/22		64	%	30 - 130
			Benzo(k)fluoranthene	2016/11/22		67	%	30 - 130
			Chrysene	2016/11/22		78	%	30 - 130
			Dibenz(a,h)anthracene	2016/11/22		65	%	30 - 130
			Fluoranthene	2016/11/22		76	%	30 - 130
			Fluorene	2016/11/22		77	%	30 - 130
			Indeno(1,2,3-cd)pyrene	2016/11/22		72	%	30 - 130
4759135	KKE	Spiked Blank	Naphthalene	2016/11/22		73	%	30 - 130
			Perylene	2016/11/22		66	%	30 - 130
			Phenanthrene	2016/11/22		86	%	30 - 130
			Pyrene	2016/11/22		74	%	30 - 130
			D10-Anthracene	2016/11/22		104	%	30 - 130
			D14-Terphenyl	2016/11/22		105	%	30 - 130
			D8-Acenaphthylene	2016/11/22		101	%	30 - 130
			1-Methylnaphthalene	2016/11/22		102	%	30 - 130
			2-Methylnaphthalene	2016/11/22		106	%	30 - 130
			Acenaphthene	2016/11/22		108	%	30 - 130
			Acenaphthylene	2016/11/22		110	%	30 - 130
			Anthracene	2016/11/22		110	%	30 - 130
			Benzo(a)anthracene	2016/11/22		104	%	30 - 130

QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Benzo(a)pyrene	2016/11/22		98	%	30 - 130
			Benzo(b)fluoranthene	2016/11/22		90	%	30 - 130
			Benzo(g,h,i)perylene	2016/11/22		100	%	30 - 130
			Benzo(j)fluoranthene	2016/11/22		91	%	30 - 130
			Benzo(k)fluoranthene	2016/11/22		91	%	30 - 130
			Chrysene	2016/11/22		90	%	30 - 130
			Dibenz(a,h)anthracene	2016/11/22		92	%	30 - 130
			Fluoranthene	2016/11/22		108	%	30 - 130
			Fluorene	2016/11/22		108	%	30 - 130
			Indeno(1,2,3-cd)pyrene	2016/11/22		100	%	30 - 130
			Naphthalene	2016/11/22		103	%	30 - 130
			Perylene	2016/11/22		93	%	30 - 130
			Phenanthrene	2016/11/22		90	%	30 - 130
			Pyrene	2016/11/22		104	%	30 - 130
4759135	KKE	Method Blank	D10-Anthracene	2016/11/22		93	%	30 - 130
			D14-Terphenyl	2016/11/22		99	%	30 - 130
			D8-Acenaphthylene	2016/11/22		94	%	30 - 130
			1-Methylnaphthalene	2016/11/22	<0.050		ug/L	
			2-Methylnaphthalene	2016/11/22	<0.050		ug/L	
			Acenaphthene	2016/11/22	<0.010		ug/L	
			Acenaphthylene	2016/11/22	<0.010		ug/L	
			Anthracene	2016/11/22	<0.010		ug/L	
			Benzo(a)anthracene	2016/11/22	<0.010		ug/L	
			Benzo(a)pyrene	2016/11/22	<0.010		ug/L	
			Benzo(b)fluoranthene	2016/11/22	<0.010		ug/L	
			Benzo(g,h,i)perylene	2016/11/22	<0.010		ug/L	
			Benzo(j)fluoranthene	2016/11/22	<0.010		ug/L	
			Benzo(k)fluoranthene	2016/11/22	<0.010		ug/L	
			Chrysene	2016/11/22	<0.010		ug/L	
			Dibenz(a,h)anthracene	2016/11/22	<0.010		ug/L	
			Fluoranthene	2016/11/22	<0.010		ug/L	
			Fluorene	2016/11/22	<0.010		ug/L	
			Indeno(1,2,3-cd)pyrene	2016/11/22	<0.010		ug/L	
			Naphthalene	2016/11/22	<0.20		ug/L	
			Perylene	2016/11/22	<0.010		ug/L	
			Phenanthrene	2016/11/22	<0.010		ug/L	
			Pyrene	2016/11/22	<0.010		ug/L	
4759135	KKE	RPD	1-Methylnaphthalene	2016/11/22	4.7		%	40
			2-Methylnaphthalene	2016/11/22	NC		%	40
			Acenaphthene	2016/11/22	1.9		%	40
			Acenaphthylene	2016/11/22	3.6		%	40
			Anthracene	2016/11/22	28		%	40
			Benzo(a)anthracene	2016/11/22	9.7		%	40
			Benzo(a)pyrene	2016/11/22	5.7		%	40
			Benzo(b)fluoranthene	2016/11/22	5.5		%	40
			Benzo(g,h,i)perylene	2016/11/22	11		%	40
			Benzo(j)fluoranthene	2016/11/22	NC		%	40
			Benzo(k)fluoranthene	2016/11/22	NC		%	40
			Chrysene	2016/11/22	12		%	40
			Dibenz(a,h)anthracene	2016/11/22	NC		%	40
			Fluoranthene	2016/11/22	9.0		%	40
			Fluorene	2016/11/22	0.36		%	40
			Indeno(1,2,3-cd)pyrene	2016/11/22	14		%	40

QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Naphthalene	2016/11/22	NC		%	40
			Perylene	2016/11/22	NC		%	40
			Phenanthrene	2016/11/22	9.7		%	40
			Pyrene	2016/11/22	10		%	40
4759297	ARS	Matrix Spike	Total Mercury (Hg)	2016/11/23		106	%	80 - 120
4759297	ARS	Spiked Blank	Total Mercury (Hg)	2016/11/23		104	%	80 - 120
4759297	ARS	Method Blank	Total Mercury (Hg)	2016/11/23	<0.013		ug/L	
4759297	ARS	RPD	Total Mercury (Hg)	2016/11/23	NC		%	20
4759692	BAN	Matrix Spike	Dissolved Aluminum (Al)	2016/11/23		99	%	80 - 120
			Dissolved Antimony (Sb)	2016/11/23		110	%	80 - 120
			Dissolved Arsenic (As)	2016/11/23		97	%	80 - 120
			Dissolved Barium (Ba)	2016/11/23		100	%	80 - 120
			Dissolved Beryllium (Be)	2016/11/23		108	%	80 - 120
			Dissolved Bismuth (Bi)	2016/11/23		97	%	80 - 120
			Dissolved Boron (B)	2016/11/23		108	%	80 - 120
			Dissolved Cadmium (Cd)	2016/11/23		97	%	80 - 120
			Dissolved Calcium (Ca)	2016/11/23		NC	%	80 - 120
			Dissolved Chromium (Cr)	2016/11/23		97	%	80 - 120
			Dissolved Cobalt (Co)	2016/11/23		NC	%	80 - 120
			Dissolved Copper (Cu)	2016/11/23		87	%	80 - 120
			Dissolved Iron (Fe)	2016/11/23		NC	%	80 - 120
			Dissolved Lead (Pb)	2016/11/23		97	%	80 - 120
			Dissolved Magnesium (Mg)	2016/11/23		NC	%	80 - 120
			Dissolved Manganese (Mn)	2016/11/23		NC	%	80 - 120
			Dissolved Molybdenum (Mo)	2016/11/23		112	%	80 - 120
			Dissolved Nickel (Ni)	2016/11/23		NC	%	80 - 120
			Dissolved Phosphorus (P)	2016/11/23		103	%	80 - 120
			Dissolved Potassium (K)	2016/11/23		NC	%	80 - 120
			Dissolved Selenium (Se)	2016/11/23		98	%	80 - 120
			Dissolved Silver (Ag)	2016/11/23		94	%	80 - 120
			Dissolved Sodium (Na)	2016/11/23		NC	%	80 - 120
			Dissolved Strontium (Sr)	2016/11/23		NC	%	80 - 120
			Dissolved Thallium (Tl)	2016/11/23		100	%	80 - 120
			Dissolved Tin (Sn)	2016/11/23		110	%	80 - 120
			Dissolved Titanium (Ti)	2016/11/23		101	%	80 - 120
			Dissolved Uranium (U)	2016/11/23		104	%	80 - 120
			Dissolved Vanadium (V)	2016/11/23		102	%	80 - 120
			Dissolved Zinc (Zn)	2016/11/23		87	%	80 - 120
4759692	BAN	Spiked Blank	Dissolved Aluminum (Al)	2016/11/22		100	%	80 - 120
			Dissolved Antimony (Sb)	2016/11/22		107	%	80 - 120
			Dissolved Arsenic (As)	2016/11/22		96	%	80 - 120
			Dissolved Barium (Ba)	2016/11/22		100	%	80 - 120
			Dissolved Beryllium (Be)	2016/11/22		97	%	80 - 120
			Dissolved Bismuth (Bi)	2016/11/22		103	%	80 - 120
			Dissolved Boron (B)	2016/11/22		99	%	80 - 120
			Dissolved Cadmium (Cd)	2016/11/22		97	%	80 - 120
			Dissolved Calcium (Ca)	2016/11/22		105	%	80 - 120
			Dissolved Chromium (Cr)	2016/11/22		94	%	80 - 120
			Dissolved Cobalt (Co)	2016/11/22		95	%	80 - 120
			Dissolved Copper (Cu)	2016/11/22		93	%	80 - 120
			Dissolved Iron (Fe)	2016/11/22		96	%	80 - 120
			Dissolved Lead (Pb)	2016/11/22		100	%	80 - 120
			Dissolved Magnesium (Mg)	2016/11/22		97	%	80 - 120

QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Dissolved Manganese (Mn)	2016/11/22		95	%	80 - 120
			Dissolved Molybdenum (Mo)	2016/11/22		102	%	80 - 120
			Dissolved Nickel (Ni)	2016/11/22		96	%	80 - 120
			Dissolved Phosphorus (P)	2016/11/22		102	%	80 - 120
			Dissolved Potassium (K)	2016/11/22		102	%	80 - 120
			Dissolved Selenium (Se)	2016/11/22		98	%	80 - 120
			Dissolved Silver (Ag)	2016/11/22		97	%	80 - 120
			Dissolved Sodium (Na)	2016/11/22		93	%	80 - 120
			Dissolved Strontium (Sr)	2016/11/22		98	%	80 - 120
			Dissolved Thallium (Tl)	2016/11/22		103	%	80 - 120
			Dissolved Tin (Sn)	2016/11/22		101	%	80 - 120
			Dissolved Titanium (Ti)	2016/11/22		98	%	80 - 120
			Dissolved Uranium (U)	2016/11/22		104	%	80 - 120
			Dissolved Vanadium (V)	2016/11/22		97	%	80 - 120
			Dissolved Zinc (Zn)	2016/11/22		96	%	80 - 120
4759692	BAN	Method Blank	Dissolved Aluminum (Al)	2016/11/22	<5.0		ug/L	
			Dissolved Antimony (Sb)	2016/11/22	<1.0		ug/L	
			Dissolved Arsenic (As)	2016/11/22	<1.0		ug/L	
			Dissolved Barium (Ba)	2016/11/22	<1.0		ug/L	
			Dissolved Beryllium (Be)	2016/11/22	<1.0		ug/L	
			Dissolved Bismuth (Bi)	2016/11/22	<2.0		ug/L	
			Dissolved Boron (B)	2016/11/22	<50		ug/L	
			Dissolved Cadmium (Cd)	2016/11/22	<0.010		ug/L	
			Dissolved Calcium (Ca)	2016/11/22	<100		ug/L	
			Dissolved Chromium (Cr)	2016/11/22	<1.0		ug/L	
			Dissolved Cobalt (Co)	2016/11/22	<0.40		ug/L	
			Dissolved Copper (Cu)	2016/11/22	<2.0		ug/L	
			Dissolved Iron (Fe)	2016/11/22	<50		ug/L	
			Dissolved Lead (Pb)	2016/11/22	<0.50		ug/L	
			Dissolved Magnesium (Mg)	2016/11/22	<100		ug/L	
			Dissolved Manganese (Mn)	2016/11/22	<2.0		ug/L	
			Dissolved Molybdenum (Mo)	2016/11/22	<2.0		ug/L	
			Dissolved Nickel (Ni)	2016/11/22	<2.0		ug/L	
			Dissolved Phosphorus (P)	2016/11/22	<100		ug/L	
			Dissolved Potassium (K)	2016/11/22	<100		ug/L	
			Dissolved Selenium (Se)	2016/11/22	<1.0		ug/L	
			Dissolved Silver (Ag)	2016/11/22	<0.10		ug/L	
			Dissolved Sodium (Na)	2016/11/22	<100		ug/L	
			Dissolved Strontium (Sr)	2016/11/22	<2.0		ug/L	
			Dissolved Thallium (Tl)	2016/11/22	<0.10		ug/L	
			Dissolved Tin (Sn)	2016/11/22	<2.0		ug/L	
			Dissolved Titanium (Ti)	2016/11/22	<2.0		ug/L	
			Dissolved Uranium (U)	2016/11/22	<0.10		ug/L	
			Dissolved Vanadium (V)	2016/11/22	<2.0		ug/L	
			Dissolved Zinc (Zn)	2016/11/22	<5.0		ug/L	
4759692	BAN	RPD	Dissolved Aluminum (Al)	2016/11/23	1.6		%	20
			Dissolved Antimony (Sb)	2016/11/23	NC		%	20
			Dissolved Arsenic (As)	2016/11/23	2.9		%	20
			Dissolved Barium (Ba)	2016/11/23	0.52		%	20
			Dissolved Beryllium (Be)	2016/11/23	NC		%	20
			Dissolved Bismuth (Bi)	2016/11/23	NC		%	20
			Dissolved Boron (B)	2016/11/23	NC		%	20
			Dissolved Cadmium (Cd)	2016/11/23	NC		%	20

QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Dissolved Calcium (Ca)	2016/11/23	0.91		%	20
			Dissolved Chromium (Cr)	2016/11/23	NC		%	20
			Dissolved Cobalt (Co)	2016/11/23	0.73		%	20
			Dissolved Copper (Cu)	2016/11/23	NC		%	20
			Dissolved Iron (Fe)	2016/11/23	0.32		%	20
			Dissolved Lead (Pb)	2016/11/23	NC		%	20
			Dissolved Magnesium (Mg)	2016/11/23	1.1		%	20
			Dissolved Manganese (Mn)	2016/11/23	0.96		%	20
			Dissolved Molybdenum (Mo)	2016/11/23	NC		%	20
			Dissolved Nickel (Ni)	2016/11/23	1.1		%	20
			Dissolved Phosphorus (P)	2016/11/23	NC		%	20
			Dissolved Potassium (K)	2016/11/23	1.9		%	20
			Dissolved Selenium (Se)	2016/11/23	NC		%	20
			Dissolved Silver (Ag)	2016/11/23	NC		%	20
			Dissolved Sodium (Na)	2016/11/23	1.7		%	20
			Dissolved Strontium (Sr)	2016/11/23	0.41		%	20
			Dissolved Thallium (Tl)	2016/11/23	NC		%	20
			Dissolved Tin (Sn)	2016/11/23	NC		%	20
			Dissolved Titanium (Ti)	2016/11/23	NC		%	20
			Dissolved Uranium (U)	2016/11/23	NC		%	20
			Dissolved Vanadium (V)	2016/11/23	NC		%	20
			Dissolved Zinc (Zn)	2016/11/23	1.8		%	20
4760763	KBK	Matrix Spike	Isobutylbenzene - Extractable	2016/11/24		111	%	30 - 130
			n-Dotriacontane - Extractable	2016/11/24		127	%	30 - 130
			>C10-C16 Hydrocarbons	2016/11/24		100	%	70 - 130
			>C16-C21 Hydrocarbons	2016/11/24		91	%	70 - 130
			>C21-<C32 Hydrocarbons	2016/11/24		99	%	70 - 130
4760763	KBK	Spiked Blank	Isobutylbenzene - Extractable	2016/11/24		99	%	30 - 130
			n-Dotriacontane - Extractable	2016/11/24		118	%	30 - 130
			>C10-C16 Hydrocarbons	2016/11/24		111	%	70 - 130
			>C16-C21 Hydrocarbons	2016/11/24		99	%	70 - 130
			>C21-<C32 Hydrocarbons	2016/11/24		108	%	70 - 130
4760763	KBK	Method Blank	Isobutylbenzene - Extractable	2016/11/24		108	%	30 - 130
			n-Dotriacontane - Extractable	2016/11/24		119	%	30 - 130
			>C10-C16 Hydrocarbons	2016/11/24	<0.050		mg/L	
			>C16-C21 Hydrocarbons	2016/11/24	<0.050		mg/L	
			>C21-<C32 Hydrocarbons	2016/11/24	<0.10		mg/L	
4760763	KBK	RPD	>C10-C16 Hydrocarbons	2016/11/24	NC		%	40
			>C16-C21 Hydrocarbons	2016/11/24	NC		%	40
			>C21-<C32 Hydrocarbons	2016/11/24	NC		%	40
4761098	KBK	Matrix Spike	Isobutylbenzene - Extractable	2016/11/23		100	%	30 - 130
			n-Dotriacontane - Extractable	2016/11/23		117	%	30 - 130
			>C10-C16 Hydrocarbons	2016/11/23		100	%	70 - 130
			>C16-C21 Hydrocarbons	2016/11/23		89	%	70 - 130
			>C21-<C32 Hydrocarbons	2016/11/23		94	%	70 - 130
4761098	KBK	Spiked Blank	Isobutylbenzene - Extractable	2016/11/23		105	%	30 - 130
			n-Dotriacontane - Extractable	2016/11/23		117	%	30 - 130
			>C10-C16 Hydrocarbons	2016/11/23		102	%	70 - 130
			>C16-C21 Hydrocarbons	2016/11/23		90	%	70 - 130
			>C21-<C32 Hydrocarbons	2016/11/23		98	%	70 - 130
4761098	KBK	Method Blank	Isobutylbenzene - Extractable	2016/11/23		100	%	30 - 130
			n-Dotriacontane - Extractable	2016/11/23		108	%	30 - 130
			>C10-C16 Hydrocarbons	2016/11/23	<0.050		mg/L	

QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
4761098	KBK	RPD	>C16-C21 Hydrocarbons	2016/11/23	<0.050		mg/L	
			>C21-<C32 Hydrocarbons	2016/11/23	<0.10		mg/L	
			>C10-C16 Hydrocarbons	2016/11/23	NC		%	40
			>C16-C21 Hydrocarbons	2016/11/23	NC		%	40
			>C21-<C32 Hydrocarbons	2016/11/23	NC		%	40

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 spiked amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than 2x that of the native sample concentration).

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (one or both samples < 5x RDL).

VALIDATION SIGNATURE PAGE

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



Eric Dearman, Scientific Specialist



Rosemarie MacDonald, Scientific Specialist (Organics)

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

Your Project #: 4104251070
 Site Location: HARBOURSIDE COMMERCIAL PARK
 Your C.O.C. #: 585517

Attention:Nadine Wambolt

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

Report Date: 2016/11/25
 Report #: R4260969
 Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B6P1164

Received: 2016/11/17, 16:20

Sample Matrix: Water
 # Samples Received: 11

Analyses	Quantity	Date		Laboratory Method	Reference
		Extracted	Analyzed		
TEH in Water (PIRI) (1)	11	2016/11/23	2016/11/23	ATL SOP 00113	Atl. RBCA v3 m
Mercury - Total (CVAA,LL) (1)	10	2016/11/23	2016/11/24	ATL SOP 00026	EPA 245.1 R3 m
Metals Water Diss. MS (as rec'd) (1)	10	N/A	2016/11/24	ATL SOP 00058	EPA 6020A R1 m
PAH in Water by GC/MS (SIM) (1)	2	2016/11/22	2016/11/22	ATL SOP 00103	EPA 8270D 2007 m
PAH in Water by GC/MS (SIM) (1)	8	2016/11/23	2016/11/25	ATL SOP 00103	EPA 8270D 2007 m
VPH in Water (PIRI) (1)	11	N/A	2016/11/25	ATL SOP 00118	Atl. RBCA v3 m
ModTPH (T1) Calc. for Water (1)	11	N/A	2016/11/25	N/A	Atl. RBCA v3 m

Remarks:

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

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

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

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

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

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

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

(1) This test was performed by Maxxam Bedford

Your Project #: 4104251070
Site Location: HARBOURSIDE COMMERCIAL PARK
Your C.O.C. #: 585517

Attention:Nadine Wambolt

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

Report Date: 2016/11/25
Report #: R4260969
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B6P1164
Received: 2016/11/17, 16:20

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Candace Hillier, CI Svc - Sydney
Email: chillier@maxxam.ca
Phone# (902) 567 1255

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

MERCURY BY COLD VAPOUR AA (WATER)

Maxxam ID		DLY930	DLY931	DLY932	DLY944	DLY945		
Sampling Date		2016/11/17	2016/11/17	2016/11/17	2016/11/17	2016/11/17		
COC Number		585517	585517	585517	585517	585517		
	UNITS	SCU26-002-MW	MCES-007-MW	SCU26-001-MW	SCU31-002-MWB	SCU19-030-MW	RDL	QC Batch

Metals								
Total Mercury (Hg)	ug/L	<0.013	<0.013	<0.013	<0.013	<0.013	0.013	4761462

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam ID		DLY946	DLY947	DLY948	DLY949	DLY950		
Sampling Date		2016/11/17	2016/11/17	2016/11/17	2016/11/17	2016/11/17		
COC Number		585517	585517	585517	585517	585517		
	UNITS	SCU19-029-MW	SCU19-010-MW	SCU18-010-MW	EB-003	FB-002	RDL	QC Batch

Metals								
Total Mercury (Hg)	ug/L	<0.013	0.013	0.015	<0.013	<0.013	0.013	4761462

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

ELEMENTS BY ICP/MS (WATER)

Maxxam ID		DLY930		DLY931	DLY932		
Sampling Date		2016/11/17		2016/11/17	2016/11/17		
COC Number		585517		585517	585517		
	UNITS	SCU26-002-MW	QC Batch	MCES-007-MW	SCU26-001-MW	RDL	QC Batch
Metals							
Dissolved Aluminum (Al)	ug/L	22	4761085	23	20	5.0	4761063
Dissolved Antimony (Sb)	ug/L	<1.0	4761085	<1.0	<1.0	1.0	4761063
Dissolved Arsenic (As)	ug/L	<1.0	4761085	<1.0	<1.0	1.0	4761063
Dissolved Barium (Ba)	ug/L	520	4761085	490	490	1.0	4761063
Dissolved Beryllium (Be)	ug/L	<1.0	4761085	<1.0	<1.0	1.0	4761063
Dissolved Bismuth (Bi)	ug/L	<2.0	4761085	<2.0	<2.0	2.0	4761063
Dissolved Boron (B)	ug/L	<50	4761085	<50	<50	50	4761063
Dissolved Cadmium (Cd)	ug/L	<0.010	4761085	<0.010	<0.010	0.010	4761063
Dissolved Calcium (Ca)	ug/L	410000	4761085	430000	430000	100	4761063
Dissolved Chromium (Cr)	ug/L	<1.0	4761085	<1.0	<1.0	1.0	4761063
Dissolved Cobalt (Co)	ug/L	<0.40	4761085	<0.40	<0.40	0.40	4761063
Dissolved Copper (Cu)	ug/L	<2.0	4761085	<2.0	<2.0	2.0	4761063
Dissolved Iron (Fe)	ug/L	<50	4761085	<50	<50	50	4761063
Dissolved Lead (Pb)	ug/L	<0.50	4761085	<0.50	<0.50	0.50	4761063
Dissolved Magnesium (Mg)	ug/L	<100	4761085	<100	<100	100	4761063
Dissolved Manganese (Mn)	ug/L	<2.0	4761085	<2.0	<2.0	2.0	4761063
Dissolved Molybdenum (Mo)	ug/L	5.6	4761085	4.4	4.4	2.0	4761063
Dissolved Nickel (Ni)	ug/L	<2.0	4761085	<2.0	<2.0	2.0	4761063
Dissolved Phosphorus (P)	ug/L	<100	4761085	<100	<100	100	4761063
Dissolved Potassium (K)	ug/L	37000	4761085	39000	38000	100	4761063
Dissolved Selenium (Se)	ug/L	5.6	4761085	4.5	4.4	1.0	4761063
Dissolved Silver (Ag)	ug/L	<0.10	4761085	<0.10	<0.10	0.10	4761063
Dissolved Sodium (Na)	ug/L	29000	4761085	30000	30000	100	4761063
Dissolved Strontium (Sr)	ug/L	3300	4761085	3400	3400	2.0	4761063
Dissolved Thallium (Tl)	ug/L	<0.10	4761085	<0.10	<0.10	0.10	4761063
Dissolved Tin (Sn)	ug/L	<2.0	4761085	<2.0	<2.0	2.0	4761063
Dissolved Titanium (Ti)	ug/L	<2.0	4761085	<2.0	<2.0	2.0	4761063
Dissolved Uranium (U)	ug/L	<0.10	4761085	<0.10	<0.10	0.10	4761063
Dissolved Vanadium (V)	ug/L	<2.0	4761085	<2.0	<2.0	2.0	4761063
Dissolved Zinc (Zn)	ug/L	<5.0	4761085	<5.0	<5.0	5.0	4761063
RDL = Reportable Detection Limit							
QC Batch = Quality Control Batch							

ELEMENTS BY ICP/MS (WATER)

Maxxam ID		DLY944		DLY945	DLY946	DLY947	DLY948		
Sampling Date		2016/11/17		2016/11/17	2016/11/17	2016/11/17	2016/11/17		
COC Number		585517		585517	585517	585517	585517		
	UNITS	SCU31-002-MWB	RDL	SCU19-030-MW	SCU19-029-MW	SCU19-010-MW	SCU18-010-MW	RDL	QC Batch
Metals									
Dissolved Aluminum (Al)	ug/L	9.8	5.0	7.1	110	20	12	5.0	4761078
Dissolved Antimony (Sb)	ug/L	<1.0	1.0	<1.0	<1.0	<1.0	1.7	1.0	4761078
Dissolved Arsenic (As)	ug/L	1.3	1.0	<1.0	8.5	3.7	4.8	1.0	4761078
Dissolved Barium (Ba)	ug/L	26	1.0	48	43	44	37	1.0	4761078
Dissolved Beryllium (Be)	ug/L	<1.0	1.0	<1.0	<1.0	<1.0	<1.0	1.0	4761078
Dissolved Bismuth (Bi)	ug/L	<2.0	2.0	<2.0	<2.0	<2.0	<2.0	2.0	4761078
Dissolved Boron (B)	ug/L	580	50	200	480	280	72	50	4761078
Dissolved Cadmium (Cd)	ug/L	0.011	0.010	<0.010	0.019	0.035	<0.010	0.010	4761078
Dissolved Calcium (Ca)	ug/L	440000	100	170000	18000	80000	150000	100	4761078
Dissolved Chromium (Cr)	ug/L	<1.0	1.0	<1.0	<1.0	<1.0	<1.0	1.0	4761078
Dissolved Cobalt (Co)	ug/L	<0.40	0.40	<0.40	<0.40	<0.40	<0.40	0.40	4761078
Dissolved Copper (Cu)	ug/L	<2.0	2.0	<2.0	<2.0	<2.0	<2.0	2.0	4761078
Dissolved Iron (Fe)	ug/L	120	50	<50	440	180	70	50	4761078
Dissolved Lead (Pb)	ug/L	<0.50	0.50	0.53	<0.50	<0.50	<0.50	0.50	4761078
Dissolved Magnesium (Mg)	ug/L	97000	100	25000	3300	7000	780	100	4761078
Dissolved Manganese (Mn)	ug/L	530	2.0	250	1000	150	<2.0	2.0	4761078
Dissolved Molybdenum (Mo)	ug/L	3.0	2.0	<2.0	12	10	18	2.0	4761078
Dissolved Nickel (Ni)	ug/L	<2.0	2.0	<2.0	<2.0	<2.0	<2.0	2.0	4761078
Dissolved Phosphorus (P)	ug/L	<100	100	<100	420	110	<100	100	4761078
Dissolved Potassium (K)	ug/L	20000	100	13000	18000	25000	13000	100	4761078
Dissolved Selenium (Se)	ug/L	<1.0	1.0	<1.0	<1.0	<1.0	1.7	1.0	4761078
Dissolved Silver (Ag)	ug/L	<0.10	0.10	<0.10	<0.10	<0.10	<0.10	0.10	4761078
Dissolved Sodium (Na)	ug/L	1400000	1000	22000	160000	62000	22000	100	4761078
Dissolved Strontium (Sr)	ug/L	17000	20	670	87	320	680	2.0	4761078
Dissolved Thallium (Tl)	ug/L	<0.10	0.10	<0.10	<0.10	<0.10	<0.10	0.10	4761078
Dissolved Tin (Sn)	ug/L	<2.0	2.0	<2.0	<2.0	<2.0	<2.0	2.0	4761078
Dissolved Titanium (Ti)	ug/L	<2.0	2.0	<2.0	<2.0	<2.0	<2.0	2.0	4761078
Dissolved Uranium (U)	ug/L	6.7	0.10	0.68	0.11	0.83	0.11	0.10	4761078
Dissolved Vanadium (V)	ug/L	<2.0	2.0	<2.0	<2.0	12	62	2.0	4761078
Dissolved Zinc (Zn)	ug/L	<5.0	5.0	<5.0	<5.0	<5.0	6.5	5.0	4761078

RDL = Reportable Detection Limit

QC Batch = Quality Control Batch

ELEMENTS BY ICP/MS (WATER)

Maxxam ID		DLY949	DLY950		
Sampling Date		2016/11/17	2016/11/17		
COC Number		585517	585517		
	UNITS	EB-003	FB-002	RDL	QC Batch
Metals					
Dissolved Aluminum (Al)	ug/L	5.6	<5.0	5.0	4761078
Dissolved Antimony (Sb)	ug/L	<1.0	<1.0	1.0	4761078
Dissolved Arsenic (As)	ug/L	<1.0	<1.0	1.0	4761078
Dissolved Barium (Ba)	ug/L	1.7	<1.0	1.0	4761078
Dissolved Beryllium (Be)	ug/L	<1.0	<1.0	1.0	4761078
Dissolved Bismuth (Bi)	ug/L	<2.0	<2.0	2.0	4761078
Dissolved Boron (B)	ug/L	<50	<50	50	4761078
Dissolved Cadmium (Cd)	ug/L	<0.010	<0.010	0.010	4761078
Dissolved Calcium (Ca)	ug/L	180	<100	100	4761078
Dissolved Chromium (Cr)	ug/L	<1.0	<1.0	1.0	4761078
Dissolved Cobalt (Co)	ug/L	<0.40	<0.40	0.40	4761078
Dissolved Copper (Cu)	ug/L	<2.0	<2.0	2.0	4761078
Dissolved Iron (Fe)	ug/L	52	<50	50	4761078
Dissolved Lead (Pb)	ug/L	<0.50	<0.50	0.50	4761078
Dissolved Magnesium (Mg)	ug/L	<100	<100	100	4761078
Dissolved Manganese (Mn)	ug/L	<2.0	<2.0	2.0	4761078
Dissolved Molybdenum (Mo)	ug/L	<2.0	<2.0	2.0	4761078
Dissolved Nickel (Ni)	ug/L	<2.0	<2.0	2.0	4761078
Dissolved Phosphorus (P)	ug/L	<100	<100	100	4761078
Dissolved Potassium (K)	ug/L	<100	<100	100	4761078
Dissolved Selenium (Se)	ug/L	<1.0	<1.0	1.0	4761078
Dissolved Silver (Ag)	ug/L	<0.10	<0.10	0.10	4761078
Dissolved Sodium (Na)	ug/L	180	<100	100	4761078
Dissolved Strontium (Sr)	ug/L	2.6	<2.0	2.0	4761078
Dissolved Thallium (Tl)	ug/L	<0.10	<0.10	0.10	4761078
Dissolved Tin (Sn)	ug/L	<2.0	<2.0	2.0	4761078
Dissolved Titanium (Ti)	ug/L	<2.0	<2.0	2.0	4761078
Dissolved Uranium (U)	ug/L	<0.10	<0.10	0.10	4761078
Dissolved Vanadium (V)	ug/L	<2.0	<2.0	2.0	4761078
Dissolved Zinc (Zn)	ug/L	6.1	<5.0	5.0	4761078
RDL = Reportable Detection Limit					
QC Batch = Quality Control Batch					

SEMI-VOLATILE ORGANICS BY GC-MS (WATER)

Maxxam ID		DLY930	DLY931	DLY932	DLY944		DLY945		
Sampling Date		2016/11/17	2016/11/17	2016/11/17	2016/11/17		2016/11/17		
COC Number		585517	585517	585517	585517		585517		
	UNITS	SCU26-002-MW	MCES-007-MW	SCU26-001-MW	SCU31-002-MWB	RDL	SCU19-030-MW	RDL	QC Batch
Polyaromatic Hydrocarbons									
1-Methylnaphthalene	ug/L	5.3	6.7	6.9	<0.050	0.050	<0.050	0.050	4760731
2-Methylnaphthalene	ug/L	7.7	9.7	10	<0.050	0.050	<0.050	0.050	4760731
Acenaphthene	ug/L	0.30	0.32	0.37	<0.010	0.010	0.47	0.010	4760731
Acenaphthylene	ug/L	0.66	0.66	0.63	<0.010	0.010	<0.031 (1)	0.031	4760731
Anthracene	ug/L	0.39	0.32	0.42	<0.010	0.010	<0.047 (1)	0.047	4760731
Benzo(a)anthracene	ug/L	0.13	0.061	0.062	0.017	0.010	0.041	0.010	4760731
Benzo(a)pyrene	ug/L	0.065	<0.010	<0.010	0.014	0.010	<0.010	0.010	4760731
Benzo(b)fluoranthene	ug/L	0.047	<0.010	<0.010	0.012	0.010	<0.010	0.010	4760731
Benzo(g,h,i)perylene	ug/L	0.038	<0.010	<0.010	<0.010	0.010	<0.010	0.010	4760731
Benzo(j)fluoranthene	ug/L	0.031	<0.010	<0.010	<0.010	0.010	<0.010	0.010	4760731
Benzo(k)fluoranthene	ug/L	0.031	<0.010	<0.010	<0.010	0.010	<0.010	0.010	4760731
Chrysene	ug/L	0.11	0.048	0.052	0.017	0.010	0.045	0.010	4760731
Dibenz(a,h)anthracene	ug/L	<0.010	<0.010	<0.010	<0.010	0.010	<0.010	0.010	4760731
Fluoranthene	ug/L	0.73	0.62	0.69	0.035	0.010	0.69	0.010	4760731
Fluorene	ug/L	1.0	1.1	1.2	<0.010	0.010	0.069	0.010	4760731
Indeno(1,2,3-cd)pyrene	ug/L	0.036	<0.010	<0.010	<0.010	0.010	<0.010	0.010	4760731
Naphthalene	ug/L	5.3	6.3	6.2	<0.20	0.20	<0.20	0.20	4760731
Perylene	ug/L	0.018	<0.010	<0.010	<0.010	0.010	<0.010	0.010	4760731
Phenanthrene	ug/L	1.7	1.9	2.2	0.033	0.010	<0.010	0.010	4760731
Pyrene	ug/L	0.46	0.36	0.39	0.029	0.010	0.45	0.010	4760731
Surrogate Recovery (%)									
D10-Anthracene	%	83	95	95	100		71		4760731
D14-Terphenyl	%	97	109	100	101		99		4760731
D8-Acenaphthylene	%	92	98	95	96		99		4760731
RDL = Reportable Detection Limit									
QC Batch = Quality Control Batch									
(1) Elevated PAH RDL(s) due to matrix / co-extractive interference.									

SEMI-VOLATILE ORGANICS BY GC-MS (WATER)

Maxxam ID		DLY946	DLY947		DLY948	DLY949		
Sampling Date		2016/11/17	2016/11/17		2016/11/17	2016/11/17		
COC Number		585517	585517		585517	585517		
	UNITS	SCU19-029-MW	SCU19-010-MW	QC Batch	SCU18-010-MW	EB-003	RDL	QC Batch
Polyaromatic Hydrocarbons								
1-Methylnaphthalene	ug/L	<0.050	0.052	4760731	0.57	<0.050	0.050	4759135
2-Methylnaphthalene	ug/L	<0.050	<0.050	4760731	0.28	<0.050	0.050	4759135
Acenaphthene	ug/L	<0.010	0.13	4760731	0.23	<0.010	0.010	4759135
Acenaphthylene	ug/L	<0.010	<0.010	4760731	0.22	<0.010	0.010	4759135
Anthracene	ug/L	<0.010	<0.010	4760731	0.077	<0.010	0.010	4759135
Benzo(a)anthracene	ug/L	<0.010	<0.010	4760731	0.11	<0.010	0.010	4759135
Benzo(a)pyrene	ug/L	<0.010	<0.010	4760731	0.098	<0.010	0.010	4759135
Benzo(b)fluoranthene	ug/L	<0.010	<0.010	4760731	0.072	<0.010	0.010	4759135
Benzo(g,h,i)perylene	ug/L	<0.010	<0.010	4760731	0.054	<0.010	0.010	4759135
Benzo(j)fluoranthene	ug/L	<0.010	<0.010	4760731	0.050	<0.010	0.010	4759135
Benzo(k)fluoranthene	ug/L	<0.010	<0.010	4760731	0.045	<0.010	0.010	4759135
Chrysene	ug/L	<0.010	<0.010	4760731	0.099	<0.010	0.010	4759135
Dibenz(a,h)anthracene	ug/L	<0.010	<0.010	4760731	0.016	<0.010	0.010	4759135
Fluoranthene	ug/L	<0.010	<0.010	4760731	0.28	<0.010	0.010	4759135
Fluorene	ug/L	<0.010	0.031	4760731	0.22	<0.010	0.010	4759135
Indeno(1,2,3-cd)pyrene	ug/L	<0.010	<0.010	4760731	0.052	<0.010	0.010	4759135
Naphthalene	ug/L	<0.20	<0.20	4760731	1.2	<0.20	0.20	4759135
Perylene	ug/L	<0.010	<0.010	4760731	0.028	<0.010	0.010	4759135
Phenanthrene	ug/L	<0.010	0.011	4760731	0.16	0.013	0.010	4759135
Pyrene	ug/L	0.011	0.012	4760731	0.24	<0.010	0.010	4759135
Surrogate Recovery (%)								
D10-Anthracene	%	72	102	4760731	82	83		4759135
D14-Terphenyl	%	99	103	4760731	90	91		4759135
D8-Acenaphthylene	%	99	101	4760731	85	82		4759135
RDL = Reportable Detection Limit QC Batch = Quality Control Batch								

SEMI-VOLATILE ORGANICS BY GC-MS (WATER)

Maxxam ID		DLY950		
Sampling Date		2016/11/17		
COC Number		585517		
	UNITS	FB-002	RDL	QC Batch
Polyaromatic Hydrocarbons				
1-Methylnaphthalene	ug/L	<0.050	0.050	4760731
2-Methylnaphthalene	ug/L	<0.050	0.050	4760731
Acenaphthene	ug/L	<0.010	0.010	4760731
Acenaphthylene	ug/L	<0.010	0.010	4760731
Anthracene	ug/L	<0.010	0.010	4760731
Benzo(a)anthracene	ug/L	<0.010	0.010	4760731
Benzo(a)pyrene	ug/L	<0.010	0.010	4760731
Benzo(b)fluoranthene	ug/L	<0.010	0.010	4760731
Benzo(g,h,i)perylene	ug/L	<0.010	0.010	4760731
Benzo(j)fluoranthene	ug/L	<0.010	0.010	4760731
Benzo(k)fluoranthene	ug/L	<0.010	0.010	4760731
Chrysene	ug/L	<0.010	0.010	4760731
Dibenz(a,h)anthracene	ug/L	<0.010	0.010	4760731
Fluoranthene	ug/L	<0.010	0.010	4760731
Fluorene	ug/L	<0.010	0.010	4760731
Indeno(1,2,3-cd)pyrene	ug/L	<0.010	0.010	4760731
Naphthalene	ug/L	<0.20	0.20	4760731
Perylene	ug/L	<0.010	0.010	4760731
Phenanthrene	ug/L	<0.010	0.010	4760731
Pyrene	ug/L	<0.010	0.010	4760731
Surrogate Recovery (%)				
D10-Anthracene	%	96		4760731
D14-Terphenyl	%	99		4760731
D8-Acenaphthylene	%	93		4760731
RDL = Reportable Detection Limit				
QC Batch = Quality Control Batch				

ATLANTIC RBCA HYDROCARBONS (WATER)

Maxxam ID		DLY930	DLY931	DLY932	DLY944	DLY945		
Sampling Date		2016/11/17	2016/11/17	2016/11/17	2016/11/17	2016/11/17		
COC Number		585517	585517	585517	585517	585517		
	UNITS	SCU26-002-MW	MCES-007-MW	SCU26-001-MW	SCU31-002-MWB	SCU19-030-MW	RDL	QC Batch
Petroleum Hydrocarbons								
Benzene	mg/L	0.012	0.012	0.013	<0.0010	<0.0010	0.0010	4762728
Toluene	mg/L	0.0091	0.0098	0.0087	<0.0010	<0.0010	0.0010	4762728
Ethylbenzene	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0010	4762728
Total Xylenes	mg/L	0.0076	0.0079	0.0087	<0.0020	<0.0020	0.0020	4762728
C6 - C10 (less BTEX)	mg/L	0.022	0.024	0.050	<0.010	<0.010	0.010	4762728
>C10-C16 Hydrocarbons	mg/L	0.19	0.23	0.24	<0.050	0.13	0.050	4761116
>C16-C21 Hydrocarbons	mg/L	0.062	0.073	0.068	<0.050	0.13	0.050	4761116
>C21-<C32 Hydrocarbons	mg/L	<0.10	<0.10	<0.10	<0.10	0.10	0.10	4761116
Modified TPH (Tier1)	mg/L	0.27	0.32	0.36	<0.10	0.36	0.10	4754464
Reached Baseline at C32	mg/L	Yes	Yes	Yes	NA	Yes	N/A	4761116
Hydrocarbon Resemblance	mg/L	COMMENT (1)	COMMENT (1)	COMMENT (1)	NA	COMMENT (2)	N/A	4761116
Surrogate Recovery (%)								
Isobutylbenzene - Extractable	%	114	111	111	118	112		4761116
n-Dotriacontane - Extractable	%	124	123	129	128	126		4761116
Isobutylbenzene - Volatile	%	88	99	112	95	97		4762728

RDL = Reportable Detection Limit

QC Batch = Quality Control Batch

N/A = Not Applicable

(1) Unidentified compound(s) in fuel oil range.

(2) One product in fuel / lube range.

ATLANTIC RBCA HYDROCARBONS (WATER)

Maxxam ID		DLY946	DLY947	DLY948	DLY949	DLY950		
Sampling Date		2016/11/17	2016/11/17	2016/11/17	2016/11/17	2016/11/17		
COC Number		585517	585517	585517	585517	585517		
	UNITS	SCU19-029-MW	SCU19-010-MW	SCU18-010-MW	EB-003	FB-002	RDL	QC Batch
Petroleum Hydrocarbons								
Benzene	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0010	4762728
Toluene	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0010	4762728
Ethylbenzene	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0010	4762728
Total Xylenes	mg/L	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	0.0020	4762728
C6 - C10 (less BTEX)	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	4762728
>C10-C16 Hydrocarbons	mg/L	<0.050	<0.050	0.050	<0.050	<0.050	0.050	4761116
>C16-C21 Hydrocarbons	mg/L	<0.050	0.094	<0.050	<0.050	<0.050	0.050	4761116
>C21-<C32 Hydrocarbons	mg/L	<0.10	0.14	<0.10	0.13	<0.10	0.10	4761116
Modified TPH (Tier1)	mg/L	<0.10	0.23	<0.10	0.13	<0.10	0.10	4754464
Reached Baseline at C32	mg/L	NA	Yes	NA	Yes	NA	N/A	4761116
Hydrocarbon Resemblance	mg/L	NA	COMMENT (1)	NA	COMMENT (2)	NA	N/A	4761116
Surrogate Recovery (%)								
Isobutylbenzene - Extractable	%	114	118	109	110	107		4761116
n-Dotriacontane - Extractable	%	120	126	127	118	121		4761116
Isobutylbenzene - Volatile	%	102	97	99	92	97		4762728
RDL = Reportable Detection Limit QC Batch = Quality Control Batch N/A = Not Applicable (1) One product in fuel / lube range. (2) Unidentified compound(s) in lube oil range.								

ATLANTIC RBCA HYDROCARBONS (WATER)

Maxxam ID		DLY965		
Sampling Date		2016/11/17		
COC Number		585517		
	UNITS	TB-026	RDL	QC Batch
Petroleum Hydrocarbons				
Benzene	mg/L	<0.0010	0.0010	4762728
Toluene	mg/L	<0.0010	0.0010	4762728
Ethylbenzene	mg/L	<0.0010	0.0010	4762728
Total Xylenes	mg/L	<0.0020	0.0020	4762728
C6 - C10 (less BTEX)	mg/L	<0.010	0.010	4762728
>C10-C16 Hydrocarbons	mg/L	<0.050	0.050	4761116
>C16-C21 Hydrocarbons	mg/L	<0.050	0.050	4761116
>C21-<C32 Hydrocarbons	mg/L	<0.10	0.10	4761116
Modified TPH (Tier1)	mg/L	<0.10	0.10	4754464
Reached Baseline at C32	mg/L	NA	N/A	4761116
Hydrocarbon Resemblance	mg/L	NA	N/A	4761116
Surrogate Recovery (%)				
Isobutylbenzene - Extractable	%	84		4761116
n-Dotriacontane - Extractable	%	87		4761116
Isobutylbenzene - Volatile	%	94		4762728
RDL = Reportable Detection Limit QC Batch = Quality Control Batch N/A = Not Applicable				

GENERAL COMMENTS

Results relate only to the items tested.

QUALITY ASSURANCE REPORT

QA/QC			Parameter	Date	Value	Recovery	UNITS	QC Limits
Batch	Init	QC Type		Analyzed				
4759135	KKE	Matrix Spike [DLY949-01]	D10-Anthracene	2016/11/22		74	%	30 - 130
			D14-Terphenyl	2016/11/22		82	%	30 - 130
			D8-Acenaphthylene	2016/11/22		77	%	30 - 130
			1-Methylnaphthalene	2016/11/22		72	%	30 - 130
			2-Methylnaphthalene	2016/11/22		75	%	30 - 130
			Acenaphthene	2016/11/22		76	%	30 - 130
			Acenaphthylene	2016/11/22		82	%	30 - 130
			Anthracene	2016/11/22		78	%	30 - 130
			Benzo(a)anthracene	2016/11/22		84	%	30 - 130
			Benzo(a)pyrene	2016/11/22		71	%	30 - 130
			Benzo(b)fluoranthene	2016/11/22		69	%	30 - 130
			Benzo(g,h,i)perylene	2016/11/22		71	%	30 - 130
			Benzo(j)fluoranthene	2016/11/22		64	%	30 - 130
			Benzo(k)fluoranthene	2016/11/22		67	%	30 - 130
			Chrysene	2016/11/22		78	%	30 - 130
			Dibenz(a,h)anthracene	2016/11/22		65	%	30 - 130
			Fluoranthene	2016/11/22		76	%	30 - 130
			Fluorene	2016/11/22		77	%	30 - 130
			Indeno(1,2,3-cd)pyrene	2016/11/22		72	%	30 - 130
			Naphthalene	2016/11/22		73	%	30 - 130
Perylene	2016/11/22		66	%	30 - 130			
Phenanthrene	2016/11/22		86	%	30 - 130			
Pyrene	2016/11/22		74	%	30 - 130			
4759135	KKE	Spiked Blank	D10-Anthracene	2016/11/22		104	%	30 - 130
			D14-Terphenyl	2016/11/22		105	%	30 - 130
			D8-Acenaphthylene	2016/11/22		101	%	30 - 130
			1-Methylnaphthalene	2016/11/22		102	%	30 - 130
			2-Methylnaphthalene	2016/11/22		106	%	30 - 130
			Acenaphthene	2016/11/22		108	%	30 - 130
			Acenaphthylene	2016/11/22		110	%	30 - 130
			Anthracene	2016/11/22		110	%	30 - 130
			Benzo(a)anthracene	2016/11/22		104	%	30 - 130
			Benzo(a)pyrene	2016/11/22		98	%	30 - 130
			Benzo(b)fluoranthene	2016/11/22		90	%	30 - 130
			Benzo(g,h,i)perylene	2016/11/22		100	%	30 - 130
			Benzo(j)fluoranthene	2016/11/22		91	%	30 - 130
			Benzo(k)fluoranthene	2016/11/22		91	%	30 - 130
			Chrysene	2016/11/22		90	%	30 - 130
			Dibenz(a,h)anthracene	2016/11/22		92	%	30 - 130
			Fluoranthene	2016/11/22		108	%	30 - 130
			Fluorene	2016/11/22		108	%	30 - 130
			Indeno(1,2,3-cd)pyrene	2016/11/22		100	%	30 - 130
			Naphthalene	2016/11/22		103	%	30 - 130
Perylene	2016/11/22		93	%	30 - 130			
Phenanthrene	2016/11/22		90	%	30 - 130			
Pyrene	2016/11/22		104	%	30 - 130			
4759135	KKE	Method Blank	D10-Anthracene	2016/11/22		93	%	30 - 130
			D14-Terphenyl	2016/11/22		99	%	30 - 130
			D8-Acenaphthylene	2016/11/22		94	%	30 - 130
			1-Methylnaphthalene	2016/11/22	<0.050		ug/L	
			2-Methylnaphthalene	2016/11/22	<0.050		ug/L	
			Acenaphthene	2016/11/22	<0.010		ug/L	
			Acenaphthylene	2016/11/22	<0.010		ug/L	

QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Anthracene	2016/11/22	<0.010		ug/L	
			Benzo(a)anthracene	2016/11/22	<0.010		ug/L	
			Benzo(a)pyrene	2016/11/22	<0.010		ug/L	
			Benzo(b)fluoranthene	2016/11/22	<0.010		ug/L	
			Benzo(g,h,i)perylene	2016/11/22	<0.010		ug/L	
			Benzo(j)fluoranthene	2016/11/22	<0.010		ug/L	
			Benzo(k)fluoranthene	2016/11/22	<0.010		ug/L	
			Chrysene	2016/11/22	<0.010		ug/L	
			Dibenz(a,h)anthracene	2016/11/22	<0.010		ug/L	
			Fluoranthene	2016/11/22	<0.010		ug/L	
			Fluorene	2016/11/22	<0.010		ug/L	
			Indeno(1,2,3-cd)pyrene	2016/11/22	<0.010		ug/L	
			Naphthalene	2016/11/22	<0.20		ug/L	
			Perylene	2016/11/22	<0.010		ug/L	
			Phenanthrene	2016/11/22	<0.010		ug/L	
			Pyrene	2016/11/22	<0.010		ug/L	
4759135	KKE	RPD [DLY948-01]	1-Methylnaphthalene	2016/11/22	4.7		%	40
			2-Methylnaphthalene	2016/11/22	NC		%	40
			Acenaphthene	2016/11/22	1.9		%	40
			Acenaphthylene	2016/11/22	3.6		%	40
			Anthracene	2016/11/22	28		%	40
			Benzo(a)anthracene	2016/11/22	9.7		%	40
			Benzo(a)pyrene	2016/11/22	5.7		%	40
			Benzo(b)fluoranthene	2016/11/22	5.5		%	40
			Benzo(g,h,i)perylene	2016/11/22	11		%	40
			Benzo(j)fluoranthene	2016/11/22	NC		%	40
			Benzo(k)fluoranthene	2016/11/22	NC		%	40
			Chrysene	2016/11/22	12		%	40
			Dibenz(a,h)anthracene	2016/11/22	NC		%	40
			Fluoranthene	2016/11/22	9.0		%	40
			Fluorene	2016/11/22	0.36		%	40
			Indeno(1,2,3-cd)pyrene	2016/11/22	14		%	40
			Naphthalene	2016/11/22	NC		%	40
			Perylene	2016/11/22	NC		%	40
			Phenanthrene	2016/11/22	9.7		%	40
			Pyrene	2016/11/22	10		%	40
4760731	KKE	Matrix Spike	D10-Anthracene	2016/11/25		73	%	30 - 130
			D14-Terphenyl	2016/11/25		82	%	30 - 130
			D8-Acenaphthylene	2016/11/25		73	%	30 - 130
			1-Methylnaphthalene	2016/11/25		65	%	30 - 130
			2-Methylnaphthalene	2016/11/25		72	%	30 - 130
			Acenaphthene	2016/11/25		69	%	30 - 130
			Acenaphthylene	2016/11/25		76	%	30 - 130
			Anthracene	2016/11/25		74	%	30 - 130
			Benzo(a)anthracene	2016/11/25		76	%	30 - 130
			Benzo(a)pyrene	2016/11/25		63	%	30 - 130
			Benzo(b)fluoranthene	2016/11/25		62	%	30 - 130
			Benzo(g,h,i)perylene	2016/11/25		63	%	30 - 130
			Benzo(j)fluoranthene	2016/11/25		57	%	30 - 130
			Benzo(k)fluoranthene	2016/11/25		60	%	30 - 130
			Chrysene	2016/11/25		72	%	30 - 130
			Dibenz(a,h)anthracene	2016/11/25		59	%	30 - 130
			Fluoranthene	2016/11/25		69	%	30 - 130

QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
4760731	KKE	Spiked Blank	Fluorene	2016/11/25		69	%	30 - 130
			Indeno(1,2,3-cd)pyrene	2016/11/25		63	%	30 - 130
			Naphthalene	2016/11/25		63	%	30 - 130
			Perylene	2016/11/25		59	%	30 - 130
			Phenanthrene	2016/11/25		63	%	30 - 130
			Pyrene	2016/11/25		65	%	30 - 130
			D10-Anthracene	2016/11/25		96	%	30 - 130
			D14-Terphenyl	2016/11/25		101	%	30 - 130
			D8-Acenaphthylene	2016/11/25		94	%	30 - 130
			1-Methylnaphthalene	2016/11/25		81	%	30 - 130
			2-Methylnaphthalene	2016/11/25		86	%	30 - 130
			Acenaphthene	2016/11/25		85	%	30 - 130
			Acenaphthylene	2016/11/25		94	%	30 - 130
			Anthracene	2016/11/25		80	%	30 - 130
			Benzo(a)anthracene	2016/11/25		82	%	30 - 130
			Benzo(a)pyrene	2016/11/25		73	%	30 - 130
			Benzo(b)fluoranthene	2016/11/25		72	%	30 - 130
			Benzo(g,h,i)perylene	2016/11/25		78	%	30 - 130
			Benzo(j)fluoranthene	2016/11/25		69	%	30 - 130
			Benzo(k)fluoranthene	2016/11/25		72	%	30 - 130
			Chrysene	2016/11/25		72	%	30 - 130
			Dibenz(a,h)anthracene	2016/11/25		71	%	30 - 130
			Fluoranthene	2016/11/25		81	%	30 - 130
			Fluorene	2016/11/25		86	%	30 - 130
Indeno(1,2,3-cd)pyrene	2016/11/25		75	%	30 - 130			
Naphthalene	2016/11/25		82	%	30 - 130			
Perylene	2016/11/25		72	%	30 - 130			
Phenanthrene	2016/11/25		73	%	30 - 130			
Pyrene	2016/11/25		78	%	30 - 130			
4760731	KKE	Method Blank	D10-Anthracene	2016/11/25		98	%	30 - 130
			D14-Terphenyl	2016/11/25		104	%	30 - 130
			D8-Acenaphthylene	2016/11/25		94	%	30 - 130
			1-Methylnaphthalene	2016/11/25	<0.050		ug/L	
			2-Methylnaphthalene	2016/11/25	<0.050		ug/L	
			Acenaphthene	2016/11/25	<0.010		ug/L	
			Acenaphthylene	2016/11/25	<0.010		ug/L	
			Anthracene	2016/11/25	<0.010		ug/L	
			Benzo(a)anthracene	2016/11/25	<0.010		ug/L	
			Benzo(a)pyrene	2016/11/25	<0.010		ug/L	
			Benzo(b)fluoranthene	2016/11/25	<0.010		ug/L	
			Benzo(g,h,i)perylene	2016/11/25	<0.010		ug/L	
			Benzo(j)fluoranthene	2016/11/25	<0.010		ug/L	
			Benzo(k)fluoranthene	2016/11/25	<0.010		ug/L	
			Chrysene	2016/11/25	<0.010		ug/L	
			Dibenz(a,h)anthracene	2016/11/25	<0.010		ug/L	
			Fluoranthene	2016/11/25	<0.010		ug/L	
			Fluorene	2016/11/25	<0.010		ug/L	
			Indeno(1,2,3-cd)pyrene	2016/11/25	<0.010		ug/L	
			Naphthalene	2016/11/25	<0.20		ug/L	
			Perylene	2016/11/25	<0.010		ug/L	
			Phenanthrene	2016/11/25	<0.010		ug/L	
			Pyrene	2016/11/25	<0.010		ug/L	
			4760731	KKE	RPD	1-Methylnaphthalene	2016/11/25	7.9 (1)

QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			2-Methylnaphthalene	2016/11/25	5.6 (1)		%	40
			Acenaphthene	2016/11/25	10 (1)		%	40
			Acenaphthylene	2016/11/25	18		%	40
			Anthracene	2016/11/25	21		%	40
			Benzo(a)anthracene	2016/11/25	23		%	40
			Benzo(a)pyrene	2016/11/25	NC		%	40
			Benzo(b)fluoranthene	2016/11/25	NC		%	40
			Benzo(g,h,i)perylene	2016/11/25	NC		%	40
			Benzo(j)fluoranthene	2016/11/25	NC		%	40
			Benzo(k)fluoranthene	2016/11/25	NC		%	40
			Chrysene	2016/11/25	12		%	40
			Dibenz(a,h)anthracene	2016/11/25	NC		%	40
			Fluoranthene	2016/11/25	21		%	40
			Fluorene	2016/11/25	16		%	40
			Indeno(1,2,3-cd)pyrene	2016/11/25	NC		%	40
			Naphthalene	2016/11/25	8.2 (1)		%	40
			Perylene	2016/11/25	NC		%	40
			Phenanthrene	2016/11/25	13		%	40
			Pyrene	2016/11/25	19		%	40
4761063	MLB	Matrix Spike	Dissolved Aluminum (Al)	2016/11/23		102	%	80 - 120
			Dissolved Antimony (Sb)	2016/11/23		109	%	80 - 120
			Dissolved Arsenic (As)	2016/11/23		99	%	80 - 120
			Dissolved Barium (Ba)	2016/11/23		NC	%	80 - 120
			Dissolved Beryllium (Be)	2016/11/23		95	%	80 - 120
			Dissolved Bismuth (Bi)	2016/11/23		105	%	80 - 120
			Dissolved Boron (B)	2016/11/23		90	%	80 - 120
			Dissolved Cadmium (Cd)	2016/11/23		100	%	80 - 120
			Dissolved Calcium (Ca)	2016/11/23		NC	%	80 - 120
			Dissolved Chromium (Cr)	2016/11/23		98	%	80 - 120
			Dissolved Cobalt (Co)	2016/11/23		100	%	80 - 120
			Dissolved Copper (Cu)	2016/11/23		98	%	80 - 120
			Dissolved Iron (Fe)	2016/11/23		NC	%	80 - 120
			Dissolved Lead (Pb)	2016/11/23		102	%	80 - 120
			Dissolved Magnesium (Mg)	2016/11/23		100	%	80 - 120
			Dissolved Manganese (Mn)	2016/11/23		NC	%	80 - 120
			Dissolved Molybdenum (Mo)	2016/11/23		107	%	80 - 120
			Dissolved Nickel (Ni)	2016/11/23		99	%	80 - 120
			Dissolved Phosphorus (P)	2016/11/23		106	%	80 - 120
			Dissolved Potassium (K)	2016/11/23		104	%	80 - 120
			Dissolved Selenium (Se)	2016/11/23		99	%	80 - 120
			Dissolved Silver (Ag)	2016/11/23		91	%	80 - 120
			Dissolved Sodium (Na)	2016/11/23		96	%	80 - 120
			Dissolved Strontium (Sr)	2016/11/23		NC	%	80 - 120
			Dissolved Thallium (Tl)	2016/11/23		104	%	80 - 120
			Dissolved Tin (Sn)	2016/11/23		108	%	80 - 120
			Dissolved Titanium (Ti)	2016/11/23		98	%	80 - 120
			Dissolved Uranium (U)	2016/11/23		108	%	80 - 120
			Dissolved Vanadium (V)	2016/11/23		100	%	80 - 120
			Dissolved Zinc (Zn)	2016/11/23		99	%	80 - 120
4761063	MLB	Spiked Blank	Dissolved Aluminum (Al)	2016/11/23		100	%	80 - 120
			Dissolved Antimony (Sb)	2016/11/23		105	%	80 - 120
			Dissolved Arsenic (As)	2016/11/23		95	%	80 - 120
			Dissolved Barium (Ba)	2016/11/23		94	%	80 - 120

QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Dissolved Beryllium (Be)	2016/11/23		96	%	80 - 120
			Dissolved Bismuth (Bi)	2016/11/23		102	%	80 - 120
			Dissolved Boron (B)	2016/11/23		95	%	80 - 120
			Dissolved Cadmium (Cd)	2016/11/23		98	%	80 - 120
			Dissolved Calcium (Ca)	2016/11/23		97	%	80 - 120
			Dissolved Chromium (Cr)	2016/11/23		95	%	80 - 120
			Dissolved Cobalt (Co)	2016/11/23		99	%	80 - 120
			Dissolved Copper (Cu)	2016/11/23		96	%	80 - 120
			Dissolved Iron (Fe)	2016/11/23		95	%	80 - 120
			Dissolved Lead (Pb)	2016/11/23		98	%	80 - 120
			Dissolved Magnesium (Mg)	2016/11/23		97	%	80 - 120
			Dissolved Manganese (Mn)	2016/11/23		98	%	80 - 120
			Dissolved Molybdenum (Mo)	2016/11/23		104	%	80 - 120
			Dissolved Nickel (Ni)	2016/11/23		96	%	80 - 120
			Dissolved Phosphorus (P)	2016/11/23		102	%	80 - 120
			Dissolved Potassium (K)	2016/11/23		100	%	80 - 120
			Dissolved Selenium (Se)	2016/11/23		96	%	80 - 120
			Dissolved Silver (Ag)	2016/11/23		97	%	80 - 120
			Dissolved Sodium (Na)	2016/11/23		94	%	80 - 120
			Dissolved Strontium (Sr)	2016/11/23		99	%	80 - 120
			Dissolved Thallium (Tl)	2016/11/23		101	%	80 - 120
			Dissolved Tin (Sn)	2016/11/23		105	%	80 - 120
			Dissolved Titanium (Ti)	2016/11/23		100	%	80 - 120
			Dissolved Uranium (U)	2016/11/23		103	%	80 - 120
			Dissolved Vanadium (V)	2016/11/23		96	%	80 - 120
			Dissolved Zinc (Zn)	2016/11/23		97	%	80 - 120
4761063	MLB	Method Blank	Dissolved Aluminum (Al)	2016/11/23	<5.0		ug/L	
			Dissolved Antimony (Sb)	2016/11/23	<1.0		ug/L	
			Dissolved Arsenic (As)	2016/11/23	<1.0		ug/L	
			Dissolved Barium (Ba)	2016/11/23	<1.0		ug/L	
			Dissolved Beryllium (Be)	2016/11/23	<1.0		ug/L	
			Dissolved Bismuth (Bi)	2016/11/23	<2.0		ug/L	
			Dissolved Boron (B)	2016/11/23	<50		ug/L	
			Dissolved Cadmium (Cd)	2016/11/23	<0.010		ug/L	
			Dissolved Calcium (Ca)	2016/11/23	<100		ug/L	
			Dissolved Chromium (Cr)	2016/11/23	<1.0		ug/L	
			Dissolved Cobalt (Co)	2016/11/23	<0.40		ug/L	
			Dissolved Copper (Cu)	2016/11/23	<2.0		ug/L	
			Dissolved Iron (Fe)	2016/11/23	<50		ug/L	
			Dissolved Lead (Pb)	2016/11/23	<0.50		ug/L	
			Dissolved Magnesium (Mg)	2016/11/23	<100		ug/L	
			Dissolved Manganese (Mn)	2016/11/23	<2.0		ug/L	
			Dissolved Molybdenum (Mo)	2016/11/23	<2.0		ug/L	
			Dissolved Nickel (Ni)	2016/11/23	<2.0		ug/L	
			Dissolved Phosphorus (P)	2016/11/23	<100		ug/L	
			Dissolved Potassium (K)	2016/11/23	<100		ug/L	
			Dissolved Selenium (Se)	2016/11/23	<1.0		ug/L	
			Dissolved Silver (Ag)	2016/11/23	<0.10		ug/L	
			Dissolved Sodium (Na)	2016/11/23	<100		ug/L	
			Dissolved Strontium (Sr)	2016/11/23	<2.0		ug/L	
			Dissolved Thallium (Tl)	2016/11/23	<0.10		ug/L	
			Dissolved Tin (Sn)	2016/11/23	<2.0		ug/L	
			Dissolved Titanium (Ti)	2016/11/23	<2.0		ug/L	

QUALITY ASSURANCE REPORT(CONT'D)

QA/QC			Parameter	Date	Value	Recovery	UNITS	QC Limits
Batch	Init	QC Type		Analyzed				
4761063	MLB	RPD	Dissolved Uranium (U)	2016/11/23	<0.10		ug/L	
			Dissolved Vanadium (V)	2016/11/23	<2.0		ug/L	
			Dissolved Zinc (Zn)	2016/11/23	<5.0		ug/L	
			Dissolved Aluminum (Al)	2016/11/23	NC		%	20
			Dissolved Antimony (Sb)	2016/11/23	NC		%	20
			Dissolved Arsenic (As)	2016/11/23	NC		%	20
			Dissolved Barium (Ba)	2016/11/23	0.13		%	20
			Dissolved Beryllium (Be)	2016/11/23	NC		%	20
			Dissolved Bismuth (Bi)	2016/11/23	NC		%	20
			Dissolved Boron (B)	2016/11/23	NC		%	20
			Dissolved Cadmium (Cd)	2016/11/23	5.3		%	20
			Dissolved Calcium (Ca)	2016/11/23	0.81		%	20
			Dissolved Chromium (Cr)	2016/11/23	NC		%	20
			Dissolved Cobalt (Co)	2016/11/23	3.3		%	20
			Dissolved Copper (Cu)	2016/11/23	NC		%	20
			Dissolved Iron (Fe)	2016/11/23	0.15		%	20
			Dissolved Lead (Pb)	2016/11/23	NC		%	20
			Dissolved Magnesium (Mg)	2016/11/23	0.36		%	20
			Dissolved Manganese (Mn)	2016/11/23	0.26		%	20
			Dissolved Molybdenum (Mo)	2016/11/23	NC		%	20
			Dissolved Nickel (Ni)	2016/11/23	NC		%	20
			Dissolved Phosphorus (P)	2016/11/23	NC		%	20
			Dissolved Potassium (K)	2016/11/23	1.9		%	20
			Dissolved Selenium (Se)	2016/11/23	NC		%	20
			Dissolved Silver (Ag)	2016/11/23	NC		%	20
			Dissolved Sodium (Na)	2016/11/23	1.4		%	20
			Dissolved Strontium (Sr)	2016/11/23	1.6		%	20
Dissolved Thallium (Tl)	2016/11/23	NC		%	20			
Dissolved Tin (Sn)	2016/11/23	NC		%	20			
Dissolved Titanium (Ti)	2016/11/23	NC		%	20			
Dissolved Uranium (U)	2016/11/23	NC		%	20			
Dissolved Vanadium (V)	2016/11/23	NC		%	20			
Dissolved Zinc (Zn)	2016/11/23	NC		%	20			
4761078	BAN	Matrix Spike	Dissolved Aluminum (Al)	2016/11/24		101	%	80 - 120
			Dissolved Antimony (Sb)	2016/11/24		107	%	80 - 120
			Dissolved Arsenic (As)	2016/11/24		96	%	80 - 120
			Dissolved Barium (Ba)	2016/11/24		NC	%	80 - 120
			Dissolved Beryllium (Be)	2016/11/24		100	%	80 - 120
			Dissolved Bismuth (Bi)	2016/11/24		102	%	80 - 120
			Dissolved Boron (B)	2016/11/24		100	%	80 - 120
			Dissolved Cadmium (Cd)	2016/11/24		99	%	80 - 120
			Dissolved Calcium (Ca)	2016/11/24		NC	%	80 - 120
			Dissolved Chromium (Cr)	2016/11/24		95	%	80 - 120
			Dissolved Cobalt (Co)	2016/11/24		93	%	80 - 120
			Dissolved Copper (Cu)	2016/11/24		93	%	80 - 120
			Dissolved Iron (Fe)	2016/11/24		NC	%	80 - 120
			Dissolved Lead (Pb)	2016/11/24		97	%	80 - 120
			Dissolved Magnesium (Mg)	2016/11/24		NC	%	80 - 120
			Dissolved Manganese (Mn)	2016/11/24		NC	%	80 - 120
			Dissolved Molybdenum (Mo)	2016/11/24		104	%	80 - 120
Dissolved Nickel (Ni)	2016/11/24		94	%	80 - 120			
Dissolved Phosphorus (P)	2016/11/24		103	%	80 - 120			
Dissolved Potassium (K)	2016/11/24		104	%	80 - 120			

QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
4761078	BAN	Spiked Blank	Dissolved Selenium (Se)	2016/11/24		96	%	80 - 120
			Dissolved Silver (Ag)	2016/11/24		90	%	80 - 120
			Dissolved Sodium (Na)	2016/11/24		NC	%	80 - 120
			Dissolved Strontium (Sr)	2016/11/24		NC	%	80 - 120
			Dissolved Thallium (Tl)	2016/11/24		102	%	80 - 120
			Dissolved Tin (Sn)	2016/11/24		105	%	80 - 120
			Dissolved Titanium (Ti)	2016/11/24		102	%	80 - 120
			Dissolved Uranium (U)	2016/11/24		109	%	80 - 120
			Dissolved Vanadium (V)	2016/11/24		98	%	80 - 120
			Dissolved Zinc (Zn)	2016/11/24		97	%	80 - 120
			Dissolved Aluminum (Al)	2016/11/24		99	%	80 - 120
			Dissolved Antimony (Sb)	2016/11/24		102	%	80 - 120
			Dissolved Arsenic (As)	2016/11/24		95	%	80 - 120
			Dissolved Barium (Ba)	2016/11/24		97	%	80 - 120
			Dissolved Beryllium (Be)	2016/11/24		97	%	80 - 120
			Dissolved Bismuth (Bi)	2016/11/24		103	%	80 - 120
			Dissolved Boron (B)	2016/11/24		96	%	80 - 120
			Dissolved Cadmium (Cd)	2016/11/24		97	%	80 - 120
			Dissolved Calcium (Ca)	2016/11/24		100	%	80 - 120
			Dissolved Chromium (Cr)	2016/11/24		94	%	80 - 120
			Dissolved Cobalt (Co)	2016/11/24		95	%	80 - 120
			Dissolved Copper (Cu)	2016/11/24		96	%	80 - 120
			Dissolved Iron (Fe)	2016/11/24		99	%	80 - 120
			Dissolved Lead (Pb)	2016/11/24		98	%	80 - 120
			Dissolved Magnesium (Mg)	2016/11/24		100	%	80 - 120
			Dissolved Manganese (Mn)	2016/11/24		98	%	80 - 120
			Dissolved Molybdenum (Mo)	2016/11/24		102	%	80 - 120
			Dissolved Nickel (Ni)	2016/11/24		97	%	80 - 120
			Dissolved Phosphorus (P)	2016/11/24		102	%	80 - 120
			Dissolved Potassium (K)	2016/11/24		107	%	80 - 120
			Dissolved Selenium (Se)	2016/11/24		95	%	80 - 120
			Dissolved Silver (Ag)	2016/11/24		97	%	80 - 120
Dissolved Sodium (Na)	2016/11/24		95	%	80 - 120			
Dissolved Strontium (Sr)	2016/11/24		99	%	80 - 120			
Dissolved Thallium (Tl)	2016/11/24		102	%	80 - 120			
Dissolved Tin (Sn)	2016/11/24		103	%	80 - 120			
Dissolved Titanium (Ti)	2016/11/24		96	%	80 - 120			
Dissolved Uranium (U)	2016/11/24		108	%	80 - 120			
Dissolved Vanadium (V)	2016/11/24		98	%	80 - 120			
Dissolved Zinc (Zn)	2016/11/24		99	%	80 - 120			
4761078	BAN	Method Blank	Dissolved Aluminum (Al)	2016/11/24	<5.0		ug/L	
			Dissolved Antimony (Sb)	2016/11/24	<1.0		ug/L	
			Dissolved Arsenic (As)	2016/11/24	<1.0		ug/L	
			Dissolved Barium (Ba)	2016/11/24	<1.0		ug/L	
			Dissolved Beryllium (Be)	2016/11/24	<1.0		ug/L	
			Dissolved Bismuth (Bi)	2016/11/24	<2.0		ug/L	
			Dissolved Boron (B)	2016/11/24	<50		ug/L	
			Dissolved Cadmium (Cd)	2016/11/24	<0.010		ug/L	
			Dissolved Calcium (Ca)	2016/11/24	<100		ug/L	
			Dissolved Chromium (Cr)	2016/11/24	<1.0		ug/L	
			Dissolved Cobalt (Co)	2016/11/24	<0.40		ug/L	
			Dissolved Copper (Cu)	2016/11/24	<2.0		ug/L	
Dissolved Iron (Fe)	2016/11/24	<50		ug/L				

QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Dissolved Lead (Pb)	2016/11/24	<0.50		ug/L	
			Dissolved Magnesium (Mg)	2016/11/24	<100		ug/L	
			Dissolved Manganese (Mn)	2016/11/24	<2.0		ug/L	
			Dissolved Molybdenum (Mo)	2016/11/24	<2.0		ug/L	
			Dissolved Nickel (Ni)	2016/11/24	<2.0		ug/L	
			Dissolved Phosphorus (P)	2016/11/24	<100		ug/L	
			Dissolved Potassium (K)	2016/11/24	<100		ug/L	
			Dissolved Selenium (Se)	2016/11/24	<1.0		ug/L	
			Dissolved Silver (Ag)	2016/11/24	<0.10		ug/L	
			Dissolved Sodium (Na)	2016/11/24	<100		ug/L	
			Dissolved Strontium (Sr)	2016/11/24	<2.0		ug/L	
			Dissolved Thallium (Tl)	2016/11/24	<0.10		ug/L	
			Dissolved Tin (Sn)	2016/11/24	<2.0		ug/L	
			Dissolved Titanium (Ti)	2016/11/24	<2.0		ug/L	
			Dissolved Uranium (U)	2016/11/24	<0.10		ug/L	
			Dissolved Vanadium (V)	2016/11/24	<2.0		ug/L	
			Dissolved Zinc (Zn)	2016/11/24	<5.0		ug/L	
4761078	BAN	RPD	Dissolved Aluminum (Al)	2016/11/24	NC		%	20
			Dissolved Antimony (Sb)	2016/11/24	NC		%	20
			Dissolved Arsenic (As)	2016/11/24	0.043		%	20
			Dissolved Barium (Ba)	2016/11/24	0.45		%	20
			Dissolved Beryllium (Be)	2016/11/24	NC		%	20
			Dissolved Bismuth (Bi)	2016/11/24	NC		%	20
			Dissolved Boron (B)	2016/11/24	NC		%	20
			Dissolved Cadmium (Cd)	2016/11/24	NC		%	20
			Dissolved Calcium (Ca)	2016/11/24	0.63		%	20
			Dissolved Chromium (Cr)	2016/11/24	NC		%	20
			Dissolved Cobalt (Co)	2016/11/24	NC		%	20
			Dissolved Copper (Cu)	2016/11/24	NC		%	20
			Dissolved Iron (Fe)	2016/11/24	0.92		%	20
			Dissolved Lead (Pb)	2016/11/24	NC		%	20
			Dissolved Magnesium (Mg)	2016/11/24	1.5		%	20
			Dissolved Manganese (Mn)	2016/11/24	1.6		%	20
			Dissolved Molybdenum (Mo)	2016/11/24	NC		%	20
			Dissolved Nickel (Ni)	2016/11/24	NC		%	20
			Dissolved Phosphorus (P)	2016/11/24	NC		%	20
			Dissolved Potassium (K)	2016/11/24	0.77		%	20
			Dissolved Selenium (Se)	2016/11/24	NC		%	20
			Dissolved Silver (Ag)	2016/11/24	NC		%	20
			Dissolved Sodium (Na)	2016/11/24	0.28		%	20
			Dissolved Strontium (Sr)	2016/11/24	1.2		%	20
			Dissolved Thallium (Tl)	2016/11/24	NC		%	20
			Dissolved Tin (Sn)	2016/11/24	NC		%	20
			Dissolved Titanium (Ti)	2016/11/24	NC		%	20
			Dissolved Uranium (U)	2016/11/24	NC		%	20
			Dissolved Vanadium (V)	2016/11/24	NC		%	20
			Dissolved Zinc (Zn)	2016/11/24	NC		%	20
4761085	BAN	Matrix Spike [DLY930-04]	Dissolved Aluminum (Al)	2016/11/25		100	%	80 - 120
			Dissolved Antimony (Sb)	2016/11/25		97	%	80 - 120
			Dissolved Arsenic (As)	2016/11/25		88	%	80 - 120
			Dissolved Barium (Ba)	2016/11/25		NC	%	80 - 120
			Dissolved Beryllium (Be)	2016/11/25		100	%	80 - 120
			Dissolved Bismuth (Bi)	2016/11/25		82	%	80 - 120

QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Dissolved Boron (B)	2016/11/25		98	%	80 - 120
			Dissolved Cadmium (Cd)	2016/11/25		98	%	80 - 120
			Dissolved Calcium (Ca)	2016/11/25		NC	%	80 - 120
			Dissolved Chromium (Cr)	2016/11/25		97	%	80 - 120
			Dissolved Cobalt (Co)	2016/11/25		93	%	80 - 120
			Dissolved Copper (Cu)	2016/11/25		83	%	80 - 120
			Dissolved Iron (Fe)	2016/11/25		97	%	80 - 120
			Dissolved Lead (Pb)	2016/11/25		95	%	80 - 120
			Dissolved Magnesium (Mg)	2016/11/25		98	%	80 - 120
			Dissolved Manganese (Mn)	2016/11/25		96	%	80 - 120
			Dissolved Molybdenum (Mo)	2016/11/25		92	%	80 - 120
			Dissolved Nickel (Ni)	2016/11/25		94	%	80 - 120
			Dissolved Phosphorus (P)	2016/11/25		101	%	80 - 120
			Dissolved Potassium (K)	2016/11/25		NC	%	80 - 120
			Dissolved Selenium (Se)	2016/11/25		52 (2)	%	80 - 120
			Dissolved Silver (Ag)	2016/11/25		54 (2)	%	80 - 120
			Dissolved Sodium (Na)	2016/11/25		NC	%	80 - 120
			Dissolved Strontium (Sr)	2016/11/25		NC	%	80 - 120
			Dissolved Thallium (Tl)	2016/11/25		100	%	80 - 120
			Dissolved Tin (Sn)	2016/11/25		100	%	80 - 120
			Dissolved Titanium (Ti)	2016/11/25		99	%	80 - 120
			Dissolved Uranium (U)	2016/11/25		108	%	80 - 120
			Dissolved Vanadium (V)	2016/11/25		98	%	80 - 120
			Dissolved Zinc (Zn)	2016/11/25		95	%	80 - 120
4761085	BAN	Spiked Blank	Dissolved Aluminum (Al)	2016/11/24		99	%	80 - 120
			Dissolved Antimony (Sb)	2016/11/24		102	%	80 - 120
			Dissolved Arsenic (As)	2016/11/24		94	%	80 - 120
			Dissolved Barium (Ba)	2016/11/24		97	%	80 - 120
			Dissolved Beryllium (Be)	2016/11/24		98	%	80 - 120
			Dissolved Bismuth (Bi)	2016/11/24		103	%	80 - 120
			Dissolved Boron (B)	2016/11/24		98	%	80 - 120
			Dissolved Cadmium (Cd)	2016/11/24		97	%	80 - 120
			Dissolved Calcium (Ca)	2016/11/24		100	%	80 - 120
			Dissolved Chromium (Cr)	2016/11/24		97	%	80 - 120
			Dissolved Cobalt (Co)	2016/11/24		95	%	80 - 120
			Dissolved Copper (Cu)	2016/11/24		94	%	80 - 120
			Dissolved Iron (Fe)	2016/11/24		100	%	80 - 120
			Dissolved Lead (Pb)	2016/11/24		97	%	80 - 120
			Dissolved Magnesium (Mg)	2016/11/24		100	%	80 - 120
			Dissolved Manganese (Mn)	2016/11/24		97	%	80 - 120
			Dissolved Molybdenum (Mo)	2016/11/24		101	%	80 - 120
			Dissolved Nickel (Ni)	2016/11/24		97	%	80 - 120
			Dissolved Phosphorus (P)	2016/11/24		101	%	80 - 120
			Dissolved Potassium (K)	2016/11/24		107	%	80 - 120
			Dissolved Selenium (Se)	2016/11/24		94	%	80 - 120
			Dissolved Silver (Ag)	2016/11/24		98	%	80 - 120
			Dissolved Sodium (Na)	2016/11/24		95	%	80 - 120
			Dissolved Strontium (Sr)	2016/11/24		98	%	80 - 120
			Dissolved Thallium (Tl)	2016/11/24		101	%	80 - 120
			Dissolved Tin (Sn)	2016/11/24		103	%	80 - 120
			Dissolved Titanium (Ti)	2016/11/24		97	%	80 - 120
			Dissolved Uranium (U)	2016/11/24		106	%	80 - 120
			Dissolved Vanadium (V)	2016/11/24		96	%	80 - 120

QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
4761085	BAN	Method Blank	Dissolved Zinc (Zn)	2016/11/24		100	%	80 - 120
			Dissolved Aluminum (Al)	2016/11/24	<5.0		ug/L	
			Dissolved Antimony (Sb)	2016/11/24	<1.0		ug/L	
			Dissolved Arsenic (As)	2016/11/24	<1.0		ug/L	
			Dissolved Barium (Ba)	2016/11/24	<1.0		ug/L	
			Dissolved Beryllium (Be)	2016/11/24	<1.0		ug/L	
			Dissolved Bismuth (Bi)	2016/11/24	<2.0		ug/L	
			Dissolved Boron (B)	2016/11/24	<50		ug/L	
			Dissolved Cadmium (Cd)	2016/11/24	<0.010		ug/L	
			Dissolved Calcium (Ca)	2016/11/24	<100		ug/L	
			Dissolved Chromium (Cr)	2016/11/24	<1.0		ug/L	
			Dissolved Cobalt (Co)	2016/11/24	<0.40		ug/L	
			Dissolved Copper (Cu)	2016/11/24	<2.0		ug/L	
			Dissolved Iron (Fe)	2016/11/24	<50		ug/L	
			Dissolved Lead (Pb)	2016/11/24	<0.50		ug/L	
			Dissolved Magnesium (Mg)	2016/11/24	<100		ug/L	
			Dissolved Manganese (Mn)	2016/11/24	<2.0		ug/L	
			Dissolved Molybdenum (Mo)	2016/11/24	<2.0		ug/L	
			Dissolved Nickel (Ni)	2016/11/24	<2.0		ug/L	
			Dissolved Phosphorus (P)	2016/11/24	<100		ug/L	
			Dissolved Potassium (K)	2016/11/24	<100		ug/L	
			Dissolved Selenium (Se)	2016/11/24	<1.0		ug/L	
			Dissolved Silver (Ag)	2016/11/24	<0.10		ug/L	
			Dissolved Sodium (Na)	2016/11/24	<100		ug/L	
			Dissolved Strontium (Sr)	2016/11/24	<2.0		ug/L	
			Dissolved Thallium (Tl)	2016/11/24	<0.10		ug/L	
			Dissolved Tin (Sn)	2016/11/24	<2.0		ug/L	
			Dissolved Titanium (Ti)	2016/11/24	<2.0		ug/L	
Dissolved Uranium (U)	2016/11/24	<0.10		ug/L				
Dissolved Vanadium (V)	2016/11/24	<2.0		ug/L				
4761085	BAN	RPD [DLY930-04]	Dissolved Zinc (Zn)	2016/11/24	<5.0		ug/L	
			Dissolved Aluminum (Al)	2016/11/24	NC		%	20
			Dissolved Antimony (Sb)	2016/11/24	NC		%	20
			Dissolved Arsenic (As)	2016/11/24	NC		%	20
			Dissolved Barium (Ba)	2016/11/24	1.6		%	20
			Dissolved Beryllium (Be)	2016/11/24	NC		%	20
			Dissolved Bismuth (Bi)	2016/11/24	NC		%	20
			Dissolved Boron (B)	2016/11/24	NC		%	20
			Dissolved Cadmium (Cd)	2016/11/24	NC		%	20
			Dissolved Calcium (Ca)	2016/11/24	0.31		%	20
			Dissolved Chromium (Cr)	2016/11/24	NC		%	20
			Dissolved Cobalt (Co)	2016/11/24	NC		%	20
			Dissolved Copper (Cu)	2016/11/24	NC		%	20
			Dissolved Iron (Fe)	2016/11/24	NC		%	20
			Dissolved Lead (Pb)	2016/11/24	NC		%	20
			Dissolved Magnesium (Mg)	2016/11/24	NC		%	20
			Dissolved Manganese (Mn)	2016/11/24	NC		%	20
			Dissolved Molybdenum (Mo)	2016/11/24	NC		%	20
			Dissolved Nickel (Ni)	2016/11/24	NC		%	20
			Dissolved Phosphorus (P)	2016/11/24	NC		%	20
			Dissolved Potassium (K)	2016/11/24	1.2		%	20
			Dissolved Selenium (Se)	2016/11/24	7.7		%	20
			Dissolved Silver (Ag)	2016/11/24	NC		%	20

QUALITY ASSURANCE REPORT(CONT'D)

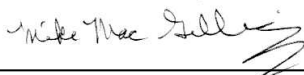
QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Dissolved Sodium (Na)	2016/11/24	1.0		%	20
			Dissolved Strontium (Sr)	2016/11/24	0.62		%	20
			Dissolved Thallium (Tl)	2016/11/24	NC		%	20
			Dissolved Tin (Sn)	2016/11/24	NC		%	20
			Dissolved Titanium (Ti)	2016/11/24	NC		%	20
			Dissolved Uranium (U)	2016/11/24	NC		%	20
			Dissolved Vanadium (V)	2016/11/24	NC		%	20
			Dissolved Zinc (Zn)	2016/11/24	NC		%	20
4761116	KBK	Matrix Spike	Isobutylbenzene - Extractable	2016/11/23		115	%	30 - 130
			n-Dotriacontane - Extractable	2016/11/23		116	%	30 - 130
			>C10-C16 Hydrocarbons	2016/11/23		104	%	70 - 130
			>C16-C21 Hydrocarbons	2016/11/23		96	%	70 - 130
			>C21-<C32 Hydrocarbons	2016/11/23		96	%	70 - 130
4761116	KBK	Spiked Blank	Isobutylbenzene - Extractable	2016/11/23		108	%	30 - 130
			n-Dotriacontane - Extractable	2016/11/23		121	%	30 - 130
			>C10-C16 Hydrocarbons	2016/11/23		102	%	70 - 130
			>C16-C21 Hydrocarbons	2016/11/23		95	%	70 - 130
			>C21-<C32 Hydrocarbons	2016/11/23		102	%	70 - 130
4761116	KBK	Method Blank	Isobutylbenzene - Extractable	2016/11/23		108	%	30 - 130
			n-Dotriacontane - Extractable	2016/11/23		127	%	30 - 130
			>C10-C16 Hydrocarbons	2016/11/23	<0.050		mg/L	
			>C16-C21 Hydrocarbons	2016/11/23	<0.050		mg/L	
			>C21-<C32 Hydrocarbons	2016/11/23	<0.10		mg/L	
4761116	KBK	RPD	>C10-C16 Hydrocarbons	2016/11/23	NC		%	40
			>C16-C21 Hydrocarbons	2016/11/23	NC		%	40
			>C21-<C32 Hydrocarbons	2016/11/23	NC		%	40
4761462	ARS	Matrix Spike [DLY931-05]	Total Mercury (Hg)	2016/11/24		93	%	80 - 120
4761462	ARS	Spiked Blank	Total Mercury (Hg)	2016/11/24		93	%	80 - 120
4761462	ARS	Method Blank	Total Mercury (Hg)	2016/11/24	<0.013		ug/L	
4761462	ARS	RPD [DLY930-05]	Total Mercury (Hg)	2016/11/24	NC		%	20
4762728	ASL	Matrix Spike [DLY931-03]	Isobutylbenzene - Volatile	2016/11/25		101	%	70 - 130
			Benzene	2016/11/25		NC	%	70 - 130
			Toluene	2016/11/25		118	%	70 - 130
			Ethylbenzene	2016/11/25		113	%	70 - 130
			Total Xylenes	2016/11/25		117	%	70 - 130
4762728	ASL	Spiked Blank	Isobutylbenzene - Volatile	2016/11/25		99	%	70 - 130
			Benzene	2016/11/25		94	%	70 - 130
			Toluene	2016/11/25		103	%	70 - 130
			Ethylbenzene	2016/11/25		106	%	70 - 130
			Total Xylenes	2016/11/25		106	%	70 - 130
4762728	ASL	Method Blank	Isobutylbenzene - Volatile	2016/11/25		95	%	70 - 130
			Benzene	2016/11/25	<0.0010		mg/L	
			Toluene	2016/11/25	<0.0010		mg/L	
			Ethylbenzene	2016/11/25	<0.0010		mg/L	
			Total Xylenes	2016/11/25	<0.0020		mg/L	
			C6 - C10 (less BTEX)	2016/11/25	<0.010		mg/L	
4762728	ASL	RPD [DLY930-03]	Benzene	2016/11/25	5.2		%	40
			Toluene	2016/11/25	14		%	40
			Ethylbenzene	2016/11/25	NC		%	40
			Total Xylenes	2016/11/25	NC		%	40

QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			C6 - C10 (less BTEX)	2016/11/25	NC		%	40
<p>Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.</p> <p>Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.</p> <p>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.</p> <p>Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.</p> <p>Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.</p> <p>NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spiked amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than 2x that of the native sample concentration).</p> <p>NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (one or both samples < 5x RDL).</p> <p>(1) Elevated PAH RDL(s) due to sample dilution.</p> <p>(2) Low recovery due to sample matrix. Recovery confirmed with repeat analysis.</p>								

VALIDATION SIGNATURE PAGE

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



Mike MacGillivray, Scientific Specialist (Inorganics)



Rosemarie MacDonald, Scientific Specialist (Organics)

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

Your Project #: 4104251070
 Site Location: HARBOURSIDE COMMERCIAL PARK
 Your C.O.C. #: 585517

Attention:Nadine Wambolt

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

Report Date: 2016/11/28
 Report #: R4266444
 Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B6P2570

Received: 2016/11/18, 16:28

Sample Matrix: Water
 # Samples Received: 8

Analyses	Quantity	Date		Laboratory Method	Reference
		Extracted	Analyzed		
TEH in Water (PIRI) (1)	2	2016/11/23	2016/11/23	ATL SOP 00113	Atl. RBCA v3 m
TEH in Water (PIRI) (1)	6	2016/11/23	2016/11/24	ATL SOP 00113	Atl. RBCA v3 m
Mercury - Total (CVAA,LL) (1)	7	2016/11/23	2016/11/24	ATL SOP 00026	EPA 245.1 R3 m
Metals Water Diss. MS (as rec'd) (1)	7	N/A	2016/11/24	ATL SOP 00058	EPA 6020A R1 m
PAH in Water by GC/MS (SIM) (1)	3	2016/11/23	2016/11/25	ATL SOP 00103	EPA 8270D 2007 m
PAH in Water by GC/MS (SIM) (1)	2	2016/11/24	2016/11/26	ATL SOP 00103	EPA 8270D 2007 m
PAH in Water by GC/MS (SIM) (1)	2	2016/11/24	2016/11/28	ATL SOP 00103	EPA 8270D 2007 m
VPH in Water (PIRI) (1)	7	N/A	2016/11/25	ATL SOP 00118	Atl. RBCA v3 m
VPH in Water (PIRI) (1)	1	N/A	2016/11/28	ATL SOP 00118	Atl. RBCA v3 m
ModTPH (T1) Calc. for Water (1)	8	N/A	2016/11/28	N/A	Atl. RBCA v3 m

Remarks:

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

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

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

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

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

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

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

(1) This test was performed by Maxxam Bedford

Your Project #: 4104251070
Site Location: HARBOURSIDE COMMERCIAL PARK
Your C.O.C. #: 585517

Attention:Nadine Wambolt

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

Report Date: 2016/11/28
Report #: R4266444
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B6P2570
Received: 2016/11/18, 16:28

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Candace Hillier, CI Svc - Sydney
Email: chillier@maxxam.ca
Phone# (902) 567 1255

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

MERCURY BY COLD VAPOUR AA (WATER)

Maxxam ID		DMG142	DMG143	DMG144	DMG145	DMG146		
Sampling Date		2016/11/18	2016/11/18	2016/11/18	2016/11/18	2016/11/18		
COC Number		585517	585517	585517	585517	585517		
	UNITS	SCU19-002-MWA	SCU19-002-MWB	SCU19-015-MW	SCU18-011-MW	SCU10-001-MW	RDL	QC Batch

Metals								
Total Mercury (Hg)	ug/L	<0.013	0.015	<0.013	<0.013	<0.013	0.013	4761475

RDL = Reportable Detection Limit

QC Batch = Quality Control Batch

Maxxam ID		DMG147	DMG148		
Sampling Date		2016/11/18	2016/11/18		
COC Number		585517	585517		
	UNITS	SCU10-004-MW	FD-018	RDL	QC Batch

Metals					
Total Mercury (Hg)	ug/L	0.013	<0.013	0.013	4761475

RDL = Reportable Detection Limit

QC Batch = Quality Control Batch

ELEMENTS BY ICP/MS (WATER)

Maxxam ID		DMG142		DMG143	DMG144		DMG145		
Sampling Date		2016/11/18		2016/11/18	2016/11/18		2016/11/18		
COC Number		585517		585517	585517		585517		
	UNITS	SCU19-002-MWA	RDL	SCU19-002-MWB	SCU19-015-MW	RDL	SCU18-011-MW	RDL	QC Batch
Metals									
Dissolved Aluminum (Al)	ug/L	<50	50	27	26	5.0	9.7	5.0	4761088
Dissolved Antimony (Sb)	ug/L	<10	10	<1.0	<1.0	1.0	<1.0	1.0	4761088
Dissolved Arsenic (As)	ug/L	<10	10	1.1	1.2	1.0	<1.0	1.0	4761088
Dissolved Barium (Ba)	ug/L	68	10	46	46	1.0	47	1.0	4761088
Dissolved Beryllium (Be)	ug/L	<10	10	<1.0	<1.0	1.0	<1.0	1.0	4761088
Dissolved Bismuth (Bi)	ug/L	<20	20	<2.0	<2.0	2.0	<2.0	2.0	4761088
Dissolved Boron (B)	ug/L	<500	500	350	360	50	200	50	4761088
Dissolved Cadmium (Cd)	ug/L	<0.10	0.10	<0.010	<0.010	0.010	<0.010	0.010	4761088
Dissolved Calcium (Ca)	ug/L	1700000	1000	380000	380000	100	170000	100	4761088
Dissolved Chromium (Cr)	ug/L	<10	10	<1.0	<1.0	1.0	<1.0	1.0	4761088
Dissolved Cobalt (Co)	ug/L	<4.0	4.0	<0.40	<0.40	0.40	<0.40	0.40	4761088
Dissolved Copper (Cu)	ug/L	<20	20	<2.0	<2.0	2.0	<2.0	2.0	4761088
Dissolved Iron (Fe)	ug/L	2200	500	390	440	50	<50	50	4761088
Dissolved Lead (Pb)	ug/L	<5.0	5.0	<0.50	<0.50	0.50	0.63	0.50	4761088
Dissolved Magnesium (Mg)	ug/L	170000	1000	66000	68000	100	24000	100	4761088
Dissolved Manganese (Mn)	ug/L	550	20	66	70	2.0	230	2.0	4761088
Dissolved Molybdenum (Mo)	ug/L	<20	20	8.2	7.6	2.0	<2.0	2.0	4761088
Dissolved Nickel (Ni)	ug/L	<20	20	<2.0	<2.0	2.0	<2.0	2.0	4761088
Dissolved Phosphorus (P)	ug/L	<1000	1000	<100	<100	100	<100	100	4761088
Dissolved Potassium (K)	ug/L	23000	1000	20000	20000	100	13000	100	4761088
Dissolved Selenium (Se)	ug/L	<10	10	<1.0	<1.0	1.0	<1.0	1.0	4761088
Dissolved Silver (Ag)	ug/L	<1.0	1.0	<0.10	<0.10	0.10	<0.10	0.10	4761088
Dissolved Sodium (Na)	ug/L	250000	1000	410000	410000	100	20000	100	4761088
Dissolved Strontium (Sr)	ug/L	160000	200	20000	20000	20	660	2.0	4761088
Dissolved Thallium (Tl)	ug/L	<1.0	1.0	<0.10	<0.10	0.10	<0.10	0.10	4761088
Dissolved Tin (Sn)	ug/L	<20	20	<2.0	<2.0	2.0	<2.0	2.0	4761088
Dissolved Titanium (Ti)	ug/L	<20	20	<2.0	<2.0	2.0	<2.0	2.0	4761088
Dissolved Uranium (U)	ug/L	1.1	1.0	0.42	0.47	0.10	0.68	0.10	4761088
Dissolved Vanadium (V)	ug/L	<20	20	<2.0	<2.0	2.0	<2.0	2.0	4761088
Dissolved Zinc (Zn)	ug/L	<50	50	<5.0	<5.0	5.0	<5.0	5.0	4761088
RDL = Reportable Detection Limit									
QC Batch = Quality Control Batch									

ELEMENTS BY ICP/MS (WATER)

Maxxam ID		DMG146	DMG147		DMG148		
Sampling Date		2016/11/18	2016/11/18		2016/11/18		
COC Number		585517	585517		585517		
	UNITS	SCU10-001-MW	SCU10-004-MW	RDL	FD-018	RDL	QC Batch
Metals							
Dissolved Aluminum (Al)	ug/L	6.8	17	5.0	<50	50	4761088
Dissolved Antimony (Sb)	ug/L	<1.0	<1.0	1.0	<10	10	4761088
Dissolved Arsenic (As)	ug/L	<1.0	9.8	1.0	<10	10	4761088
Dissolved Barium (Ba)	ug/L	4.7	55	1.0	66	10	4761088
Dissolved Beryllium (Be)	ug/L	<1.0	<1.0	1.0	<10	10	4761088
Dissolved Bismuth (Bi)	ug/L	<2.0	<2.0	2.0	<20	20	4761088
Dissolved Boron (B)	ug/L	99	66	50	<500	500	4761088
Dissolved Cadmium (Cd)	ug/L	0.031	<0.010	0.010	<0.10	0.10	4761088
Dissolved Calcium (Ca)	ug/L	72000	95000	100	1700000	1000	4761088
Dissolved Chromium (Cr)	ug/L	<1.0	<1.0	1.0	<10	10	4761088
Dissolved Cobalt (Co)	ug/L	<0.40	<0.40	0.40	<4.0	4.0	4761088
Dissolved Copper (Cu)	ug/L	<2.0	<2.0	2.0	<20	20	4761088
Dissolved Iron (Fe)	ug/L	<50	160	50	2200	500	4761088
Dissolved Lead (Pb)	ug/L	<0.50	<0.50	0.50	<5.0	5.0	4761088
Dissolved Magnesium (Mg)	ug/L	8000	3600	100	180000	1000	4761088
Dissolved Manganese (Mn)	ug/L	370	93	2.0	550	20	4761088
Dissolved Molybdenum (Mo)	ug/L	<2.0	3.2	2.0	<20	20	4761088
Dissolved Nickel (Ni)	ug/L	<2.0	<2.0	2.0	<20	20	4761088
Dissolved Phosphorus (P)	ug/L	<100	190	100	<1000	1000	4761088
Dissolved Potassium (K)	ug/L	4600	11000	100	22000	1000	4761088
Dissolved Selenium (Se)	ug/L	<1.0	1.7	1.0	<10	10	4761088
Dissolved Silver (Ag)	ug/L	<0.10	<0.10	0.10	<1.0	1.0	4761088
Dissolved Sodium (Na)	ug/L	44000	110000	100	250000	1000	4761088
Dissolved Strontium (Sr)	ug/L	360	460	2.0	160000	200	4761088
Dissolved Thallium (Tl)	ug/L	<0.10	<0.10	0.10	<1.0	1.0	4761088
Dissolved Tin (Sn)	ug/L	<2.0	<2.0	2.0	<20	20	4761088
Dissolved Titanium (Ti)	ug/L	<2.0	<2.0	2.0	<20	20	4761088
Dissolved Uranium (U)	ug/L	1.2	0.60	0.10	1.2	1.0	4761088
Dissolved Vanadium (V)	ug/L	<2.0	7.7	2.0	<20	20	4761088
Dissolved Zinc (Zn)	ug/L	<5.0	<5.0	5.0	<50	50	4761088
RDL = Reportable Detection Limit							
QC Batch = Quality Control Batch							

SEMI-VOLATILE ORGANICS BY GC-MS (WATER)

Maxxam ID		DMG142	DMG143	DMG144			DMG145		
Sampling Date		2016/11/18	2016/11/18	2016/11/18			2016/11/18		
COC Number		585517	585517	585517			585517		
	UNITS	SCU19-002-MWA	SCU19-002-MWB	SCU19-015-MW	RDL	QC Batch	SCU18-011-MW	RDL	QC Batch
Polyaromatic Hydrocarbons									
1-Methylnaphthalene	ug/L	<0.050	0.28	0.26	0.050	4760731	<0.050	0.050	4762763
2-Methylnaphthalene	ug/L	<0.050	0.072	0.066	0.050	4760731	<0.050	0.050	4762763
Acenaphthene	ug/L	<0.010	0.26	0.25	0.010	4760731	0.46	0.010	4762763
Acenaphthylene	ug/L	<0.010	0.083	0.072	0.010	4760731	<0.014 (1)	0.014	4762763
Anthracene	ug/L	<0.010	0.087	0.064	0.010	4760731	<0.071 (1)	0.071	4762763
Benzo(a)anthracene	ug/L	<0.010	0.16	0.11	0.010	4760731	0.033	0.010	4762763
Benzo(a)pyrene	ug/L	<0.010	0.11	0.077	0.010	4760731	<0.010	0.010	4762763
Benzo(b)fluoranthene	ug/L	<0.010	0.090	0.063	0.010	4760731	<0.010	0.010	4762763
Benzo(g,h,i)perylene	ug/L	<0.010	0.069	0.047	0.010	4760731	<0.010	0.010	4762763
Benzo(j)fluoranthene	ug/L	<0.010	0.061	0.041	0.010	4760731	<0.010	0.010	4762763
Benzo(k)fluoranthene	ug/L	<0.010	0.057	0.038	0.010	4760731	<0.010	0.010	4762763
Chrysene	ug/L	<0.010	0.15	0.10	0.010	4760731	0.037	0.010	4762763
Dibenz(a,h)anthracene	ug/L	<0.010	0.021	0.012	0.010	4760731	<0.010	0.010	4762763
Fluoranthene	ug/L	0.027	0.35	0.24	0.010	4760731	0.71	0.010	4762763
Fluorene	ug/L	<0.010	0.24	0.22	0.010	4760731	0.039	0.010	4762763
Indeno(1,2,3-cd)pyrene	ug/L	<0.010	0.060	0.047	0.010	4760731	<0.010	0.010	4762763
Naphthalene	ug/L	<0.20	<0.20	0.23	0.20	4760731	<0.20	0.20	4762763
Perylene	ug/L	<0.010	0.027	0.016	0.010	4760731	<0.010	0.010	4762763
Phenanthrene	ug/L	0.019	0.32	0.23	0.010	4760731	<0.010	0.010	4762763
Pyrene	ug/L	0.019	0.27	0.18	0.010	4760731	0.47	0.010	4762763
Surrogate Recovery (%)									
D10-Anthracene	%	89	99	90		4760731	77		4762763
D14-Terphenyl	%	92	110	102		4760731	105		4762763
D8-Acenaphthylene	%	78	95	90		4760731	95		4762763
RDL = Reportable Detection Limit QC Batch = Quality Control Batch (1) Elevated PAH RDL(s) due to matrix / co-extractive interference.									

SEMI-VOLATILE ORGANICS BY GC-MS (WATER)

Maxxam ID		DMG146		DMG147		DMG148		
Sampling Date		2016/11/18		2016/11/18		2016/11/18		
COC Number		585517		585517		585517		
	UNITS	SCU10-001-MW	RDL	SCU10-004-MW	RDL	FD-018	RDL	QC Batch
Polyaromatic Hydrocarbons								
1-Methylnaphthalene	ug/L	<0.050	0.050	320	5.0	<0.050	0.050	4762763
2-Methylnaphthalene	ug/L	<0.050	0.050	540	5.0	<0.050	0.050	4762763
Acenaphthene	ug/L	<0.010	0.010	150	1.0	<0.010	0.010	4762763
Acenaphthylene	ug/L	<0.010	0.010	28	1.0	<0.010	0.010	4762763
Anthracene	ug/L	<0.010	0.010	18	1.0	<0.010	0.010	4762763
Benzo(a)anthracene	ug/L	<0.010	0.010	2.8	1.0	0.012	0.010	4762763
Benzo(a)pyrene	ug/L	<0.010	0.010	<1.0	1.0	<0.010	0.010	4762763
Benzo(b)fluoranthene	ug/L	<0.010	0.010	<1.0	1.0	<0.010	0.010	4762763
Benzo(g,h,i)perylene	ug/L	<0.010	0.010	<1.0	1.0	<0.010	0.010	4762763
Benzo(j)fluoranthene	ug/L	<0.010	0.010	<1.0	1.0	<0.010	0.010	4762763
Benzo(k)fluoranthene	ug/L	<0.010	0.010	<1.0	1.0	<0.010	0.010	4762763
Chrysene	ug/L	<0.010	0.010	2.1	1.0	0.011	0.010	4762763
Dibenz(a,h)anthracene	ug/L	<0.010	0.010	<1.0	1.0	<0.010	0.010	4762763
Fluoranthene	ug/L	0.013	0.010	16	1.0	0.027	0.010	4762763
Fluorene	ug/L	<0.010	0.010	95	1.0	<0.010	0.010	4762763
Indeno(1,2,3-cd)pyrene	ug/L	<0.010	0.010	<1.0	1.0	<0.010	0.010	4762763
Naphthalene	ug/L	<0.20	0.20	3800	20	<0.20	0.20	4762763
Perylene	ug/L	<0.010	0.010	<1.0	1.0	<0.010	0.010	4762763
Phenanthrene	ug/L	<0.010	0.010	76	1.0	0.024	0.010	4762763
Pyrene	ug/L	<0.010	0.010	10	1.0	0.025	0.010	4762763
Surrogate Recovery (%)								
D10-Anthracene	%	124		196 (1)		102		4762763
D14-Terphenyl	%	131 (2)		59 (3)		96		4762763
D8-Acenaphthylene	%	137 (2)		76		78		4762763
RDL = Reportable Detection Limit QC Batch = Quality Control Batch (1) PAH surrogate(s) not within acceptance limits due to sample dilution / product interference. (2) PAH surrogate(s) not within acceptance limits. Insufficient sample to repeat. (3) Elevated PAH RDL(s) due to sample dilution.								

ATLANTIC RBCA HYDROCARBONS (WATER)

Maxxam ID		DMG142	DMG143	DMG144		DMG145		
Sampling Date		2016/11/18	2016/11/18	2016/11/18		2016/11/18		
COC Number		585517	585517	585517		585517		
	UNITS	SCU19-002-MWA	SCU19-002-MWB	SCU19-015-MW	QC Batch	SCU18-011-MW	RDL	QC Batch
Petroleum Hydrocarbons								
Benzene	mg/L	<0.0010	<0.0010	<0.0010	4763232	<0.0010	0.0010	4763232
Toluene	mg/L	<0.0010	<0.0010	<0.0010	4763232	<0.0010	0.0010	4763232
Ethylbenzene	mg/L	<0.0010	<0.0010	<0.0010	4763232	<0.0010	0.0010	4763232
Total Xylenes	mg/L	<0.0020	<0.0020	<0.0020	4763232	<0.0020	0.0020	4763232
C6 - C10 (less BTEX)	mg/L	<0.010	<0.010	<0.010	4763232	<0.010	0.010	4763232
>C10-C16 Hydrocarbons	mg/L	<0.050	<0.050	<0.050	4761117	0.14	0.050	4761098
>C16-C21 Hydrocarbons	mg/L	<0.050	<0.050	<0.050	4761117	0.12	0.050	4761098
>C21-<C32 Hydrocarbons	mg/L	<0.10	<0.10	<0.10	4761117	0.10	0.10	4761098
Modified TPH (Tier1)	mg/L	<0.10	<0.10	<0.10	4757274	0.35	0.10	4757274
Reached Baseline at C32	mg/L	NA	NA	NA	4761117	Yes	N/A	4761098
Hydrocarbon Resemblance	mg/L	NA	NA	NA	4761117	COMMENT (1)	N/A	4761098
Surrogate Recovery (%)								
Isobutylbenzene - Extractable	%	99	95	101	4761117	105		4761098
n-Dotriacontane - Extractable	%	94	94	94	4761117	125		4761098
Isobutylbenzene - Volatile	%	99	100	102	4763232	101		4763232
RDL = Reportable Detection Limit QC Batch = Quality Control Batch N/A = Not Applicable (1) Weathered fuel oil fraction.								

ATLANTIC RBCA HYDROCARBONS (WATER)

Maxxam ID		DMG146			DMG147			DMG148		
Sampling Date		2016/11/18			2016/11/18			2016/11/18		
COC Number		585517			585517			585517		
	UNITS	SCU10-001-MW	RDL	QC Batch	SCU10-004-MW	RDL	FD-018	RDL	QC Batch	
Petroleum Hydrocarbons										
Benzene	mg/L	<0.0010	0.0010	4763232	0.27	0.010	<0.0010	0.0010	4763232	
Toluene	mg/L	<0.0010	0.0010	4763232	0.30	0.010	<0.0010	0.0010	4763232	
Ethylbenzene	mg/L	<0.0010	0.0010	4763232	0.15	0.010	<0.0010	0.0010	4763232	
Total Xylenes	mg/L	<0.0020	0.0020	4763232	0.81	0.020	<0.0020	0.0020	4763232	
C6 - C10 (less BTEX)	mg/L	0.022	0.010	4763232	1.0	0.10	<0.010	0.010	4763232	
>C10-C16 Hydrocarbons	mg/L	<0.050	0.050	4761098	15	0.050	<0.050	0.050	4761117	
>C16-C21 Hydrocarbons	mg/L	<0.050	0.050	4761098	0.64	0.050	<0.050	0.050	4761117	
>C21-<C32 Hydrocarbons	mg/L	<0.10	0.10	4761098	0.19	0.10	<0.10	0.10	4761117	
Modified TPH (Tier1)	mg/L	<0.10	0.10	4757274	17	0.10	<0.10	0.10	4757274	
Reached Baseline at C32	mg/L	NA	N/A	4761098	Yes	N/A	NA	N/A	4761117	
Hydrocarbon Resemblance	mg/L	NA	N/A	4761098	COMMENT (1)	N/A	NA	N/A	4761117	
Surrogate Recovery (%)										
Isobutylbenzene - Extractable	%	106		4761098	113		102		4761117	
n-Dotriacontane - Extractable	%	127		4761098	92		93		4761117	
Isobutylbenzene - Volatile	%	104		4763232	84		100		4763232	
RDL = Reportable Detection Limit QC Batch = Quality Control Batch N/A = Not Applicable (1) One product in the gas/fuel oil range. Possible lube oil fraction.										

ATLANTIC RBCA HYDROCARBONS (WATER)

Maxxam ID		DMG152		
Sampling Date		2016/11/18		
COC Number		585517		
	UNITS	TB-027	RDL	QC Batch
Petroleum Hydrocarbons				
Benzene	mg/L	<0.0010	0.0010	4763232
Toluene	mg/L	<0.0010	0.0010	4763232
Ethylbenzene	mg/L	<0.0010	0.0010	4763232
Total Xylenes	mg/L	<0.0020	0.0020	4763232
C6 - C10 (less BTEX)	mg/L	<0.010	0.010	4763232
>C10-C16 Hydrocarbons	mg/L	<0.050	0.050	4761119
>C16-C21 Hydrocarbons	mg/L	<0.050	0.050	4761119
>C21-<C32 Hydrocarbons	mg/L	<0.10	0.10	4761119
Modified TPH (Tier1)	mg/L	<0.10	0.10	4757274
Reached Baseline at C32	mg/L	NA	N/A	4761119
Hydrocarbon Resemblance	mg/L	NA	N/A	4761119
Surrogate Recovery (%)				
Isobutylbenzene - Extractable	%	76		4761119
n-Dotriacontane - Extractable	%	96		4761119
Isobutylbenzene - Volatile	%	101		4763232
RDL = Reportable Detection Limit QC Batch = Quality Control Batch N/A = Not Applicable				

GENERAL COMMENTS

Sample DMG142 [SCU19-002-MWA] : Elevated reporting limits for trace metals due to sample matrix.

Sample DMG148 [FD-018] : Elevated reporting limits for trace metals due to sample matrix.

Results relate only to the items tested.

QUALITY ASSURANCE REPORT

QA/QC				Date				
Batch	Init	QC Type	Parameter	Analyzed	Value	Recovery	UNITS	QC Limits
4760731	KKE	Matrix Spike	D10-Anthracene	2016/11/25		73	%	30 - 130
			D14-Terphenyl	2016/11/25		82	%	30 - 130
			D8-Acenaphthylene	2016/11/25		73	%	30 - 130
			1-Methylnaphthalene	2016/11/25		65	%	30 - 130
			2-Methylnaphthalene	2016/11/25		72	%	30 - 130
			Acenaphthene	2016/11/25		69	%	30 - 130
			Acenaphthylene	2016/11/25		76	%	30 - 130
			Anthracene	2016/11/25		74	%	30 - 130
			Benzo(a)anthracene	2016/11/25		76	%	30 - 130
			Benzo(a)pyrene	2016/11/25		63	%	30 - 130
			Benzo(b)fluoranthene	2016/11/25		62	%	30 - 130
			Benzo(g,h,i)perylene	2016/11/25		63	%	30 - 130
			Benzo(j)fluoranthene	2016/11/25		57	%	30 - 130
			Benzo(k)fluoranthene	2016/11/25		60	%	30 - 130
			Chrysene	2016/11/25		72	%	30 - 130
			Dibenz(a,h)anthracene	2016/11/25		59	%	30 - 130
			Fluoranthene	2016/11/25		69	%	30 - 130
			Fluorene	2016/11/25		69	%	30 - 130
			Indeno(1,2,3-cd)pyrene	2016/11/25		63	%	30 - 130
			Naphthalene	2016/11/25		63	%	30 - 130
Perylene	2016/11/25		59	%	30 - 130			
Phenanthrene	2016/11/25		63	%	30 - 130			
Pyrene	2016/11/25		65	%	30 - 130			
4760731	KKE	Spiked Blank	D10-Anthracene	2016/11/25		96	%	30 - 130
			D14-Terphenyl	2016/11/25		101	%	30 - 130
			D8-Acenaphthylene	2016/11/25		94	%	30 - 130
			1-Methylnaphthalene	2016/11/25		81	%	30 - 130
			2-Methylnaphthalene	2016/11/25		86	%	30 - 130
			Acenaphthene	2016/11/25		85	%	30 - 130
			Acenaphthylene	2016/11/25		94	%	30 - 130
			Anthracene	2016/11/25		80	%	30 - 130
			Benzo(a)anthracene	2016/11/25		82	%	30 - 130
			Benzo(a)pyrene	2016/11/25		73	%	30 - 130
			Benzo(b)fluoranthene	2016/11/25		72	%	30 - 130
			Benzo(g,h,i)perylene	2016/11/25		78	%	30 - 130
			Benzo(j)fluoranthene	2016/11/25		69	%	30 - 130
			Benzo(k)fluoranthene	2016/11/25		72	%	30 - 130
			Chrysene	2016/11/25		72	%	30 - 130
			Dibenz(a,h)anthracene	2016/11/25		71	%	30 - 130
			Fluoranthene	2016/11/25		81	%	30 - 130
			Fluorene	2016/11/25		86	%	30 - 130
			Indeno(1,2,3-cd)pyrene	2016/11/25		75	%	30 - 130
			Naphthalene	2016/11/25		82	%	30 - 130
Perylene	2016/11/25		72	%	30 - 130			
Phenanthrene	2016/11/25		73	%	30 - 130			
Pyrene	2016/11/25		78	%	30 - 130			
4760731	KKE	Method Blank	D10-Anthracene	2016/11/25		98	%	30 - 130
			D14-Terphenyl	2016/11/25		104	%	30 - 130
			D8-Acenaphthylene	2016/11/25		94	%	30 - 130
			1-Methylnaphthalene	2016/11/25	<0.050		ug/L	
			2-Methylnaphthalene	2016/11/25	<0.050		ug/L	
			Acenaphthene	2016/11/25	<0.010		ug/L	
			Acenaphthylene	2016/11/25	<0.010		ug/L	

QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Anthracene	2016/11/25	<0.010		ug/L	
			Benzo(a)anthracene	2016/11/25	<0.010		ug/L	
			Benzo(a)pyrene	2016/11/25	<0.010		ug/L	
			Benzo(b)fluoranthene	2016/11/25	<0.010		ug/L	
			Benzo(g,h,i)perylene	2016/11/25	<0.010		ug/L	
			Benzo(j)fluoranthene	2016/11/25	<0.010		ug/L	
			Benzo(k)fluoranthene	2016/11/25	<0.010		ug/L	
			Chrysene	2016/11/25	<0.010		ug/L	
			Dibenz(a,h)anthracene	2016/11/25	<0.010		ug/L	
			Fluoranthene	2016/11/25	<0.010		ug/L	
			Fluorene	2016/11/25	<0.010		ug/L	
			Indeno(1,2,3-cd)pyrene	2016/11/25	<0.010		ug/L	
			Naphthalene	2016/11/25	<0.20		ug/L	
			Perylene	2016/11/25	<0.010		ug/L	
			Phenanthrene	2016/11/25	<0.010		ug/L	
			Pyrene	2016/11/25	<0.010		ug/L	
4760731	KKE	RPD	1-Methylnaphthalene	2016/11/25	7.9 (1)		%	40
			2-Methylnaphthalene	2016/11/25	5.6 (1)		%	40
			Acenaphthene	2016/11/25	10 (1)		%	40
			Acenaphthylene	2016/11/25	18		%	40
			Anthracene	2016/11/25	21		%	40
			Benzo(a)anthracene	2016/11/25	23		%	40
			Benzo(a)pyrene	2016/11/25	NC		%	40
			Benzo(b)fluoranthene	2016/11/25	NC		%	40
			Benzo(g,h,i)perylene	2016/11/25	NC		%	40
			Benzo(j)fluoranthene	2016/11/25	NC		%	40
			Benzo(k)fluoranthene	2016/11/25	NC		%	40
			Chrysene	2016/11/25	12		%	40
			Dibenz(a,h)anthracene	2016/11/25	NC		%	40
			Fluoranthene	2016/11/25	21		%	40
			Fluorene	2016/11/25	16		%	40
			Indeno(1,2,3-cd)pyrene	2016/11/25	NC		%	40
			Naphthalene	2016/11/25	8.2 (1)		%	40
			Perylene	2016/11/25	NC		%	40
			Phenanthrene	2016/11/25	13		%	40
			Pyrene	2016/11/25	19		%	40
4761088	BAN	Matrix Spike	Dissolved Aluminum (Al)	2016/11/24		97	%	80 - 120
			Dissolved Antimony (Sb)	2016/11/24		107	%	80 - 120
			Dissolved Arsenic (As)	2016/11/24		95	%	80 - 120
			Dissolved Barium (Ba)	2016/11/24		97	%	80 - 120
			Dissolved Beryllium (Be)	2016/11/24		98	%	80 - 120
			Dissolved Bismuth (Bi)	2016/11/24		104	%	80 - 120
			Dissolved Boron (B)	2016/11/24		95	%	80 - 120
			Dissolved Cadmium (Cd)	2016/11/24		99	%	80 - 120
			Dissolved Calcium (Ca)	2016/11/24		NC	%	80 - 120
			Dissolved Chromium (Cr)	2016/11/24		96	%	80 - 120
			Dissolved Cobalt (Co)	2016/11/24		94	%	80 - 120
			Dissolved Copper (Cu)	2016/11/24		94	%	80 - 120
			Dissolved Iron (Fe)	2016/11/24		NC	%	80 - 120
			Dissolved Lead (Pb)	2016/11/24		98	%	80 - 120
			Dissolved Magnesium (Mg)	2016/11/24		NC	%	80 - 120
			Dissolved Manganese (Mn)	2016/11/24		NC	%	80 - 120
			Dissolved Molybdenum (Mo)	2016/11/24		105	%	80 - 120

QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
4761088	BAN	Spiked Blank	Dissolved Nickel (Ni)	2016/11/24		96	%	80 - 120
			Dissolved Phosphorus (P)	2016/11/24		101	%	80 - 120
			Dissolved Potassium (K)	2016/11/24		103	%	80 - 120
			Dissolved Selenium (Se)	2016/11/24		96	%	80 - 120
			Dissolved Silver (Ag)	2016/11/24		96	%	80 - 120
			Dissolved Sodium (Na)	2016/11/24		NC	%	80 - 120
			Dissolved Strontium (Sr)	2016/11/24		NC	%	80 - 120
			Dissolved Thallium (Tl)	2016/11/24		101	%	80 - 120
			Dissolved Tin (Sn)	2016/11/24		105	%	80 - 120
			Dissolved Titanium (Ti)	2016/11/24		100	%	80 - 120
			Dissolved Uranium (U)	2016/11/24		110	%	80 - 120
			Dissolved Vanadium (V)	2016/11/24		98	%	80 - 120
			Dissolved Zinc (Zn)	2016/11/24		98	%	80 - 120
			Dissolved Aluminum (Al)	2016/11/24		99	%	80 - 120
			Dissolved Antimony (Sb)	2016/11/24		104	%	80 - 120
			Dissolved Arsenic (As)	2016/11/24		94	%	80 - 120
			Dissolved Barium (Ba)	2016/11/24		97	%	80 - 120
			Dissolved Beryllium (Be)	2016/11/24		96	%	80 - 120
			Dissolved Bismuth (Bi)	2016/11/24		104	%	80 - 120
			Dissolved Boron (B)	2016/11/24		96	%	80 - 120
			Dissolved Cadmium (Cd)	2016/11/24		97	%	80 - 120
			Dissolved Calcium (Ca)	2016/11/24		100	%	80 - 120
			Dissolved Chromium (Cr)	2016/11/24		95	%	80 - 120
			Dissolved Cobalt (Co)	2016/11/24		95	%	80 - 120
			Dissolved Copper (Cu)	2016/11/24		95	%	80 - 120
			Dissolved Iron (Fe)	2016/11/24		100	%	80 - 120
			Dissolved Lead (Pb)	2016/11/24		98	%	80 - 120
			Dissolved Magnesium (Mg)	2016/11/24		100	%	80 - 120
			Dissolved Manganese (Mn)	2016/11/24		98	%	80 - 120
			Dissolved Molybdenum (Mo)	2016/11/24		101	%	80 - 120
			Dissolved Nickel (Ni)	2016/11/24		96	%	80 - 120
			Dissolved Phosphorus (P)	2016/11/24		102	%	80 - 120
Dissolved Potassium (K)	2016/11/24		107	%	80 - 120			
Dissolved Selenium (Se)	2016/11/24		94	%	80 - 120			
Dissolved Silver (Ag)	2016/11/24		98	%	80 - 120			
Dissolved Sodium (Na)	2016/11/24		95	%	80 - 120			
Dissolved Strontium (Sr)	2016/11/24		99	%	80 - 120			
Dissolved Thallium (Tl)	2016/11/24		102	%	80 - 120			
Dissolved Tin (Sn)	2016/11/24		102	%	80 - 120			
Dissolved Titanium (Ti)	2016/11/24		96	%	80 - 120			
Dissolved Uranium (U)	2016/11/24		108	%	80 - 120			
Dissolved Vanadium (V)	2016/11/24		98	%	80 - 120			
Dissolved Zinc (Zn)	2016/11/24		99	%	80 - 120			
4761088	BAN	Method Blank	Dissolved Aluminum (Al)	2016/11/24	<5.0		ug/L	
			Dissolved Antimony (Sb)	2016/11/24	<1.0		ug/L	
			Dissolved Arsenic (As)	2016/11/24	<1.0		ug/L	
			Dissolved Barium (Ba)	2016/11/24	<1.0		ug/L	
			Dissolved Beryllium (Be)	2016/11/24	<1.0		ug/L	
			Dissolved Bismuth (Bi)	2016/11/24	<2.0		ug/L	
			Dissolved Boron (B)	2016/11/24	<50		ug/L	
			Dissolved Cadmium (Cd)	2016/11/24	<0.010		ug/L	
			Dissolved Calcium (Ca)	2016/11/24	<100		ug/L	
			Dissolved Chromium (Cr)	2016/11/24	<1.0		ug/L	

QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Dissolved Cobalt (Co)	2016/11/24	<0.40		ug/L	
			Dissolved Copper (Cu)	2016/11/24	<2.0		ug/L	
			Dissolved Iron (Fe)	2016/11/24	<50		ug/L	
			Dissolved Lead (Pb)	2016/11/24	<0.50		ug/L	
			Dissolved Magnesium (Mg)	2016/11/24	<100		ug/L	
			Dissolved Manganese (Mn)	2016/11/24	<2.0		ug/L	
			Dissolved Molybdenum (Mo)	2016/11/24	<2.0		ug/L	
			Dissolved Nickel (Ni)	2016/11/24	<2.0		ug/L	
			Dissolved Phosphorus (P)	2016/11/24	<100		ug/L	
			Dissolved Potassium (K)	2016/11/24	<100		ug/L	
			Dissolved Selenium (Se)	2016/11/24	<1.0		ug/L	
			Dissolved Silver (Ag)	2016/11/24	<0.10		ug/L	
			Dissolved Sodium (Na)	2016/11/24	<100		ug/L	
			Dissolved Strontium (Sr)	2016/11/24	<2.0		ug/L	
			Dissolved Thallium (Tl)	2016/11/24	<0.10		ug/L	
			Dissolved Tin (Sn)	2016/11/24	<2.0		ug/L	
			Dissolved Titanium (Ti)	2016/11/24	<2.0		ug/L	
			Dissolved Uranium (U)	2016/11/24	<0.10		ug/L	
			Dissolved Vanadium (V)	2016/11/24	<2.0		ug/L	
			Dissolved Zinc (Zn)	2016/11/24	<5.0		ug/L	
4761088	BAN	RPD	Dissolved Aluminum (Al)	2016/11/24	NC		%	20
			Dissolved Antimony (Sb)	2016/11/24	NC		%	20
			Dissolved Arsenic (As)	2016/11/24	NC		%	20
			Dissolved Barium (Ba)	2016/11/24	0.016		%	20
			Dissolved Beryllium (Be)	2016/11/24	NC		%	20
			Dissolved Bismuth (Bi)	2016/11/24	NC		%	20
			Dissolved Boron (B)	2016/11/24	NC		%	20
			Dissolved Cadmium (Cd)	2016/11/24	NC		%	20
			Dissolved Calcium (Ca)	2016/11/24	1.1		%	20
			Dissolved Chromium (Cr)	2016/11/24	NC		%	20
			Dissolved Cobalt (Co)	2016/11/24	NC		%	20
			Dissolved Copper (Cu)	2016/11/24	NC		%	20
			Dissolved Iron (Fe)	2016/11/24	0.52		%	20
			Dissolved Lead (Pb)	2016/11/24	NC		%	20
			Dissolved Magnesium (Mg)	2016/11/24	0.48		%	20
			Dissolved Manganese (Mn)	2016/11/24	0.21		%	20
			Dissolved Molybdenum (Mo)	2016/11/24	NC		%	20
			Dissolved Nickel (Ni)	2016/11/24	NC		%	20
			Dissolved Phosphorus (P)	2016/11/24	NC		%	20
			Dissolved Potassium (K)	2016/11/24	0.28		%	20
			Dissolved Selenium (Se)	2016/11/24	NC		%	20
			Dissolved Silver (Ag)	2016/11/24	NC		%	20
			Dissolved Sodium (Na)	2016/11/24	0.069		%	20
			Dissolved Strontium (Sr)	2016/11/24	0.66		%	20
			Dissolved Thallium (Tl)	2016/11/24	NC		%	20
			Dissolved Tin (Sn)	2016/11/24	NC		%	20
			Dissolved Titanium (Ti)	2016/11/24	NC		%	20
			Dissolved Uranium (U)	2016/11/24	NC		%	20
			Dissolved Vanadium (V)	2016/11/24	NC		%	20
			Dissolved Zinc (Zn)	2016/11/24	NC		%	20
4761098	KBK	Matrix Spike [DMG146-02]	Isobutylbenzene - Extractable	2016/11/23		100	%	30 - 130
			n-Dotriacontane - Extractable	2016/11/23		117	%	30 - 130

QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
4761098	KBK	Spiked Blank	>C10-C16 Hydrocarbons	2016/11/23		100	%	70 - 130
			>C16-C21 Hydrocarbons	2016/11/23		89	%	70 - 130
			>C21-<C32 Hydrocarbons	2016/11/23		94	%	70 - 130
			Isobutylbenzene - Extractable	2016/11/23		105	%	30 - 130
			n-Dotriacontane - Extractable	2016/11/23		117	%	30 - 130
			>C10-C16 Hydrocarbons	2016/11/23		102	%	70 - 130
4761098	KBK	Method Blank	>C16-C21 Hydrocarbons	2016/11/23		90	%	70 - 130
			>C21-<C32 Hydrocarbons	2016/11/23		98	%	70 - 130
			Isobutylbenzene - Extractable	2016/11/23		100	%	30 - 130
			n-Dotriacontane - Extractable	2016/11/23		108	%	30 - 130
			>C10-C16 Hydrocarbons	2016/11/23	<0.050		mg/L	
			>C16-C21 Hydrocarbons	2016/11/23	<0.050		mg/L	
4761098	KBK	RPD [DMG145-02]	>C21-<C32 Hydrocarbons	2016/11/23	<0.10		mg/L	
			>C10-C16 Hydrocarbons	2016/11/23	NC		%	40
			>C16-C21 Hydrocarbons	2016/11/23	NC		%	40
			>C21-<C32 Hydrocarbons	2016/11/23	NC		%	40
4761117	KBK	Matrix Spike	Isobutylbenzene - Extractable	2016/11/24		112	%	30 - 130
			n-Dotriacontane - Extractable	2016/11/24		112	%	30 - 130
			>C10-C16 Hydrocarbons	2016/11/24		NC	%	70 - 130
			>C16-C21 Hydrocarbons	2016/11/24		78	%	70 - 130
			>C21-<C32 Hydrocarbons	2016/11/24		105	%	70 - 130
			Isobutylbenzene - Extractable	2016/11/24		94	%	30 - 130
4761117	KBK	Spiked Blank	n-Dotriacontane - Extractable	2016/11/24		112	%	30 - 130
			>C10-C16 Hydrocarbons	2016/11/24		101	%	70 - 130
			>C16-C21 Hydrocarbons	2016/11/24		94	%	70 - 130
			>C21-<C32 Hydrocarbons	2016/11/24		118	%	70 - 130
			Isobutylbenzene - Extractable	2016/11/24		96	%	30 - 130
			n-Dotriacontane - Extractable	2016/11/24		93	%	30 - 130
4761117	KBK	RPD	>C10-C16 Hydrocarbons	2016/11/24	<0.050		mg/L	
			>C16-C21 Hydrocarbons	2016/11/24	<0.050		mg/L	
			>C21-<C32 Hydrocarbons	2016/11/24	<0.10		mg/L	
			>C10-C16 Hydrocarbons	2016/11/24	NC		%	40
			>C16-C21 Hydrocarbons	2016/11/24	NC		%	40
			>C21-<C32 Hydrocarbons	2016/11/24	NC		%	40
4761119	MGN	Matrix Spike	Isobutylbenzene - Extractable	2016/11/24		102	%	30 - 130
			n-Dotriacontane - Extractable	2016/11/24		100	%	30 - 130
			>C10-C16 Hydrocarbons	2016/11/24		99	%	70 - 130
			>C16-C21 Hydrocarbons	2016/11/24		93	%	70 - 130
			>C21-<C32 Hydrocarbons	2016/11/24		104	%	70 - 130
			Isobutylbenzene - Extractable	2016/11/24		89	%	30 - 130
4761119	MGN	Spiked Blank	n-Dotriacontane - Extractable	2016/11/24		90	%	30 - 130
			>C10-C16 Hydrocarbons	2016/11/24		104	%	70 - 130
			>C16-C21 Hydrocarbons	2016/11/24		100	%	70 - 130
			>C21-<C32 Hydrocarbons	2016/11/24		112	%	70 - 130
			Isobutylbenzene - Extractable	2016/11/23		90	%	30 - 130
			n-Dotriacontane - Extractable	2016/11/23		95	%	30 - 130
4761119	MGN	Method Blank	>C10-C16 Hydrocarbons	2016/11/23	<0.050		mg/L	
			>C16-C21 Hydrocarbons	2016/11/23	<0.050		mg/L	
			>C21-<C32 Hydrocarbons	2016/11/23	<0.10		mg/L	
			>C10-C16 Hydrocarbons	2016/11/24	NC		%	40
			>C16-C21 Hydrocarbons	2016/11/24	NC		%	40
			>C21-<C32 Hydrocarbons	2016/11/24	NC		%	40

QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
4761475	ARS	Matrix Spike [DMG143-05]	Total Mercury (Hg)	2016/11/24		92	%	80 - 120
4761475	ARS	Spiked Blank	Total Mercury (Hg)	2016/11/24		98	%	80 - 120
4761475	ARS	Method Blank	Total Mercury (Hg)	2016/11/24	<0.013		ug/L	
4761475	ARS	RPD [DMG142-05]	Total Mercury (Hg)	2016/11/24	NC		%	20
4762763	GTH	Matrix Spike [DMG146-01]	D10-Anthracene	2016/11/26		85	%	30 - 130
			D14-Terphenyl	2016/11/26		90	%	30 - 130
			D8-Acenaphthylene	2016/11/26		88	%	30 - 130
			1-Methylnaphthalene	2016/11/26		82	%	30 - 130
			2-Methylnaphthalene	2016/11/26		88	%	30 - 130
			Acenaphthene	2016/11/26		84	%	30 - 130
			Acenaphthylene	2016/11/26		98	%	30 - 130
			Anthracene	2016/11/26		88	%	30 - 130
			Benzo(a)anthracene	2016/11/26		89	%	30 - 130
			Benzo(a)pyrene	2016/11/26		75	%	30 - 130
			Benzo(b)fluoranthene	2016/11/26		79	%	30 - 130
			Benzo(g,h,i)perylene	2016/11/26		84	%	30 - 130
			Benzo(j)fluoranthene	2016/11/26		70	%	30 - 130
			Benzo(k)fluoranthene	2016/11/26		72	%	30 - 130
			Chrysene	2016/11/26		80	%	30 - 130
			Dibenz(a,h)anthracene	2016/11/26		79	%	30 - 130
			Fluoranthene	2016/11/26		84	%	30 - 130
			Fluorene	2016/11/26		85	%	30 - 130
			Indeno(1,2,3-cd)pyrene	2016/11/26		83	%	30 - 130
			Naphthalene	2016/11/26		75	%	30 - 130
			Perylene	2016/11/26		72	%	30 - 130
			Phenanthrene	2016/11/26		76	%	30 - 130
			Pyrene	2016/11/26		80	%	30 - 130
4762763	GTH	Spiked Blank	D10-Anthracene	2016/11/26		90	%	30 - 130
			D14-Terphenyl	2016/11/26		110	%	30 - 130
			D8-Acenaphthylene	2016/11/26		97	%	30 - 130
			1-Methylnaphthalene	2016/11/26		87	%	30 - 130
			2-Methylnaphthalene	2016/11/26		91	%	30 - 130
			Acenaphthene	2016/11/26		94	%	30 - 130
			Acenaphthylene	2016/11/26		109	%	30 - 130
			Anthracene	2016/11/26		103	%	30 - 130
			Benzo(a)anthracene	2016/11/26		102	%	30 - 130
			Benzo(a)pyrene	2016/11/26		88	%	30 - 130
			Benzo(b)fluoranthene	2016/11/26		82	%	30 - 130
			Benzo(g,h,i)perylene	2016/11/26		91	%	30 - 130
			Benzo(j)fluoranthene	2016/11/26		81	%	30 - 130
			Benzo(k)fluoranthene	2016/11/26		85	%	30 - 130
			Chrysene	2016/11/26		90	%	30 - 130
			Dibenz(a,h)anthracene	2016/11/26		87	%	30 - 130
			Fluoranthene	2016/11/26		104	%	30 - 130
			Fluorene	2016/11/26		97	%	30 - 130
			Indeno(1,2,3-cd)pyrene	2016/11/26		91	%	30 - 130
			Naphthalene	2016/11/26		87	%	30 - 130
			Perylene	2016/11/26		85	%	30 - 130
			Phenanthrene	2016/11/26		92	%	30 - 130
			Pyrene	2016/11/26		99	%	30 - 130
4762763	GTH	Method Blank	D10-Anthracene	2016/11/26		91	%	30 - 130

QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			D14-Terphenyl	2016/11/26		99	%	30 - 130
			D8-Acenaphthylene	2016/11/26		88	%	30 - 130
			1-Methylnaphthalene	2016/11/26	<0.050		ug/L	
			2-Methylnaphthalene	2016/11/26	<0.050		ug/L	
			Acenaphthene	2016/11/26	<0.010		ug/L	
			Acenaphthylene	2016/11/26	<0.010		ug/L	
			Anthracene	2016/11/26	<0.010		ug/L	
			Benzo(a)anthracene	2016/11/26	<0.010		ug/L	
			Benzo(a)pyrene	2016/11/26	<0.010		ug/L	
			Benzo(b)fluoranthene	2016/11/26	<0.010		ug/L	
			Benzo(g,h,i)perylene	2016/11/26	<0.010		ug/L	
			Benzo(j)fluoranthene	2016/11/26	<0.010		ug/L	
			Benzo(k)fluoranthene	2016/11/26	<0.010		ug/L	
			Chrysene	2016/11/26	<0.010		ug/L	
			Dibenz(a,h)anthracene	2016/11/26	<0.010		ug/L	
			Fluoranthene	2016/11/26	<0.010		ug/L	
			Fluorene	2016/11/26	<0.010		ug/L	
			Indeno(1,2,3-cd)pyrene	2016/11/26	<0.010		ug/L	
			Naphthalene	2016/11/26	<0.20		ug/L	
			Perylene	2016/11/26	<0.010		ug/L	
			Phenanthrene	2016/11/26	<0.010		ug/L	
			Pyrene	2016/11/26	<0.010		ug/L	
4762763	GTH	RPD [DMG145-01]	1-Methylnaphthalene	2016/11/26	NC		%	40
			2-Methylnaphthalene	2016/11/26	NC		%	40
			Acenaphthene	2016/11/26	7.9		%	40
			Acenaphthylene	2016/11/26	NC (2)		%	40
			Anthracene	2016/11/26	NC (2)		%	40
			Benzo(a)anthracene	2016/11/26	NC		%	40
			Benzo(a)pyrene	2016/11/26	NC		%	40
			Benzo(b)fluoranthene	2016/11/26	NC		%	40
			Benzo(g,h,i)perylene	2016/11/26	NC		%	40
			Benzo(j)fluoranthene	2016/11/26	NC		%	40
			Benzo(k)fluoranthene	2016/11/26	NC		%	40
			Chrysene	2016/11/26	NC		%	40
			Dibenz(a,h)anthracene	2016/11/26	NC		%	40
			Fluoranthene	2016/11/26	7.5		%	40
			Fluorene	2016/11/26	NC		%	40
			Indeno(1,2,3-cd)pyrene	2016/11/26	NC		%	40
			Naphthalene	2016/11/26	NC		%	40
			Perylene	2016/11/26	NC		%	40
			Phenanthrene	2016/11/26	NC		%	40
			Pyrene	2016/11/26	5.5		%	40
4763232	ASL	Matrix Spike [DMG143-03]	Isobutylbenzene - Volatile	2016/11/25		103	%	70 - 130
			Benzene	2016/11/25		117	%	70 - 130
			Toluene	2016/11/25		118	%	70 - 130
			Ethylbenzene	2016/11/25		117	%	70 - 130
			Total Xylenes	2016/11/25		119	%	70 - 130
4763232	ASL	Spiked Blank	Isobutylbenzene - Volatile	2016/11/25		101	%	70 - 130
			Benzene	2016/11/25		120	%	70 - 130
			Toluene	2016/11/25		119	%	70 - 130
			Ethylbenzene	2016/11/25		119	%	70 - 130
			Total Xylenes	2016/11/25		120	%	70 - 130

QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
4763232	ASL	Method Blank	Isobutylbenzene - Volatile	2016/11/25		102	%	70 - 130
			Benzene	2016/11/25	<0.0010		mg/L	
			Toluene	2016/11/25	<0.0010		mg/L	
			Ethylbenzene	2016/11/25	<0.0010		mg/L	
			Total Xylenes	2016/11/25	<0.0020		mg/L	
			C6 - C10 (less BTEX)	2016/11/25	<0.010		mg/L	
4763232	ASL	RPD [DMG142-03]	Benzene	2016/11/25	NC		%	40
			Toluene	2016/11/25	NC		%	40
			Ethylbenzene	2016/11/25	NC		%	40
			Total Xylenes	2016/11/25	NC		%	40
			C6 - C10 (less BTEX)	2016/11/25	NC		%	40

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 spiked amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than 2x that of the native sample concentration).

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (one or both samples < 5x RDL).

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

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

VALIDATION SIGNATURE PAGE

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



Eric Dearman, Scientific Specialist



Rosemarie MacDonald, Scientific Specialist (Organics)

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

Your Project #: 4104251070
 Site Location: HARBOURSIDE COMMERCIAL PARK
 Your C.O.C. #: 585517

Attention:Nadine Wambolt

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

Report Date: 2016/11/28
 Report #: R4266576
 Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B6P2571

Received: 2016/11/18, 16:28

Sample Matrix: Organic Liquid
 # Samples Received: 1

Analyses	Quantity	Date	Date	Laboratory Method	Reference
		Extracted	Analyzed		
Free Product ID (1)	1	2016/11/28	2016/11/28		

Remarks:

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

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

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

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

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

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

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

(1) This test was performed by Maxxam Bedford

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
 Candace Hillier, CI Svc - Sydney
 Email: chillier@maxxam.ca
 Phone# (902) 567 1255

=====

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

RESULTS OF ANALYSES OF ORGANIC LIQUID

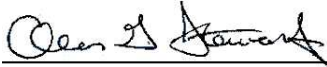
Maxxam ID		DMG153	
Sampling Date		2016/11/17	
COC Number		585517	
	UNITS	SCU32-003-MW	QC Batch
Petroleum Hydrocarbons			
Open Characterization by FID	N/A	COMMENT (1)	4768793
QC Batch = Quality Control Batch (1) Fuel oil fraction. Lube oil fraction.			

GENERAL COMMENTS

Results relate only to the items tested.

VALIDATION SIGNATURE PAGE

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



Alan Stewart, Organics Manager, Bedford

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

Appendix D

Mann-Kendall Tables

MANN-KENDALL PLUME STABILITY ANALYSIS

HCP

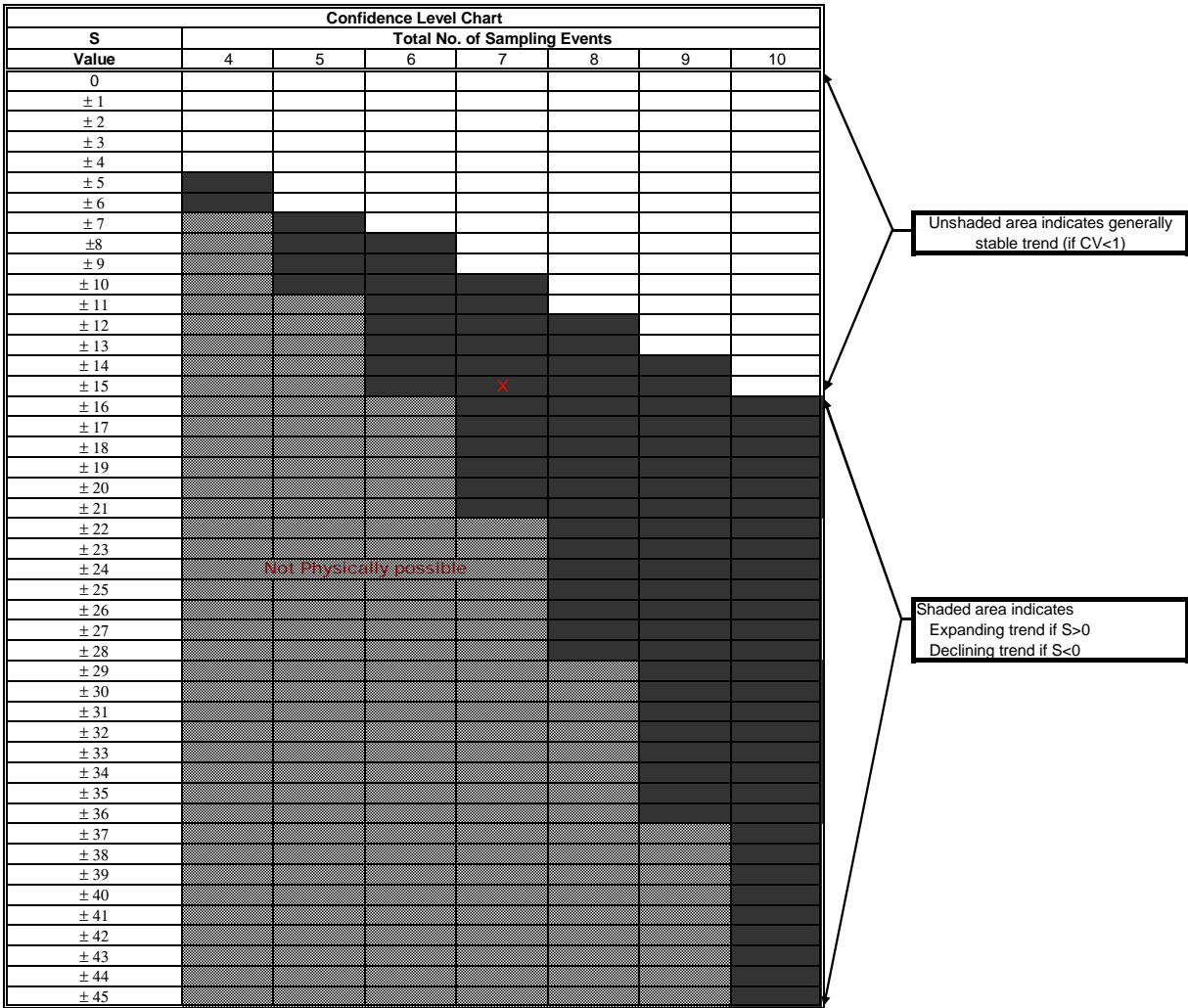
Nova Scotia Lands Incorporated

14-1360 - 2016 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	0.0022	0.0075	0.01	0.034	0.02	0.41	0.028				
	19-Nov-08	10-Nov-10	31-Oct-11	23-Nov-12	2-Dec-13	11-Dec-15	18-Nov-16				
Row 1: Compare to Event 1:		1	1	1	1	1	1	0	0	0	6
Row 2: Compare to Event 2:			1	1	1	1	1	0	0	0	5
Row 3: Compare to Event 3:				1	1	1	1	0	0	0	4
Row 4: Compare to Event 4:					-1	1	-1	0	0	0	-1
Row 5: Compare to Event 5:						1	1	0	0	0	2
Row 6: Compare to Event 6:							-1	0	0	0	-1
Row 7: Compare to Event 7:								0	0	0	0
Row 8: Compare to Event 8:									0	0	0
Row 9: Compare to Event 9:										0	0

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

Mann-Kendall (S) Statistic = 15



Stability Evaluation Results	
	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

HCP

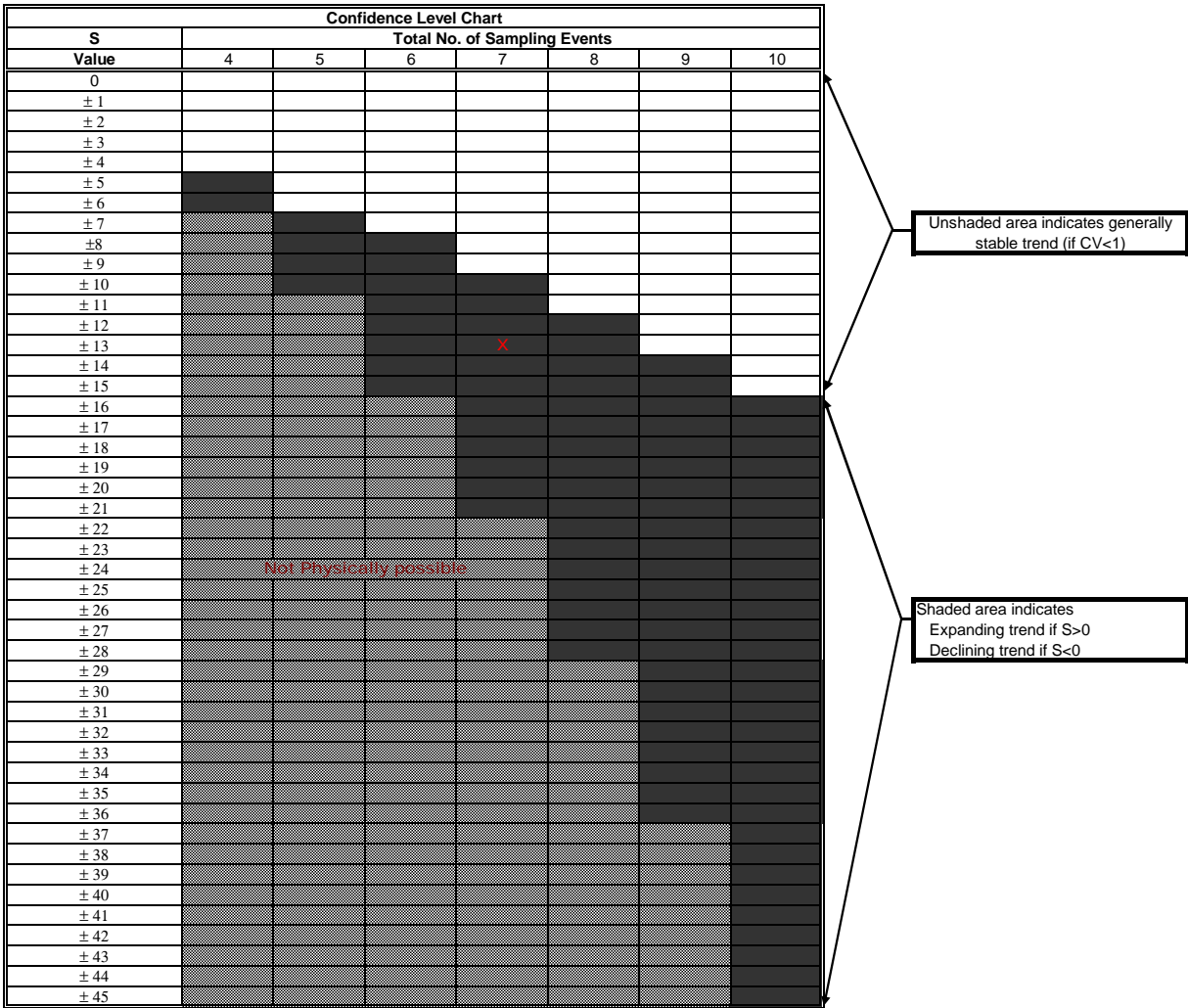
Nova Scotia Lands Incorporated

14-1360 - 2016 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
Anthracene	0.0017	0.0024	0.013	0.038	0.004	1.1	0.018				
	19-Nov-08	10-Nov-10	31-Oct-11	13-Nov-12	2-Dec-13	11-Dec-15	18-Nov-16				
Row 1: Compare to Event 1:		1	1	1	1	1	1	0	0	0	6
Row 2: Compare to Event 2:			1	1	1	1	1	0	0	0	5
Row 3: Compare to Event 3:				1	-1	1	1	0	0	0	2
Row 4: Compare to Event 4:					-1	1	-1	0	0	0	-1
Row 5: Compare to Event 5:						1	1	0	0	0	2
Row 6: Compare to Event 6:							-1	0	0	0	-1
Row 7: Compare to Event 7:								0	0	0	0
Row 8: Compare to Event 8:									0	0	0
Row 9: Compare to Event 9:										0	0

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

Mann-Kendall (S) Statistic = 13



Stability Evaluation Results	
	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

HCP

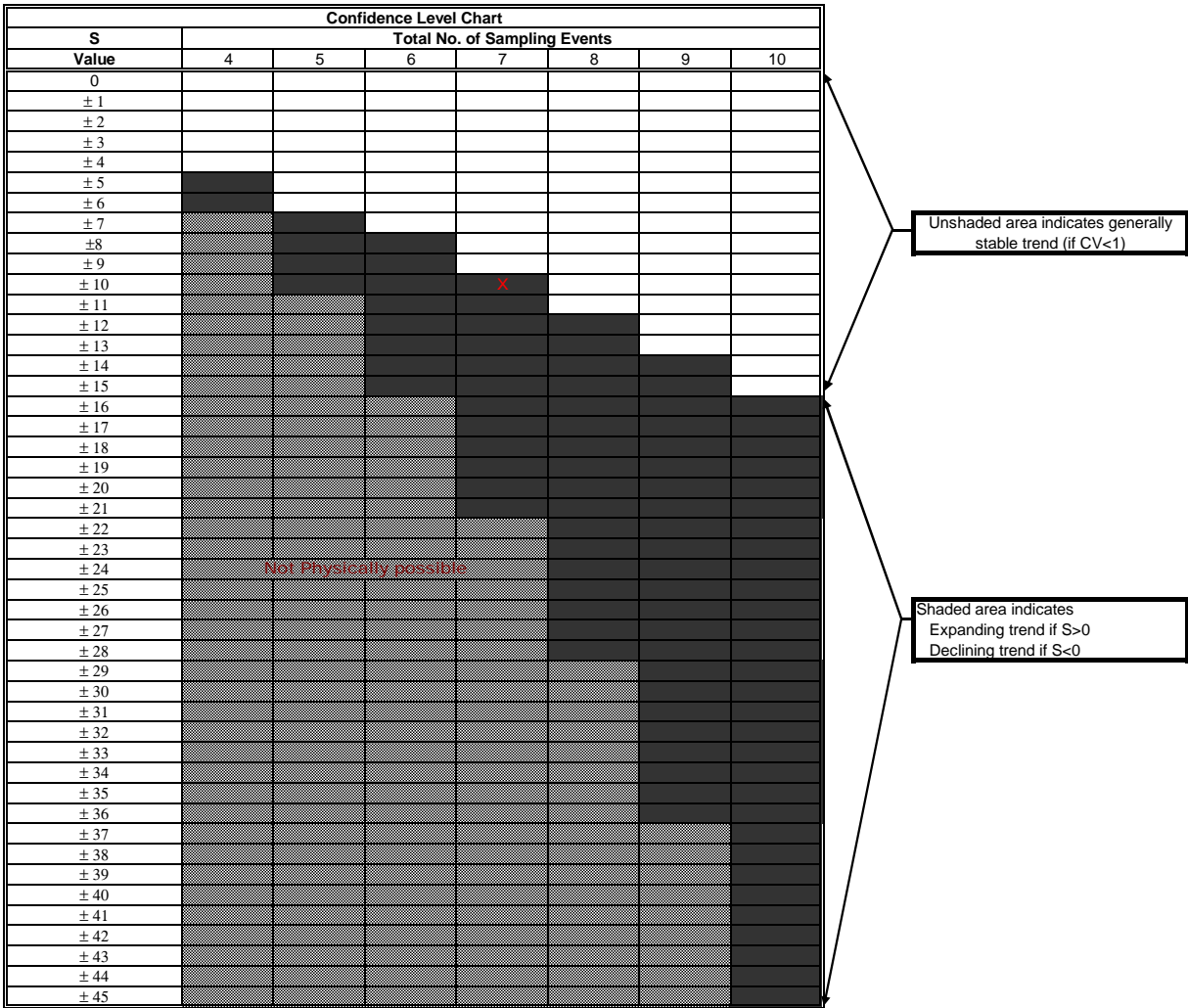
Nova Scotia Lands Incorporated

14-1360 - 2016 LTMM GROUNDWATER MONITORING EVENT

MANN-KENDALL ANALYSIS OF PLUME		MONITORING WELL NO: SCU20-013-MW									
	Event 1	Event 2	Event 3	Event 4	Event 5	Event 6	Event 7	Event 8	Event 9	Event 10	Sum Rows
Acenaphthylene	0.026	0.018	0.029	0.034	0.029	0.032	0.031				
	17-Nov-10	27-Oct-11	21-Nov-12	26-Nov-13	16-Dec-14	25-Nov-15	15-Nov-16				
Row 1: Compare to Event 1:		-1	1	1	1	1	1	0	0	0	4
Row 2: Compare to Event 2:			1	1	1	1	1	0	0	0	5
Row 3: Compare to Event 3:				1	0	1	1	0	0	0	3
Row 4: Compare to Event 4:					-1	-1	-1	0	0	0	-3
Row 5: Compare to Event 5:						1	1	0	0	0	2
Row 6: Compare to Event 6:							-1	0	0	0	-1
Row 7: Compare to Event 7:								0	0	0	0
Row 8: Compare to Event 8:									0	0	0
Row 9: Compare to Event 9:										0	0

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

Mann-Kendall (S) Statistic = 10



	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

HCP

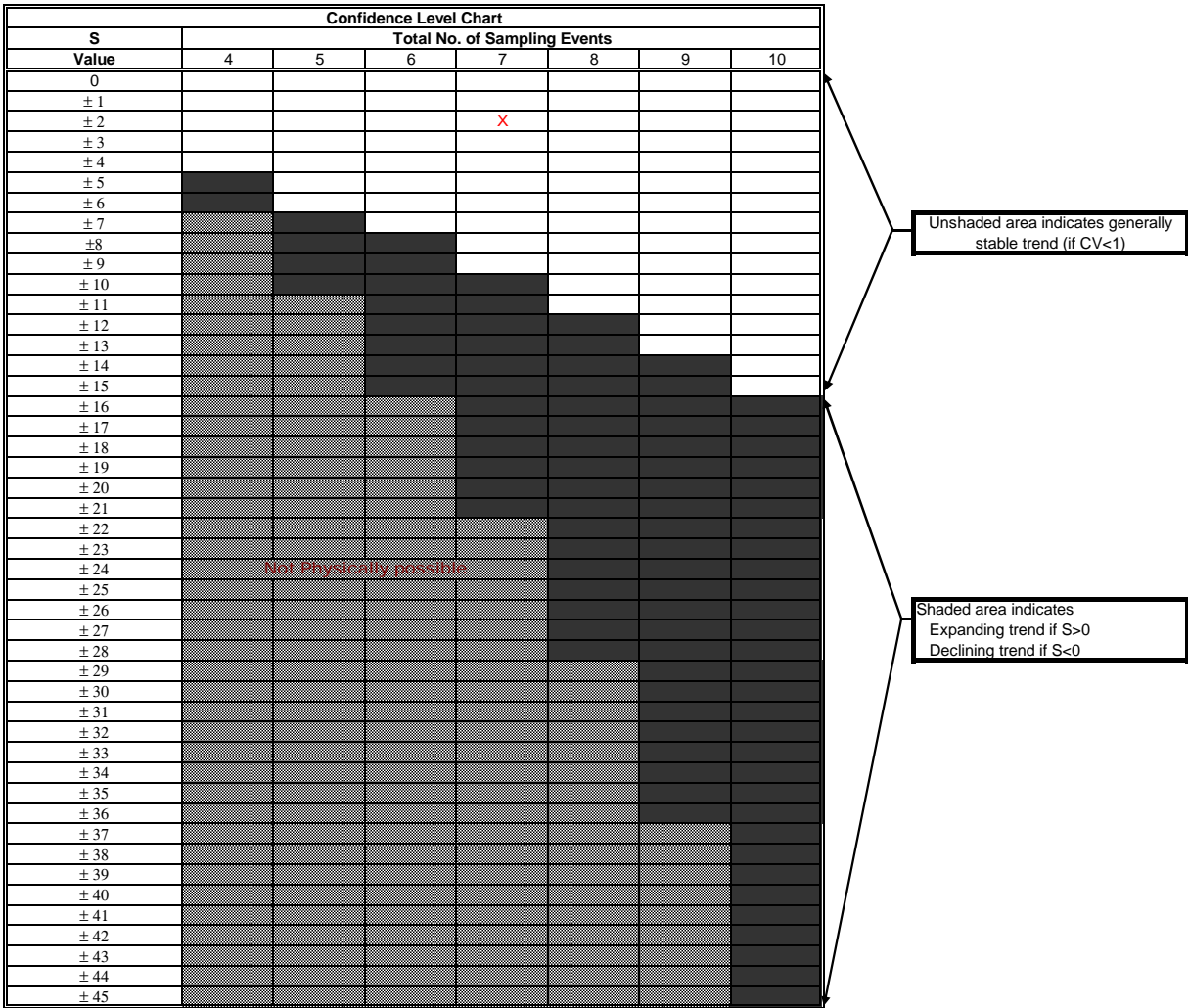
Nova Scotia Lands Incorporated

14-1360 - 2016 LTMM GROUNDWATER MONITORING EVENT

MANN-KENDALL ANALYSIS OF PLUME		MONITORING WELL NO: SCU20-013-MW									
	Event 1	Event 2	Event 3	Event 4	Event 5	Event 6	Event 7	Event 8	Event 9	Event 10	Sum Rows
Anthracene	0.0027	0.0031	0.002	0.004	0.0022	0.0037	0.0027				
	17-Nov-10	27-Oct-11	21-Nov-12	26-Nov-13	16-Dec-14	25-Nov-15	15-Nov-16				
Row 1: Compare to Event 1:		1	-1	1	-1	1	0	0	0	0	1
Row 2: Compare to Event 2:			-1	1	-1	1	-1	0	0	0	-1
Row 3: Compare to Event 3:				1	1	1	1	0	0	0	4
Row 4: Compare to Event 4:					-1	-1	-1	0	0	0	-3
Row 5: Compare to Event 5:						1	1	0	0	0	2
Row 6: Compare to Event 6:							-1	0	0	0	-1
Row 7: Compare to Event 7:								0	0	0	0
Row 8: Compare to Event 8:									0	0	0
Row 9: Compare to Event 9:										0	0

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

Mann-Kendall (S) Statistic = 2



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

HCP

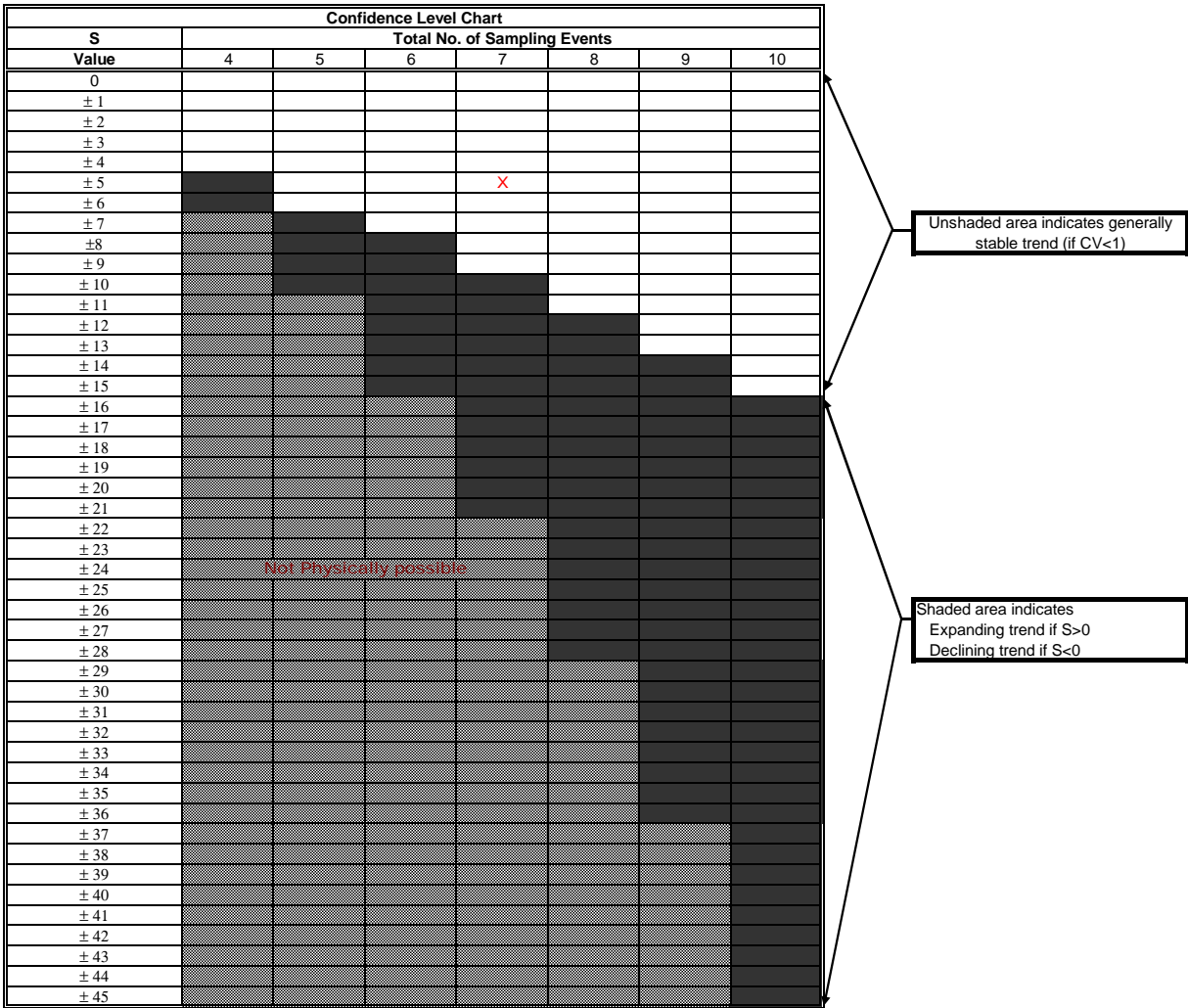
Nova Scotia Lands Incorporated

14-1360 - 2016 LTMM GROUNDWATER MONITORING EVENT

MANN-KENDALL ANALYSIS OF PLUME		MONITORING WELL NO: SCU20-014-MW									
	Event 1	Event 2	Event 3	Event 4	Event 5	Event 6	Event 7	Event 8	Event 9	Event 10	Sum Rows
Acenaphthylene	0.0034	0.0072	0.0046	0.0057	0.0093	0.0062	0.0048				
	17-Nov-10	27-Oct-11	22-Nov-12	26-Nov-13	16-Dec-14	25-Nov-15	15-Nov-16				
Row 1: Compare to Event 1:		1	1	1	1	1	1	0	0	0	6
Row 2: Compare to Event 2:			-1	-1	1	-1	-1	0	0	0	-3
Row 3: Compare to Event 3:				1	1	1	1	0	0	0	4
Row 4: Compare to Event 4:					1	1	-1	0	0	0	1
Row 5: Compare to Event 5:						-1	-1	0	0	0	-2
Row 6: Compare to Event 6:							-1	0	0	0	-1
Row 7: Compare to Event 7:								0	0	0	0
Row 8: Compare to Event 8:									0	0	0
Row 9: Compare to Event 9:										0	0

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

Mann-Kendall (S) Statistic = 5



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

HCP

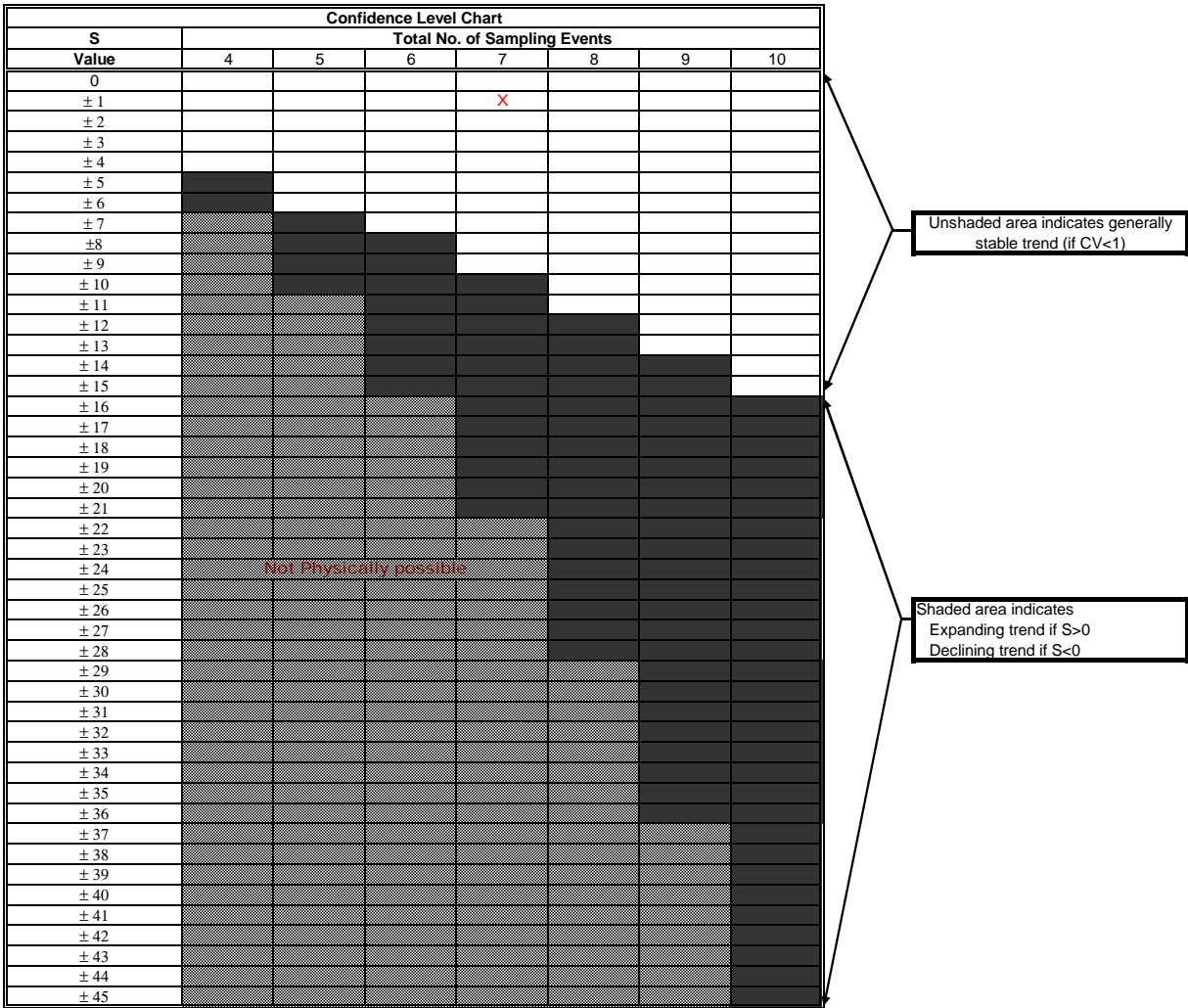
Nova Scotia Lands Incorporated

14-1360 - 2016 LTMM GROUNDWATER MONITORING EVENT

MANN-KENDALL ANALYSIS OF PLUME		MONITORING WELL NO: SCU20-016-MW									
	Event 1	Event 2	Event 3	Event 4	Event 5	Event 6	Event 7	Event 8	Event 9	Event 10	Sum Rows
Acenaphthylene	0.0012	0.0037	0.0022	0.0031	0.0024	0.0028	0.0019				
	17-Nov-10	27-Oct-11	22-Nov-12	26-Nov-13	16-Dec-14	25-Nov-15	15-Nov-16				
Row 1: Compare to Event 1:		1	1	1	1	1	1	0	0	0	6
Row 2: Compare to Event 2:			-1	-1	-1	-1	-1	0	0	0	-5
Row 3: Compare to Event 3:				1	1	1	-1	0	0	0	2
Row 4: Compare to Event 4:					-1	-1	-1	0	0	0	-3
Row 5: Compare to Event 5:						1	-1	0	0	0	0
Row 6: Compare to Event 6:							-1	0	0	0	-1
Row 7: Compare to Event 7:								0	0	0	0
Row 8: Compare to Event 8:									0	0	0
Row 9: Compare to Event 9:										0	0

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

Mann-Kendall (S) Statistic = -1



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

HCP

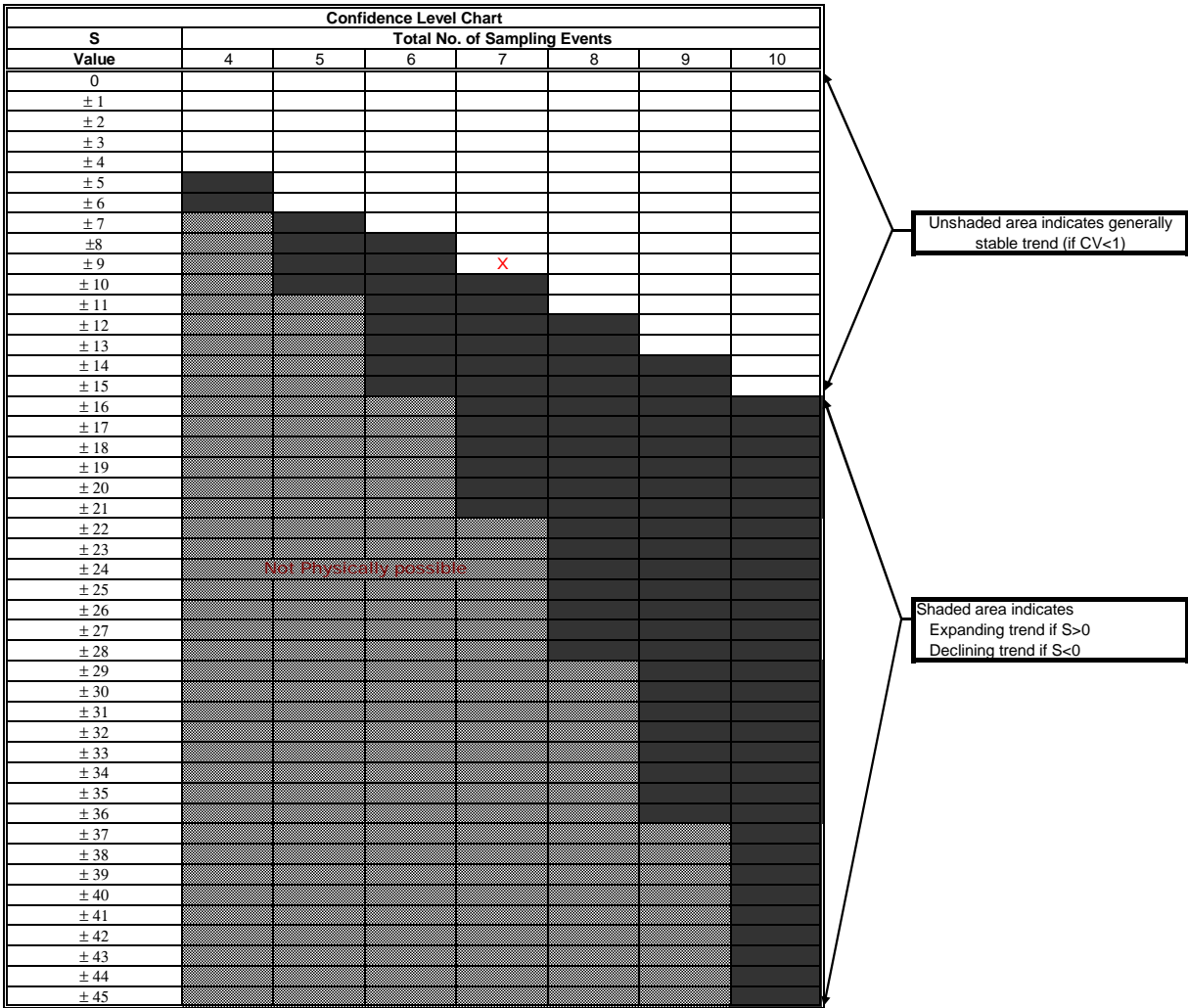
Nova Scotia Lands Incorporated

14-1360 - 2016 LTMM GROUNDWATER MONITORING EVENT

MANN-KENDALL ANALYSIS OF PLUME		MONITORING WELL NO: SCU20-017-MW									
	Event 1	Event 2	Event 3	Event 4	Event 5	Event 6	Event 7	Event 8	Event 9	Event 10	Sum Rows
Acenaphthylene	0.0064	0.0044	0.00098	0.0037	0.0029	0.0036	0.0035				
	7-Nov-10	27-Oct-11	21-Nov-12	26-Nov-13	16-Dec-14	25-Nov-15	15-Nov-16				
Row 1: Compare to Event 1:		-1	-1	-1	-1	-1	-1	0	0	0	-6
Row 2: Compare to Event 2:			-1	-1	-1	-1	-1	0	0	0	-5
Row 3: Compare to Event 3:				1	1	1	1	0	0	0	4
Row 4: Compare to Event 4:					-1	-1	-1	0	0	0	-3
Row 5: Compare to Event 5:						1	1	0	0	0	2
Row 6: Compare to Event 6:							-1	0	0	0	-1
Row 7: Compare to Event 7:								0	0	0	0
Row 8: Compare to Event 8:									0	0	0
Row 9: Compare to Event 9:										0	0

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

Mann-Kendall (S) Statistic = -9



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

HCP

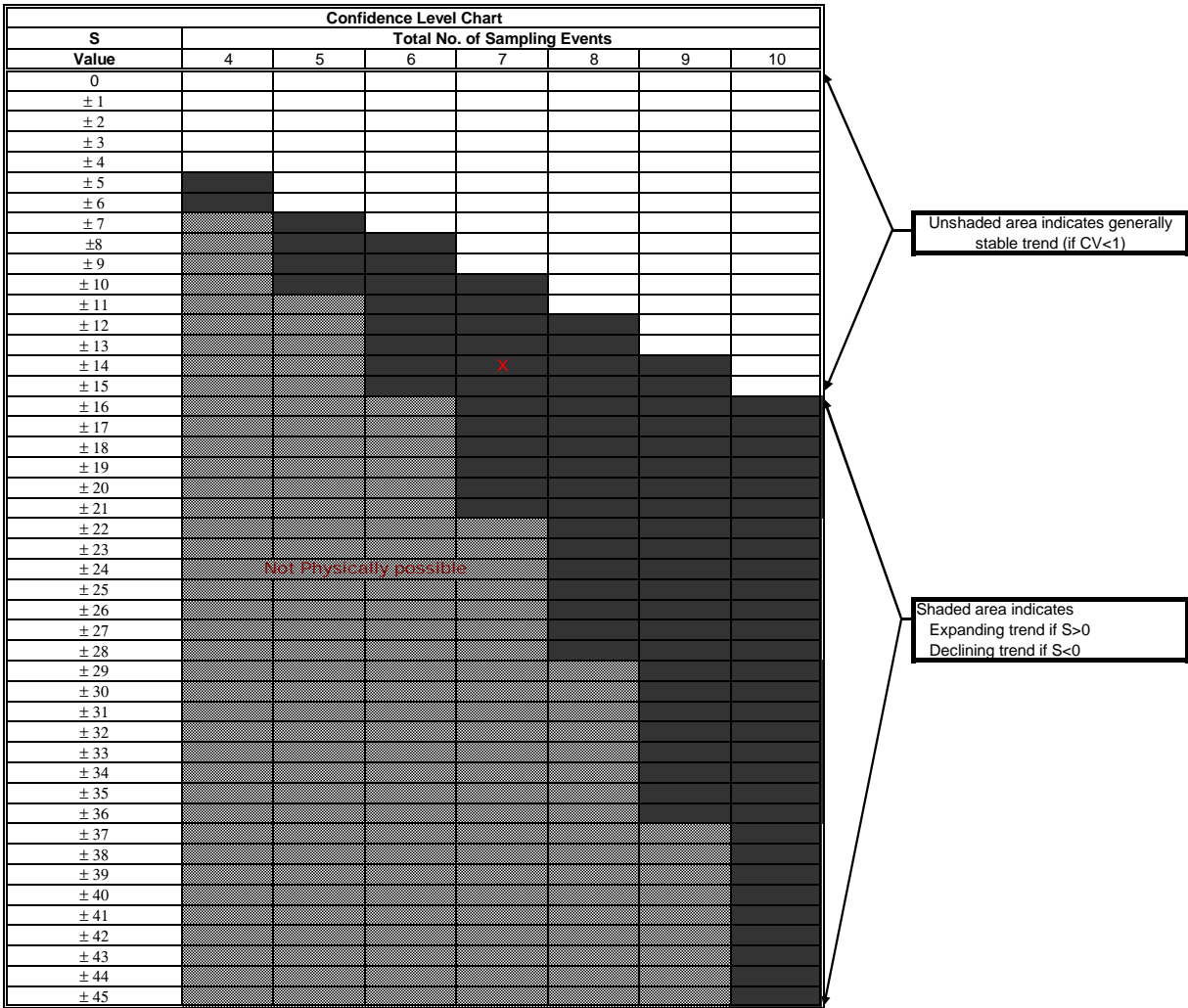
Nova Scotia Lands Incorporated

14-1360 - 2016 LTMM GROUNDWATER MONITORING EVENT

MANN-KENDALL ANALYSIS OF PLUME		MONITORING WELL NO: SCU27-002-MW									
	Event 1	Event 2	Event 3	Event 4	Event 5	Event 6	Event 7	Event 8	Event 9	Event 10	Sum Rows
Barium	15	8.7	7.3	23	30	30	31				
	26-Jul-03	4-Jul-12	26-Nov-12	5-Dec-13	17-Dec-14	27-Nov-15	16-Nov-16				
Row 1: Compare to Event 1:		-1	-1	1	1	1	1	0	0	0	2
Row 2: Compare to Event 2:			-1	1	1	1	1	0	0	0	3
Row 3: Compare to Event 3:				1	1	1	1	0	0	0	4
Row 4: Compare to Event 4:					1	1	1	0	0	0	3
Row 5: Compare to Event 5:						0	1	0	0	0	1
Row 6: Compare to Event 6:							1	0	0	0	1
Row 7: Compare to Event 7:								0	0	0	0
Row 8: Compare to Event 8:									0	0	0
Row 9: Compare to Event 9:										0	0

1/2 detection limit used for nd, historical data assumed EQL of 0.1 mg/L

Mann-Kendall (S) Statistic = 14



Stability Evaluation Results	
	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

HCP

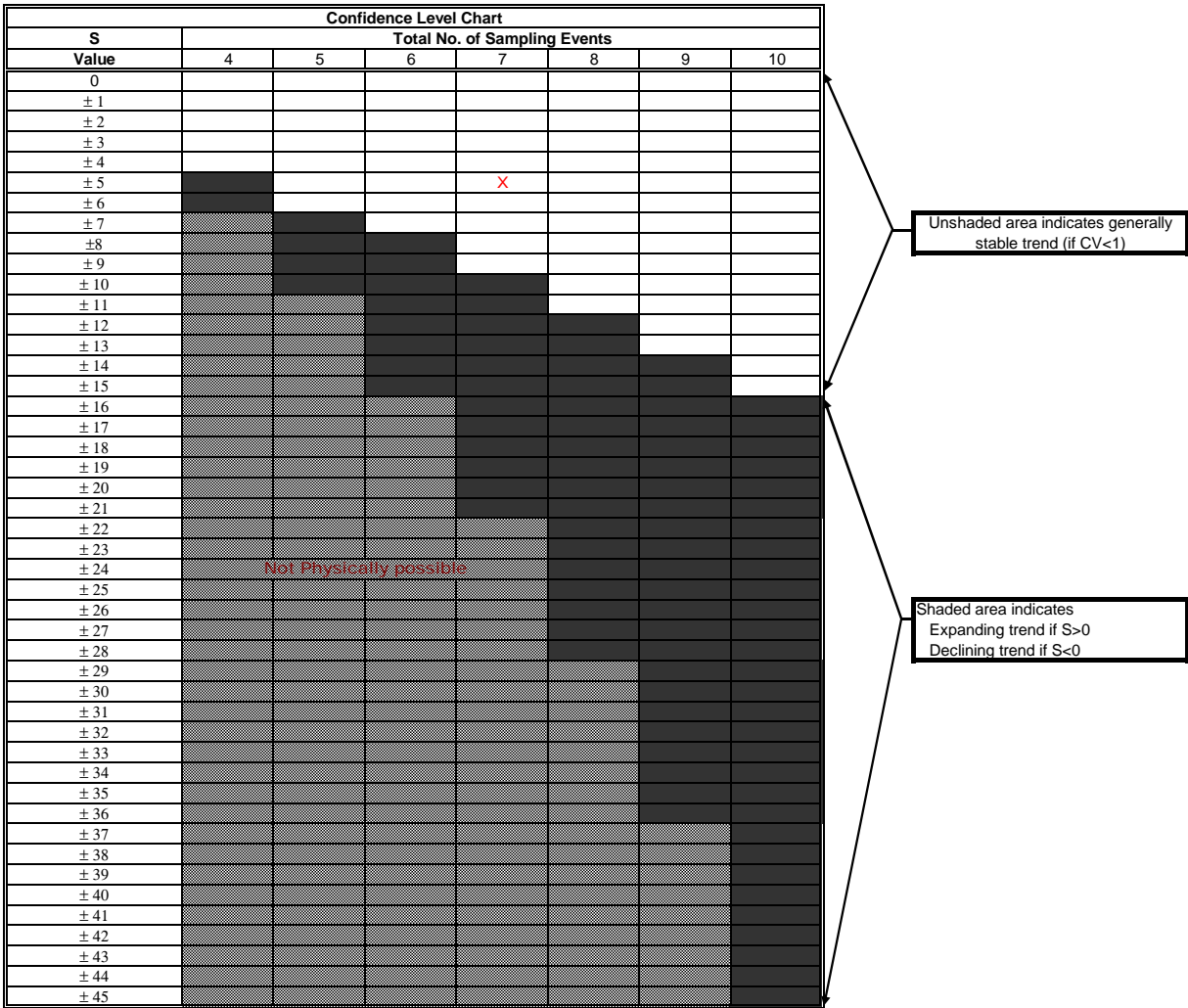
Nova Scotia Lands Incorporated

14-1360 - 2016 LTMM GROUNDWATER MONITORING EVENT

MANN-KENDALL ANALYSIS OF PLUME		MONITORING WELL NO: SCU27-002-MW									
	Event 1	Event 2	Event 3	Event 4	Event 5	Event 6	Event 7	Event 8	Event 9	Event 10	Sum Rows
Sodium	5100	5700	4900	5200	4900	4900	5100				
	26-Jul-03	4-Jul-12	26-Nov-12	5-Dec-13	17-Dec-14	27-Nov-15	16-Nov-16				
Row 1: Compare to Event 1:		1	-1	1	-1	-1	0	0	0	0	-1
Row 2: Compare to Event 2:			-1	-1	-1	-1	0	0	0	0	-5
Row 3: Compare to Event 3:				1	0	0	1	0	0	0	2
Row 4: Compare to Event 4:					-1	-1	-1	0	0	0	-3
Row 5: Compare to Event 5:						0	1	0	0	0	1
Row 6: Compare to Event 6:							1	0	0	0	1
Row 7: Compare to Event 7:								0	0	0	0
Row 8: Compare to Event 8:									0	0	0
Row 9: Compare to Event 9:										0	0

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

Mann-Kendall (S) Statistic = -5



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

References

- 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.