



# Englobe

Soils Materials Environment

## **Town of Yarmouth**

## **Groundwater and Surface Water Quality Lake George Road, Lake George, Nova Scotia**

### **Report**

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## Town of Yarmouth

# Groundwater and Surface Water Quality Lake George Road, Lake George, Nova Scotia

Report | 21347

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| REVISION AND PUBLICATION REGISTER |             |                                                 |
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## 1 INTRODUCTION

At your request, Englobe Corp. (Englobe) has conducted a water quality assessment involving the sampling and testing of potable water wells, groundwater monitor wells and surface water near the former Ibbitson Saw Mill site on Lake George Road in Lake George, Yarmouth County, Nova Scotia.

This report provides the methodology and results achieved from the program.

## 2 BACKGROUND

The Town of Yarmouth purchased the former J. Ibbitson Sawmills Inc. lands in 2005. The sawmill reportedly operated between the early 1990s and 2005, when it was purchased and subsequently decommissioned.

The land has been vacant since the purchase. In September 2015, the site was selected for reclamation, and compost produced from a Town of Yarmouth composting facility (municipal green bin program) was transported to the site and spread across areas of the site.

Recently, residents living adjacent to the site expressed concern with the debris (plastics, metals, etc.) in the compost, and the effect the compost may have on the drinking water and surface water in the surrounding area.

## 3 SCOPE OF WORK

Based on information provided regarding the site by the Town of Yarmouth, Englobe proposed the following scope of work:

- ▶ Search and interpretation of local water well records from the databases maintained by Nova Scotia Environment (NSE) and Nova Scotia Natural Resources (NSNR);
- ▶ Review available local bedrock and surficial geology mapping;
- ▶ Review available topographic and hydrological mapping to identify local water features;
- ▶ Conduct a site inspection to verify the desktop information and collect information on the potable water wells;
- ▶ Conduct water quality testing of potable water wells, existing groundwater monitor wells and surface water locations; and
- ▶ Tabulate the water quality and site inspection results and prepare a report summarizing the findings.

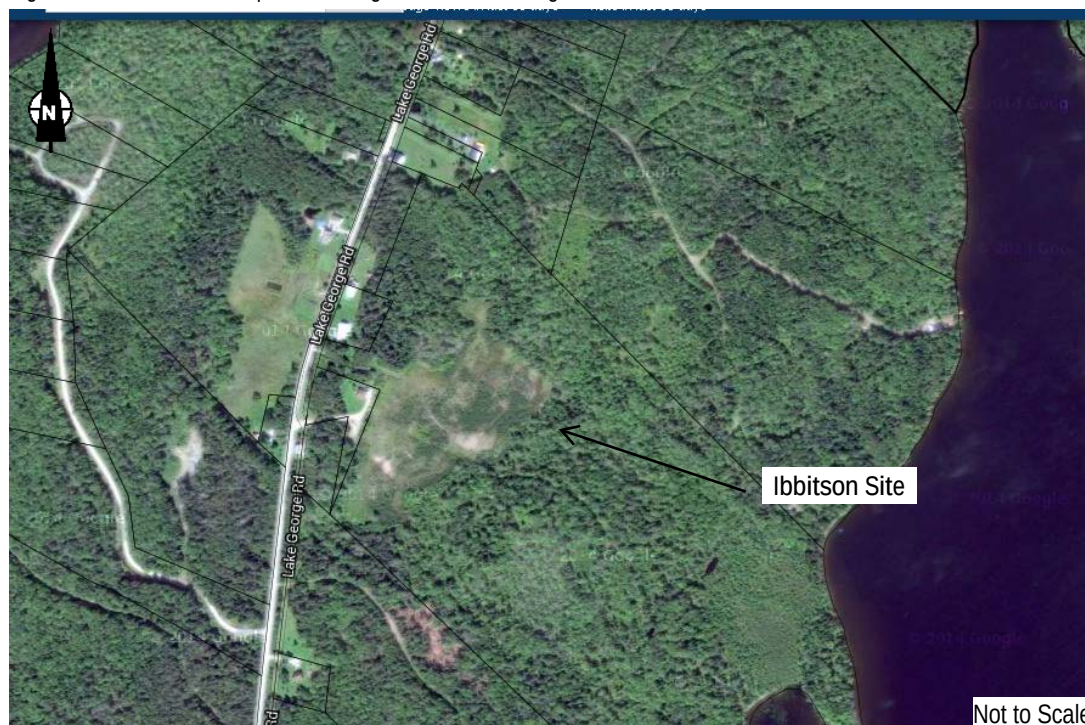
In conjunction with the local residents, the Town of Yarmouth coordinated the site inspection and sampling program.

## 4 PROPERTY DESCRIPTION

### 4.1 Site Description

The current area of interest is identified as the Ibbitson property, PID No. 90149808 (Civic No. 2014 Lake George Road) in Lake George, Yarmouth County, Nova Scotia. The entire property is approximately 379,000m<sup>2</sup> (93.6 acres) and the affected area (over which compost was spread) is approximately 39,400 m<sup>2</sup> (9.74 acres). A site location map is presented in Figure 4-1. A site plan is provided in Appendix 1 (Figure 1).

Figure 4-1. Site Location Map, Lake George Road, Lake George, NS.



Currently, the subject property is undeveloped and vacant. A sawmill, kiln and associated storage and treatment areas had been located on the western part of the site between the early-1990s and 2005. The eastern portion of the property forms a portion of the Lake George Protected Water Area.

During the site inspection, the former saw mill portion of the site had been decommissioned. This area had been spread with a 100 to 150 mm thick layer of compost during the reclamation

activities. There was debris (plastic, metal, etc.) observed throughout the compost. The saw mill portion of the site was inferred by lack of vegetation and areas of tree clearing.

The only remaining evidence of the site's past use as a saw mill were four monitor wells (that were installed during an environmental site assessment of a former fungicide underground storage tank in 2005) and a crock that collected shallow surface water. Based on discussion with the local residents, a drain tile system had been installed at the site during former operations, and drained surface water away from product laydown and spraying areas. A holding pond had been excavated in the northwest corner of the sawmill area to store water used in spraying activities. The discharge pipes of the drain tile field were observed entering the crock that remains at the site.

The former sawmill area is a localized topographic high; topography slopes downward radially from the center of the disturbed area. Surface water drainage left the disturbed areas through localized drainage pathways and channels, some manmade and some naturally formed. Drainage from the north and northeast portions of the site discharged via water features that entered a suspected wetland, then flowed easterly towards Lake George as a watercourse. A suspected wetland was observed adjacent to the northwest corner of the disturbed area (near the former holding pond). Discharge from this wetland extended towards (and beneath) Lake George Road. Another suspected wetland was observed downgradient of the crock, and water from the crock was discharged via a pipe into the wetland and from the wetland into a ditch that extended parallel and westerly to Lake George Road. Other areas of the site drained westerly from the site; although there were no defined channels.

Access to the site is via Lake George Road from the west. Neighboring properties include undeveloped tree-covered lands to the north, east and south; Lake George is further to the east. Residential properties are located to the west along Lake George Road.

## 4.2 **Geology**

The Lake George area of Yarmouth County is underlain by glacial deposits known regionally as Beaver River Till. In the Lake George area, the Beaver River Till is comprised of Slate till drumlin facies that are described as moderately compact, greyish olive, sandy materials with abundant gravel, cobble and boulder sizes. Thickness of the till unit varies from 2 to 20 metres.

Geologic mapping of the area indicates that the site is underlain by the Meguma Supergroup of metasediments. The site is in close proximity to the contact between the Acacia Brook Formation of the Halifax Group and the Bloomfield Formation of the Goldenville Group. Based on the mapping, the Bloomfield Formation underlies the site; however, the Acacia Formation is present between the site and Lake George. Church Point Formation (Goldenville Group) is expected to be on the western side of Lake George Road.

The Bloomfield Formation consists of maroon and green to grey, thin to medium-bedded metasilstone to slate, rare thin-bedded, fine-grained metasandstone, minor mafic sills. The Acacia Brook Formation consists to grey to dark grey, laminated slate with minor, thin beds and lenses of light grey metasilstone, medium bedded, crosslaminated, fine-to medium-grained metasandstone, sulphide minerals are common.

### 4.3 Compost

The compost that was transported to the site is reportedly a Category B compost product that is produced at a Town of Yarmouth facility from green bin materials, yard waste and paper products. Analysis of the compost was carried out by Dr. Paul Arnold, Bio-logic Environmental Systems.

## 5 METHODOLOGY

### 5.1 Potable Water Well Assessment

The desktop well survey consisted of review of the information in the Nova Scotia Well Log Database. Based on review of the local topography and drainage systems, and discussion with the Town of Yarmouth, an area of potential impacts from the Ibbitson site was determined. There were 9 potentially affected properties identified. Where possible, Well Logs were matched to the properties identified; although Well Logs for only 4 of the properties could be conclusively identified. Information on the surrounding properties is summarized in Table 5-1.

Table 5-1. Water sampling locations, Lake George Road, Lake George, NS – February 2, 2016

| ID  | LOCATION | PROPERTY TYPE | WELL LOG | WELL TYPE       | WELL DEPTH           |
|-----|----------|---------------|----------|-----------------|----------------------|
| PW1 |          | Residential   | -        | unknown         | unknown              |
| N/A |          | Residential   | -        | unknown         | unknown              |
| PW2 |          | Residential   | -        | Dug             | unknown              |
| PW3 |          | Residential   | 890734   | Dug             | 13 feet <sup>3</sup> |
| PW4 |          | Residential   | 961581   | Dug             | 18 feet              |
| PW5 |          | Residential   | -        | Drilled         | unknown              |
| PW6 |          | Residential   | 971539   | Drilled         | 125 feet             |
| PW7 |          | Residential   | -        | Dug             | unknown              |
| PW8 |          | Residential   | 021781   | Drilled         | 165 feet             |
| N/A |          | Institutional | -        | No potable well | -                    |
| N/A |          | Commercial    | 980680   | No longer used  | 165 feet             |

Notes: 1 Background well location  
 2 Declined participation in sampling program  
 3 Recently deepened to approx. 20 feet  
 4 Source site

The potable wells at these properties (including the background property) were recommended for sampling; although the owner of Civic No. [REDACTED] Lake George Road declined participation in the sampling program. Civic No. [REDACTED] Lake George Road (PW1) was selected as a background potable water sampling location.

During the site inspection, information was collected from property owners regarding the details of the potable water wells. Englobe attempted to collect water prior to any treatment system.

## 5.2 Surface Water Assessment

From review of topography mapping, wet area mapping (WAM) and aerial photography review, predicted drainage pathways were identified as potential sampling locations. These locations were verified in the field, and adjusted based on site specific conditions.

As discussed above, surface water was observed discharging from the north end of the site in three locations. One location (northwest) enters a suspected wetland, and eventually discharges from the wetland as channelized flow beneath Lake George Road and to the rear of Civic No. [REDACTED] Lake George Road. A sample was collected on the downgradient side of Lake George Road. The other surface water discharge locations entered a suspected wetland a short distance from the disturbed area. Mapping of this water feature predicted that it flowed northward and westward before discharging to ponded water on Civic No. 2104 Lake George Road (fire pond near the road); however, ground truthing verified a watercourse instead flowed easterly towards Lake George from the wetland. A sample was collected where the watercourse discharged from the wetland.

Shallow surface water from the central portion of the site appeared directed towards a crock (remnant from the sawmill activities) via a drain tile system. A (groundwater) sample was collected from the crock. The crock was approximately 2.4m deep and had a diameter of 1.0m, there was approximately 100mm of water. Water was discharging the crock from a pipe and entering a suspected wetland to the west. Water from this wetland then appeared to migrate into a downgradient ditch via discharge and seepage through the ditch backslope. This ditch was present on the available mapping that was reviewed and ground truthing verified that it extended along Lake George Road towards a pond that then discharges via a culvert beneath Lake George Road (between 2046 and 2012 Lake George Road). A sample was collected from the ditch, prior to the pond. Details of the surface water sample locations are summarized in Table 5-2.

Table 5-2. Surface Water Sample Locations.

| ID  | LOCATION                                                                                                                |
|-----|-------------------------------------------------------------------------------------------------------------------------|
| SW1 | Wetland discharge, at downgradient side of the culvert beneath Lake George Road, between 2087 and 2065 Lake George Road |

| ID  | LOCATION                                                                                                                      |
|-----|-------------------------------------------------------------------------------------------------------------------------------|
| SW2 | Watercourse that discharged from wetland that collected surface water from north and northeast portion of the disturbed area. |
| SW3 | Ditch downgradient of wetland and onsite water collection crock.                                                              |

During the site visit, four monitor wells from a previous environmental site assessment (of a dip tank reportedly for fungicide storage) were observed, in close proximity to the crock. All four monitor wells were in close proximity (i.e. 5m or less) and three were in very poor condition, therefore only one monitor well was sampled. The monitor well that was sampled (for groundwater) was approximately 3.6m deep, and based on the monitor well logs reviewed was terminated in site native glacial till (slate drumlin facies, described as silt).

### 5.3 Water Sampling

On February 2, 2016, Englobe personnel measured field parameters at eight potable wells (PW1 through PW8), one monitoring well (MW2), three surface water locations (SW1 through SW3) and one crock (MW1) for conductivity, temperature and pH. In addition, dissolved oxygen was also recorded at the surface water locations (SW1, SW2 and SW3). Temperature, pH, conductivity and dissolved oxygen were measured using a YSI Professional Plus multiparameter field instrument.

At the potable water wells, the water was allowed to run for 5 minutes (or more) before collection from a tap, prior to any water treatment systems. The residents had also been running the water in advance of the sampling program. The monitor well (MW2) was purged a minimum of three pore volumes prior to sampling. The monitor well was equipped with dedicated Waterra tubing and a locked stick-up protective cover. The stick-up protective cover was in poor condition and was physically removed prior to sampling, and later re-installed. Based on the volume of water in the crock, it was not purged prior to sampling. The surface water samples were carefully collected instream, taking care not to mobilize any sediment.

Water samples were collected for analysis based on Schedule 1 of the NSE 2010 Composting Facility Guidelines and following standard sampling protocols for potable water, groundwater and surface water. Specifically, potable water and groundwater were analysed for parameters in Column 1 and surface water was analysed for parameters in Column 3.

In accordance with laboratory sampling protocols, water samples were collected; specifically, we used 120 mL plastic containers for metals (preserved with nitric acid in the field), 200-mL plastic containers for general inorganic chemistry, and 100-mL amber glass bottles with sulfuric acid preservative for Total Kjeldahl Nitrogen (TKN), Total Phosphorus, Total Phenol, Chemical Oxygen Demand (COD), Total Organic Carbon (TOC) and Dissolved Organic Carbon (DOC). DOC samples were filtered in the field. Water samples collected from each water sampling location for Total Suspended Solids (TSS) were placed in 500-mL plastic containers. Water



samples for mercury analysis were placed in 100-mL amber glass bottles with potassium chromate preservative. Water samples collected for volatile organic compounds (VOCs) were placed in 40-mL glass vials with sodium bisulphate preservative. Surface water samples collected for Carbonaceous Biochemical Oxygen Demand (BOD) and Tannins and Lignins were placed in 500-mL plastic containers. Other than noted above, no samples were filtered.

The water sample containers were immediately placed in ice-packed coolers and were transported to Maxxam Analytics laboratory in Bedford, Nova Scotia, for detailed chemical analysis as listed above.

## 6 RESULTS

### 6.1 Field Results

Field measurements obtained for the groundwater and surface water sampling stations are presented in Table 6-1, below.

Table 6-1. Field Measurements at Lake George Road, Lake George, NS – February 2, 2016

| LOCATION | TEMPERATURE<br>(°C) | PH<br>(units) | CONDUCTIVITY<br>(µS/cm) | DISSOLVED OXYGEN<br>(mg/L) |
|----------|---------------------|---------------|-------------------------|----------------------------|
| PW1      | 10.0                | 6.13          | 59                      | -                          |
| PW2      | 12.07               | 6.58          | 114                     | -                          |
| PW3      | 7.37                | 6.64          | 185                     | -                          |
| PW4      | 7.51                | 6.98          | 105                     | -                          |
| PW5      | 9.02                | 6.85          | 117                     | -                          |
| PW6      | 8.35                | 7.06          | 85                      | -                          |
| PW7      | 7.34                | 6.95          | 68                      | -                          |
| PW8      | 10.24               | 6.95          | 234                     | -                          |
| MW1      | 4.14                | 6.44          | 366                     | -                          |
| MW2      | 5.60                | 6.10          | 409                     | -                          |
| SW1      | 2.85                | 3.64          | 63                      | 12.44                      |
| SW2      | 2.91                | 6.55          | 46                      | 10.48                      |
| SW3      | 2.56                | 6.29          | 93                      | 10.27                      |

### 6.2 Analytical Results

Laboratory analytical results are presented in Table 1 through 9, Appendix 2. Laboratory Certificates of Analysis are presented in Appendix 3.

Potable water and groundwater analytical results are provided in comparison with the 1999 (2014 updates) Health Canada Drinking Water Quality (HCDWQ) Guidelines and the 2013 NSE Environmental Quality Standards (EQS) for Potable Groundwater (coarse-grained soil). Surface water analytical results are compared to the 1999 (2015 updates) CCME *Water Quality Guidelines for the Protection of Freshwater Aquatic Life* (FAL) and the 2013 NSE EQS for Surface Water (fresh water).

### 6.2.1 Potable Water

Potable well water was collected and analyzed in accordance with industry standards for analytes that were chosen based on Schedule 1, Column 1 of the Composting Facility Guidelines. Laboratory analytical results are summarized in Tables 1 through 3, Appendix 2.

#### General Chemistry

The laboratory pH at PW3 was 6.19, which is below the HCDWQ range of 6.5 to 8.5; there is no NSE EQS for pH. The field pH (which is generally more accurate) at PW3 was 6.64, which satisfies the HCDWQ range. The field pH at PW1 was depressed (6.13) below the HCDWQ range.

Trace phenol concentrations were detected at PW1 and PW2 (0.0019 mg/L and 0.0011 mg/L, respectively) and satisfy the NSE EQS (0.57 mg/L); there is no HCDWQ guideline for phenol. Phenol was not detected by the laboratory (<0.0010 mg/L) at PW3, PW4, PW5, PW6, PW7 and PW8.

Turbidity at PW6 and PW8 (7.3 and 12 NTU, respectively) exceeded the HCDWQ guideline of 1 NTU; there is no EQS for turbidity. The turbidity HCDWQ guideline is a health based guideline.

#### Metals

The aluminum concentration at PW3 (110 µg/L) exceeded the HCDWQ guideline (100 µg/L); there is no NSE EQS for aluminum. The aluminum HCDWQ guideline is based on operation of drinking water treatment plants and is not a health based guideline.

Iron concentrations at PW6 and PW8 (620 and 1000 µg/L, respectively) exceeded the HCDWQ guideline (300 µg/L); there is no NSE EQS for iron. The iron HCDWQ guideline is an aesthetic objective, and iron is common in Nova Scotia groundwater supplies; therefore it is not necessarily attributable to contamination.

The lead concentration at PW3 (15 µg/L) exceeded both the Health Canada drinking water guideline and the NSE EQS (10 µg/L). The lead HCDWQ guideline is a health based guideline



Manganese concentrations at PW6 and PW8 (65 and 420 µg/L, respectively) were elevated over the HCDWQ guideline (50 µg/L); there is no NSE EQS for manganese. The manganese HCDWQ guideline is an aesthetic objective only, and manganese is common in Nova Scotia groundwater supplies; therefore it is not necessarily attributable to contamination.

#### Volatile Organic Compounds

The laboratory did not detect any of the Column 1 VOCs in the potable water samples analyzed, although trace concentrations of trihalomethanes and chloroform were detected at PW3 and PW7. These results satisfied the applicable HCDWQ guidelines and NSE EQS for VOCs. Trihalomethanes and chloroform and generally indications of decomposing organic matter in the presence of chlorinated water.

### 6.2.2 Groundwater

Groundwater was collected and analyzed in accordance with Schedule 1, Column 1 of the Composting Facility Guidelines. Given the intent of this study (possible effects on potable water and surface water), total metals were analyzed instead of dissolved metals, the result of this may lead to over-estimated concentrations of metals that are adhered to particulate matter in the water. Since there is potential for water in the crock (MW1) and the onsite monitor well (MW2) to enter surface water features as well as shallow dug potable water wells, the results were compared to the HCDWQ guidelines, the CCME FAL guidelines and the NSE Tier 1 EQS (for groundwater and freshwater surface water). Laboratory analytical results are summarized in Tables 7 through 9, Appendix 2.

#### General Chemistry

The field pH at MW1 and MW2 was depressed (6.44 and 6.1, respectively) below the HCDWQ range of 6.5 to 8.5 and the FAL range of 6.5 to 9. There are no NSE Tier 1 EQS for groundwater or surface water.

The total dissolved solids (TDS) concentration at MW2 (510 mg/L) exceeded the HCDWQ guideline of 500 mg/L; there is no NSE EQS for TDS. The TDS HCDWQ guideline is an aesthetic objective only.

Colour at MW1 (1100 TCU) exceeded the HCDWQ guideline of ≤15 TCU; there is no NSE EQS for colour. The colour HCDWQ guideline is an aesthetic objective only.

Phenol concentrations at MW1 and MW2 (0.040 and 0.0037 mg/L, respectively) satisfy the NSE EQS (0.57 mg/L); there is no HCDWQ guideline for phenol. The phenol concentration at MW1 exceeded the FAL guideline and NSE surface water EQS (0.004 mg/L).

Turbidity at MW1 (89 NTU, and 88 NTU in that laboratory duplicate) and MW2 (>1000 NTU) exceeded the HCDWQ guideline of 1 NTU; there is no EQS for turbidity. The turbidity HCDWQ is a health based guideline.

Although there are no relevant guidelines, total chemical oxygen demand and dissolved organic carbon concentrations were somewhat elevated at MW1 and MW2. Phosphorus and TKN concentrations were also slightly elevated above those detected in the surface water, although this could result from trapped sediment and organic matter in the monitor well and crock.

### Metals

Aluminum concentrations at MW1 and MW2 (810 and 70,000 µg/L, respectively) exceeded the HCDWQ guideline (100 µg/L); there is no NSE groundwater EQS for aluminum. The aluminum HCDWQ guideline is based on operation of drinking water treatment plants and is not a health based guideline. Aluminum concentrations at MW1 and MW2 also exceeded the CCME FAL and NSE surface water EQS (both 5 µg/L).

The arsenic concentration at MW2 (49 µg/L) exceeded both the HCDWQ guideline and NSE EQS (10 µg/L). The arsenic HCDWQ is a health based guideline. Arsenic concentrations at MW1 and MW2 also exceeded the CCME FAL and NSE surface water EQS (both 5 µg/L).

The cadmium concentration at MW1 (0.33 µg/L) exceeded the CCME FAL (calculated to be 0.18 µg/L) and the NSE surface water EQS (0.01 µg/L). The cadmium concentration at MW2 (0.17 µg/L) exceeded only the NSE surface water EQS.

The chromium concentration at MW2 (110 µg/L) exceeded the HCDWQ guideline, CCME FAL guideline (8.9 µg/L) and NSE groundwater EQS (50 µg/L). The chromium HCDWQ guideline is a health based guideline.

The cobalt concentration at MW2 (61 µg/L) exceeded the NSE Tier 1 groundwater EQS (10 µg/L) and Tier 1 surface water EQS (10 µg/L); there is no HCDWQ or FAL guideline for cobalt.

Copper concentrations at MW1 and MW2 (37 and 260, respectively) exceeded the CCME FAL (calculated to be 2.76 and 4 µg/L, respectively) and NSE surface water EQS (2 µg/L).

Iron concentrations at MW1 and MW2 (14,000 and 110,000 µg/L, respectively) exceeded the HCDWQ guideline (300 µg/L); there is no NSE EQS for iron. The HCDWQ guideline for iron is an aesthetic objective, and iron is common in Nova Scotia groundwater supplies; therefore it is not necessarily attributable to contamination. Iron concentrations at MW1 and MW2 also exceeded the CCME FAL and NSE surface water EQS (both 300 µg/L).

The lead concentration at MW2 (30 µg/L) exceeded both the HCDWQ guideline and the NSE EQS (10 µg/L). The lead HCDWQ guideline is a health based guideline. Lead concentrations at MW1 (5 µg/L) and MW2 also exceeded the CCME FAL (calculated to be 4.01 and 7 µg/L, respectively) and NSE surface water EQS (1 µg/L).

Manganese concentrations at MW1 and MW2 (1100 and 3600 µg/L, respectively) exceeded the HCDWQ guideline (50 µg/L); there is no NSE EQS for manganese. The manganese HCDWQ guideline is an aesthetic objective only, and manganese is common in Nova Scotia groundwater supplies; therefore it is not necessarily attributable to contamination. Manganese concentrations at MW1 and MW2 also exceeded the NSE surface water EQS (820 µg/L).

The nickel concentration at MW2 (120 µg/L) exceeded the NSE EQS (100 µg/L); there is no HCDWQ guideline for nickel. The nickel concentration at MW2 also exceeded the NSE surface water EQS (0.1 µg/L).

The vanadium concentration at MW2 (100 µg/L) exceeded the NSE EQS (6.2 µg/L); there is no HCDWQ guideline for vanadium. The vanadium concentration at MW2 also exceeded the NSE surface water EQS (6 µg/L).

Zinc concentrations at MW1 and MW2 (54 and 210, respectively) exceeded the CCME FAL and NSE surface water EQS (both 30 µg/L).

#### Volatile Organic Compounds

The laboratory did not detect any VOCs in the groundwater samples analyzed. These results satisfied the applicable HCDWQ guidelines and NSE EQS for VOCs.

### **6.2.3 Surface Water**

Surface water was collected and analyzed in accordance with industry standards for analytes that were chosen based on Schedule 1, Column 3 of the Composting Facility Guidelines. Laboratory analytical results are provided in Tables 4 through 6, Appendix 2.

#### General Chemistry

Field and laboratory surface water pH at SW1 (3.64 and 5.38), laboratory pH at SW2 (5.89) and field pH at SW3 (6.29), was depressed below the CCME FAL range of 6.5 to 9.0; there is no NSE EQS for pH.

Phenol concentrations at SW1 and SW3 (0.0085 mg/L and 0.0052 mg/L, respectively) exceeded the CCME FAL guideline and NSE EQS (0.004 mg/L).

Although there are no relevant guidelines, total chemical oxygen demand and total organic carbon concentrations were elevated at SW1, SW2 and SW3.

### Metals

Aluminum levels at SW1, SW2 and SW3 (550, 450 and 530 µg/L, respectively) exceeded the CCME FAL guideline (5 or 100 µg/L, based on pH) and the NSE EQS (5 µg/L).

Cadmium concentrations at SW1, SW2 and SW3 (0.21, 0.11 and 0.063 µg/L) exceeded the CCME FAL guideline (0.04 to 0.37 µg/L, based on hardness) and the NSE EQS (0.1 µg/L).

Copper concentrations at SW1, SW2 and SW3 (7.3, 4.5 and 6.6 µg/L) exceeded the calculated CCME FAL guideline (2 to 4 µg/L, based on hardness) and the NSE EQS (2 µg/L).

Iron concentrations at SW1, SW2 and SW3 (820, 560 and 2200 µg/L) exceeded the CCME FAL guideline and NSE EQS (300 µg/L for both). Elevated iron concentrations are commonly found in surficial soils and surface waters of Nova Scotia.

Lead concentrations at SW1, SW2 and SW3 (13, 5.9 and 1.5 µg/L) exceeded the CCME FAL guideline (1 to 7 µg/L, calculated based on hardness) and the NSE EQS (1 µg/L).

The mercury concentration at SW1 (0.028 µg/L) exceeded of the CCME FAL guideline and the NSE EQS (0.026 µg/L for both).

### Volatile Organic Compounds

The laboratory did not detect VOCs in the surface water samples analyzed. These results satisfied the applicable CCME fresh water guidelines and NSE EQS for VOCs.

## 7 DISCUSSION

The compost chemical composition (Appendix 4) was reviewed in conjunction with the potable water, groundwater and surface water results to identify any correlated trends that may be attributed to leaching of the compost to the surrounding environment.

There appears to be no organic loading on the potable water from the compost. The elevated total organic carbon, dissolved organic carbon and total chemical oxygen demand concentrations in the surface water, monitor well and crock have several potential sources, including the compost, natural organics (in the wetlands), sediment in the monitor well and crock, as well as other historic activities at the site. The dissolved oxygen concentrations in the surface water suggest that organic loading is not a problem at this time.

Based on the non-detectable VOCs in the surface water and groundwater, particularly vinyl chloride which is a by-product of polyvinyl chloride (PVC) degradation, there appears to be no leaching of these types of plastics into the surrounding water environments.

In general elevated aluminum, iron and manganese concentrations are natural in groundwater and surface water in Nova Scotia as a result of our natural soil and geology. The presence of these metals in potable water (or in surface water) is not necessarily a source of contamination.

Other elevated metals concentrations in the potable water, groundwater and surface water (arsenic, chromium, cobalt, copper, lead, nickel, vanadium) suggest an anthropogenic source, although the compost does not appear to contain significant concentrations of the metals.

Other than the crock (MW1), phenol, where present in the area, may be naturally elevated; phenol concentrations in the potable water appear consistent with background concentrations. There is no Health Canada drinking water quality guideline for phenol.

Turbidity in the water samples is likely related to the fine-grained nature of the natural soil deposits (Slate Till drumlin facies) in the area.

Water from the crock (MW1) does show some evidence of elevated organic parameters as well as metals. Elevated turbidity and TSS concentrations were reported in the onsite monitor well (MW2) and crock (MW1); some metals bind tightly with suspended soil and organic matter and when turbidity and TSS are elevated, laboratory results may appear to be a concern, when in fact the chemicals identified are not particularly mobile and are trapped on the sediment in the pore spaces of the surrounding soil. Dissolved metals are normally the chosen analytes in the case of groundwater monitor wells; however, to be conservative, Englobe chose to evaluate total metals in (non-potable) groundwater since there was some evidence of water from the crock discharging directly to surface water features and potentially to shallow dug wells. SW3 and PW2 (dug well at [REDACTED] Lake George Road) as well as the suspected wetland would be the potential receiving environments from contaminated water potentially discharging from the crock. Lead was elevated in the surface water of SW3; however, lead in PW2 appeared consistent with background conditions.

There appears to be an unidentified source of elevated metals (and depressed pH) on the northwest side of the property. Surface water from this area, as well as potable water PW3 ([REDACTED] Lake George Road) and to a lesser extent PW8 ([REDACTED] Lake George Road) had the highest lead concentrations detected other than those at the crock (MW1).

## 8 SUMMARY AND CONCLUSIONS

Based on our interpretation of the results, there appears to be no leaching of organics, metals or plastics from the compost to the surrounding surface water and potable groundwater.

Review of the results and the history of the Ibbiston site suggest that the elevated metals (and depressed pH) are from historic activities at the site, most likely related to wood preservative use.

The potable water at [REDACTED] Lake George Road should not be consumed unless treated. Plumbing in the dwelling should be assessed for lead fixtures to eliminate that as a potential source of the elevated lead concentrations. The potable water at [REDACTED] Lake George Road should be monitored since the lead concentration is relatively high, and plumbing in this dwelling should also be assessed for lead fixtures to eliminate that as a potential source of the elevated lead concentrations.

Further evaluation of the source and magnitude of the impacts that were identified should be conducted.

## 9 REPORT USE AND CONDITIONS

This review and assessment was conducted using the methodology described in this report. The opinions in this report are provided using generally accepted scientific judgement, principles and practices; however, due to the inherent uncertainty in these processes, no guarantee of conclusion is intended or can be given.

It is important to note that the investigation involves a sampling of the site gathered at specific test locations and the conclusions in this report are based on this information gathered.

This report was prepared by Englobe for the exclusive use of the Town of Yarmouth. The scope of the services performed may not be appropriate to satisfy the needs of third parties. Any use which a third party makes of this report, or any reliance on or decisions made based on it, is the sole responsibility of the third party. Englobe accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report.

## Appendix 1 Site Plan



# Town of Yarmouth





## **Appendix 2   Laboratory Analytical Results**

TABLE 1: GENERAL CHEMISTRY in Potable Water  
Client: Town of Yarmouth  
Site Location: Lake George Road, Lake George, NS  
Englobe Project No.: 21347

| PARAMETER                           | UNITS | Health<br>Canada<br>Drinking<br>Water<br>Guidelines <sup>1</sup> | NSE Tier 1<br>EQS <sup>2</sup> | Sample ID                    |         |           |           |           |         |           |           |           |           |           |           |         |
|-------------------------------------|-------|------------------------------------------------------------------|--------------------------------|------------------------------|---------|-----------|-----------|-----------|---------|-----------|-----------|-----------|-----------|-----------|-----------|---------|
|                                     |       |                                                                  |                                | (Civic No. Lake George Road) |         |           |           |           |         |           |           |           |           |           |           |         |
|                                     |       |                                                                  |                                | PW1 (Background)             |         | PW2       | PW3       | PW4       |         | PW5       | PW6       | PW7       | PW8       | PW9       | PW9A      |         |
|                                     |       |                                                                  |                                | 2-Feb-16                     | Lab Dup | 2-Feb-16  | 2-Feb-16  | 2-Feb-16  | Lab Dup | 2-Feb-16  | 2-Feb-16  | 2-Feb-16  | 2-Feb-16  | 24-Feb-16 | 24-Feb-16 | Lab Dup |
| Field pH                            | pH    | 6.5-8.5                                                          | NG                             | 6.13                         | -       | 6.58      | 6.64      | 6.98      | -       | 6.85      | 7.06      | 6.95      | 6.95      | -         | -         | -       |
| Field Conductivity                  | uS/cm | NG                                                               | NG                             | 59                           | -       | 114       | 185       | 105       | -       | 117       | 85        | 68        | 234       | -         | -         | -       |
| Field Temperature                   | °C    | NG                                                               | NG                             | 10                           | -       | 12.07     | 7.37      | 7.51      | -       | 9.02      | 8.35      | 7.34      | 10.24     | -         | -         | -       |
| Anion Sum                           | me/L  | NG                                                               | NG                             | 0.850                        | -       | 1.51      | 2.64      | 1.72      | -       | 1.81      | 1.29      | 1.01      | 3.29      | 0.680     | 0.830     | -       |
| Bicarb. Alkalinity (calc. as CaCO3) | mg/L  | NG                                                               | NG                             | 29                           | -       | 41        | 12        | 61        | -       | 59        | 26        | 14        | 58        | 23        | 31        | -       |
| Calculated TDS                      | mg/L  | ≤ 500 (AO)                                                       | NG                             | 54                           | -       | 97        | 150       | 110       | -       | 120       | 86        | 67        | 190       | 45        | 44        | -       |
| Carb. Alkalinity (calc. as CaCO3)   | mg/L  | NG                                                               | NG                             | <1.0                         | -       | <1.0      | <1.0      | <1.0      | -       | <1.0      | <1.0      | <1.0      | <1.0      | <1.0      | <1.0      | -       |
| Cation Sum                          | me/L  | NG                                                               | NG                             | 0.820                        | -       | 1.36      | 2.30      | 1.57      | -       | 1.66      | 1.13      | 0.890     | 2.80      | 0.600     | 0.780     | -       |
| Colour                              | TCU   | ≤ 15 (AO)                                                        | NG                             | 6.1                          | -       | <5.0      | <5.0      | <5.0      | -       | <5.0      | <5.0      | <5.0      | <5.0      | 7.6       | 8.2       | 8.2     |
| Conductivity                        | uS/cm | NG                                                               | NG                             | 75                           | -       | 130       | 260       | 140       | -       | 150       | 110       | 95        | 290       | 58        | 76        | -       |
| Chloride (Cl)                       | mg/L  | ≤ 250 (AO)                                                       | 250                            | 5.2                          | -       | 15        | 78        | 9.5       | -       | 15        | 18        | 19        | 68        | 5.2       | 7.0       | 6.9     |
| Sulphate (SO4)                      | mg/L  | ≤ 500 (AO)                                                       | NG                             | 4.5                          | -       | 12        | 8.7       | 10        | -       | 9.5       | 12        | 8.5       | 10        | 2.9       | <2.0      | <2.0    |
| Hardness (CaCO3)                    | mg/L  | NG                                                               | NG                             | 27                           | -       | 45        | 23        | 59        | -       | 59        | 31        | 18        | 83        | 18        | 30        | -       |
| Ion Balance (% Difference)          | %     | NG                                                               | NG                             | 1.80                         | -       | 5.23      | 6.88      | 4.56      | -       | 4.32      | 6.61      | 6.32      | 8.05      | 6.25      | 3.11      | -       |
| Langelier Index (@ 20C)             | N/A   | NG                                                               | NG                             | -2.42                        | -       | -1.58     | -3.27     | -0.896    | -       | -1.26     | -2.16     | -2.94     | -0.950    | -2.66     | -1.94     | -       |
| Langelier Index (@ 4C)              | N/A   | NG                                                               | NG                             | -2.67                        | -       | -1.84     | -3.52     | -1.15     | -       | -1.51     | -2.41     | -3.19     | -1.20     | -2.91     | -2.19     | -       |
| Nitrate (N)                         | mg/L  | 10 (MAC)                                                         | NG                             | 0.54                         | -       | 0.45      | 0.15      | 0.18      | -       | 0.26      | 0.15      | 0.16      | <0.050    | 0.19      | <0.050    | -       |
| Nitrate + Nitrite                   | mg/L  | NG                                                               | NG                             | 0.54                         | -       | 0.45      | 0.15      | 0.18      | -       | 0.26      | 0.15      | 0.16      | <0.050    | 0.19      | <0.050    | <0.050  |
| Nitrite (N)                         | mg/L  | 3.2 (MAC)                                                        | NG                             | <0.010                       | -       | <0.010    | <0.010    | <0.010    | -       | <0.010    | <0.010    | <0.010    | <0.010    | <0.010    | <0.010    | <0.010  |
| Nitrogen (Ammonia Nitrogen)         | mg/L  | NG                                                               | NG                             | 0.077                        | -       | <0.050    | 0.051     | 0.17      | 0.11    | <0.050    | <0.050    | <0.050    | 0.068     | 0.089     | <0.050    | -       |
| Orthophosphate (P)                  | mg/L  | NG                                                               | NG                             | 0.011                        | -       | 0.015     | <0.010    | 0.020     | -       | 0.018     | 0.015     | 0.014     | 0.017     | <0.010    | <0.010    | <0.010  |
| Phenol                              | mg/L  | NG                                                               | 0.57                           | 0.0019                       | -       | 0.0011    | <0.0010   | <0.0010   | -       | <0.0010   | <0.0010   | <0.0010   | <0.0010   | <0.0010   | <0.0010   | <0.0010 |
| pH                                  | pH    | 6.5-8.5                                                          | NG                             | 6.59                         | -       | 7.00      | 6.19      | 7.38      | -       | 7.10      | 6.82      | 6.63      | 7.29      | 6.61      | 6.90      | -       |
| Phosphorous                         | mg/L  | NG                                                               | NG                             | <0.020                       | -       | <0.020    | <0.020    | <0.020    | -       | <0.020    | <0.020    | <0.020    | 0.047     | <0.020    | <0.020    | -       |
| Reactive Silica (SiO2)              | mg/L  | NG                                                               | NG                             | 8.0                          | -       | 16        | 5.9       | 18        | -       | 22        | 17        | 12        | 21        | 10        | 2.8       | 2.8     |
| Saturation pH (@ 20C)               | N/A   | NG                                                               | NG                             | 9.00                         | -       | 8.59      | 9.47      | 8.27      | -       | 8.36      | 8.97      | 9.57      | 8.24      | 9.27      | 8.84      | -       |
| Saturation pH (@ 4C)                | N/A   | NG                                                               | NG                             | 9.25                         | -       | 8.84      | 9.72      | 8.53      | -       | 8.62      | 9.22      | 9.83      | 8.49      | 9.52      | 9.09      | -       |
| Total Alkalinity (Total as CaCO3)   | mg/L  | NG                                                               | NG                             | 29                           | -       | 41        | 12        | 62        | -       | 59        | 26        | 14        | 58        | 23        | 31        | 31      |
| Dissolved Organic Carbon            | mg/L  | NG                                                               | NG                             | 3.4                          | 3.3     | 0.5       | 0.80      | <0.5      | -       | <0.5      | <0.5      | <0.5      | <0.5      | 3.3       | 3.9       | -       |
| Total Chemical Oxygen Demand        | mg/L  | NG                                                               | NG                             | 7.7                          | -       | <5.0      | <5.0      | <5.0      | -       | <5.0      | <5.0      | <5.0      | <5.0      | 5.8       | 7.7       | -       |
| Total Kjeldahl Nitrogen             | mg/L  | NG                                                               | NG                             | 0.29 (1)                     | -       | <0.20 (1) | <0.20 (1) | <0.20 (1) | -       | <0.20 (1) | <0.20 (1) | <0.20 (1) | <0.20 (1) | <0.20 (4) | 0.26 (4)  | -       |
| Total Organic Carbon (C)            | mg/L  | NG                                                               | NG                             | 3.1                          | -       | <0.50     | 0.56      | <0.50     | <0.50   | <0.50     | <0.50     | <0.50     | <0.50     | 2.1       | 3.5       | -       |
| Total Suspended Solids              | mg/L  | NG                                                               | NG                             | <1.0                         | -       | <1.0      | <1.0      | <1.0      | -       | <1.0      | <1.0      | 1.6       | <1.0      | <1.0      | <1.0      | -       |
| Turbidity                           | NTU   | 1 (MAC)                                                          | NG                             | 0.39                         | -       | 0.49      | 0.66      | <0.10     | -       | <0.10     | 7.3       | 0.49      | 12        | 0.27      | 0.16      | -       |

Notes:  
AO - Aesthetic Objective  
MAC - Maximum Acceptable Concentration  
NG - no guideline

value

- exceeds CCME drinking water guidelines  

value

-exceeds NSE EQS  

value

-exceeds both CCME and NSE EQS  
value-RDL exceeds guideline

(1) Elevated reporting limit due to sample matrix.  
(2) Reporting limit was increased due to turbidity.  
(3) The sample was decanted due to sediment.  
(4) Elevated reporting limit due to blank performance.

<sup>1</sup>Criteria taken from Health Canada's Canadian Water Quality Guidelines for Community (Drinking) Water (Update 2014)  
<sup>2</sup> Criteria taken from the 2013 Nova Scotia Environment (NSE) Tier 1 Environmental Quality Standards (EQS) for potable water at a residential site with coarse-grained soil

TABLE 2: TOTAL METALS in Potable Water  
Client: Town of Yarmouth  
Site Location: Lake George Road, Lake George, NS  
Englobe Project No.: 21347

| PARAMETER  | UNITS | Health Canada<br>Drinking Water<br>Guidelines <sup>1</sup> | NSE Tier 1<br>EQS <sup>2</sup> | Sample ID                    |          |          |          |          |          |          |          |           |           |
|------------|-------|------------------------------------------------------------|--------------------------------|------------------------------|----------|----------|----------|----------|----------|----------|----------|-----------|-----------|
|            |       |                                                            |                                | (Civic No. Lake George Road) |          |          |          |          |          |          |          |           |           |
|            |       |                                                            |                                | PW1                          | PW2      | PW3      | PW4      | PW5      | PW6      | PW7      | PW8      | PW9       | PW9A      |
|            |       |                                                            |                                | 2-Feb-16                     | 2-Feb-16 | 2-Feb-16 | 2-Feb-16 | 2-Feb-16 | 2-Feb-16 | 2-Feb-16 | 2-Feb-16 | 24-Feb-16 | 24-Feb-16 |
| Aluminum   | µg/L  | 100                                                        | NG                             | 85                           | 12       | 110      | <5.0     | <5.0     | 11       | 34       | 5.7      | 41        | 48        |
| Antimony   | µg/L  | 6 (MAC)                                                    | 6                              | <1.0                         | <1.0     | <1.0     | <1.0     | <1.0     | <1.0     | <1.0     | <1.0     | <1.0      | <1.0      |
| Arsenic    | µg/L  | 10 (MAC)                                                   | 10                             | 1.2                          | <1.0     | <1.0     | 3.1      | <1.0     | <1.0     | <1.0     | 1.1      | <1.0      | <1.0      |
| Barium     | µg/L  | 1000 (MAC)                                                 | 1000                           | 12                           | 8.1      | 18       | 6.2      | 4.0      | 6.8      | 4.2      | 18       | 1.6       | 3.4       |
| Beryllium  | µg/L  | NG                                                         | 4                              | <1.0                         | <1.0     | <1.0     | <1.0     | <1.0     | <1.0     | <1.0     | <1.0     | <1.0      | <1.0      |
| Bismuth    | µg/L  | NG                                                         | NG                             | <2.0                         | <2.0     | <2.0     | <2.0     | <2.0     | <2.0     | <2.0     | <2.0     | <2.0      | <2.0      |
| Boron      | µg/L  | 5000 (MAC)                                                 | 5000                           | <50                          | <50      | <50      | <50      | <50      | <50      | <50      | <50      | <50       | <50       |
| Cadmium    | µg/L  | 5 (MAC)                                                    | 5                              | 0.086                        | 0.025    | 0.072    | 0.016    | <0.010   | <0.010   | 0.034    | <0.010   | <0.010    | 0.033     |
| Calcium    | µg/L  | NG                                                         | NG                             | 7100                         | 14000    | 6500     | 19000    | 16000    | 8900     | 4000     | 24000    | 4700      | 9300      |
| Chromium   | µg/L  | 50 (MAC)                                                   | 50                             | <1.0                         | <1.0     | <1.0     | <1.0     | <1.0     | <1.0     | <1.0     | <1.0     | <1.0      | <1.0      |
| Cobalt     | µg/L  | NG                                                         | 10                             | <0.40                        | <0.40    | <0.40    | <0.40    | <0.40    | <0.40    | <0.40    | <0.40    | <0.40     | <0.40     |
| Copper     | µg/L  | ≤1000 (AO)                                                 | NG                             | 79                           | 86       | 260      | 120      | 17       | 31       | 120      | 21       | 250       | 12        |
| Iron       | µg/L  | ≤300 (AO)                                                  | NG                             | 100                          | <50      | 120      | <50      | <50      | 620      | 66       | 1000     | 58        | <50       |
| Lead       | µg/L  | 10 (MAC)                                                   | 10                             | 1.2                          | 1.3      | 15       | <0.50    | <0.50    | 0.69     | 0.83     | 7.5      | 1.0       | <0.50     |
| Magnesium  | µg/L  | NG                                                         | NG                             | 2100                         | 2600     | 1600     | 2800     | 4400     | 2100     | 2000     | 5500     | 1600      | 1700      |
| Manganese  | µg/L  | ≤50 (AO)                                                   | NG                             | 9.8                          | 9.8      | 30       | <2.0     | <2.0     | 65       | 9.1      | 420      | 2.0       | <2.0      |
| Mercury    | µg/L  | 1 (MAC)                                                    | 1                              | 0.015                        | <0.013   | <0.013   | <0.013   | <0.013   | <0.013   | <0.013   | <0.013   | 0.16      | 0.11      |
| Molybdenum | µg/L  | NG                                                         | 70                             | <2.0                         | <2.0     | <2.0     | <2.0     | <2.0     | <2.0     | <2.0     | <2.0     | <2.0      | <2.0      |
| Nickel     | µg/L  | NG                                                         | 100                            | <2.0                         | <2.0     | 7.5      | 2.2      | <2.0     | <2.0     | <2.0     | <2.0     | 4.6       | <2.0      |
| Phosphorus | µg/L  | NG                                                         | NG                             | <100                         | <100     | <100     | <100     | <100     | <100     | <100     | <100     | <100      | <100      |
| Potassium  | µg/L  | NG                                                         | NG                             | 2700                         | 1700     | 690      | 1100     | 1500     | 980      | 590      | 1600     | 340       | 620       |
| Selenium   | µg/L  | 10 (MAC)                                                   | 10                             | <1.0                         | <1.0     | <1.0     | <1.0     | <1.0     | <1.0     | <1.0     | <1.0     | <1.0      | <1.0      |
| Silver     | µg/L  | NG                                                         | 100                            | <0.10                        | <0.10    | <0.10    | <0.10    | <0.10    | <0.10    | <0.10    | <0.10    | <0.10     | <0.10     |
| Sodium     | µg/L  | ≤ 200,000 (AO)                                             | 200,000                        | 4700                         | 9400     | 42000    | 7900     | 10000    | 11000    | 12000    | 25000    | 4900      | 3600      |
| Strontium  | µg/L  | NG                                                         | 4400                           | 51                           | 77       | 33       | 73       | 84       | 46       | 29       | 140      | 35        | 47        |
| Thallium   | µg/L  | NG                                                         | 2                              | <0.10                        | <0.10    | <0.10    | <0.10    | <0.10    | <0.10    | <0.10    | <0.10    | <0.10     | <0.10     |
| Tin        | µg/L  | NG                                                         | 4400                           | <2.0                         | <2.0     | <2.0     | <2.0     | <2.0     | <2.0     | <2.0     | <2.0     | <2.0      | <2.0      |
| Titanium   | µg/L  | NG                                                         | NG                             | <2.0                         | <2.0     | <2.0     | <2.0     | <2.0     | <2.0     | <2.0     | <2.0     | <2.0      | <2.0      |
| Uranium    | µg/L  | 20 (MAC)                                                   | 20                             | 0.19                         | <0.10    | <0.10    | <0.10    | 0.16     | 0.14     | <0.10    | <0.10    | 0.12      | <0.10     |
| Vanadium   | µg/L  | NG                                                         | 6.2                            | <2.0                         | <2.0     | <2.0     | <2.0     | <2.0     | <2.0     | <2.0     | <2.0     | <2.0      | <2.0      |
| Zinc       | µg/L  | ≤5000 (AO)                                                 | 5000                           | 8.3                          | 33       | 210      | 11       | <5.0     | 12       | 40       | <5.0     | 11        | <5.0      |

Notes:

AO - Aesthetic Objective

value - exceeds CCME drinking water guidelines

MAC - Maximum Acceptable Concentration

value -exceeds NSE EQS

NG - no guideline

value -exceeds both CCME and NSE EQS

<sup>1</sup>Criteria taken from Health Canada's Canadian Water Quality Guidelines for Community (Drinking) Water (Update 2014)  
<sup>2</sup> Criteria taken from the 2013 Nova Scotia Environment (NSE) Tier 1 Environmental Quality Standards (EQS) for potable water at a residential site with coarse-grained soil

TABLE 3: VOCs in Potable Water

Client: Town of Yarmouth

Site Location: Lake George Road, Lake George, NS

Englobe Project No.: 21347

| PARAMETER                           | UNITS | Drinking Water Quality Guidelines <sup>1</sup> |            | NSE Tier 1 EQS <sup>2</sup> | Sample ID<br>(Civic No. Lake George Road) |          |         |          |          |          |          |          |          |           |           |  |
|-------------------------------------|-------|------------------------------------------------|------------|-----------------------------|-------------------------------------------|----------|---------|----------|----------|----------|----------|----------|----------|-----------|-----------|--|
|                                     |       |                                                |            |                             | PW1                                       | PW2      |         | PW3      | PW4      | PW5      | PW6      | PW7      | PW8      | PW9       | PW9A      |  |
|                                     |       | MAC                                            | AO (or OG) |                             | 2-Feb-16                                  | 2-Feb-16 | Lab Dup | 2-Feb-16 | 2-Feb-16 | 2-Feb-16 | 2-Feb-16 | 2-Feb-16 | 2-Feb-16 | 24-Feb-16 | 24-Feb-16 |  |
|                                     |       |                                                |            |                             |                                           |          |         |          |          |          |          |          |          |           |           |  |
| 1,1,1-Trichloroethane               | ug/L  | NG                                             | NG         | 200                         | <1.0                                      | <1.0     | <1.0    | <1.0     | <1.0     | <1.0     | <1.0     | <1.0     | <1.0     | <1.0      | <1.0      |  |
| 1,1,2,2-Tetrachloroethane           | ug/L  | NG                                             | NG         | 1                           | <0.50                                     | <0.50    | <0.50   | <0.50    | <0.50    | <0.50    | <0.50    | <0.50    | <0.50    | <0.50     | <0.50     |  |
| 1,1,2-Trichloroethane               | ug/L  | NG                                             | NG         | 5                           | <1.0                                      | <1.0     | <1.0    | <1.0     | <1.0     | <1.0     | <1.0     | <1.0     | <1.0     | <1.0      | <1.0      |  |
| 1,1-Dichloroethane                  | ug/L  | NG                                             | NG         | 5                           | <2.0                                      | <2.0     | <2.0    | <2.0     | <2.0     | <2.0     | <2.0     | <2.0     | <2.0     | <2.0      | <2.0      |  |
| 1,1-Dichloroethylene                | ug/L  | 14                                             | NG         | 14                          | <0.50                                     | <0.50    | <0.50   | <0.50    | <0.50    | <0.50    | <0.50    | <0.50    | <0.50    | <0.50     | <0.50     |  |
| 1,2-Dichlorobenzene                 | ug/L  | 200                                            | ≤3         | 200                         | <0.50                                     | <0.50    | <0.50   | <0.50    | <0.50    | <0.50    | <0.50    | <0.50    | <0.50    | <0.50     | <0.50     |  |
| 1,2-Dichloroethane                  | ug/L  | 5                                              | NG         | 5                           | <1.0                                      | <1.0     | <1.0    | <1.0     | <1.0     | <1.0     | <1.0     | <1.0     | <1.0     | <1.0      | <1.0      |  |
| 1,2-Dichloropropane                 | ug/L  | NG                                             | NG         | 5                           | <0.50                                     | <0.50    | <0.50   | <0.50    | <0.50    | <0.50    | <0.50    | <0.50    | <0.50    | <0.50     | <0.50     |  |
| 1,3-Dichlorobenzene                 | ug/L  | NG                                             | NG         | 59                          | <1.0                                      | <1.0     | <1.0    | <1.0     | <1.0     | <1.0     | <1.0     | <1.0     | <1.0     | <1.0      | <1.0      |  |
| 1,4-Dichlorobenzene                 | ug/L  | 5                                              | NG         | 5                           | <1.0                                      | <1.0     | <1.0    | <1.0     | <1.0     | <1.0     | <1.0     | <1.0     | <1.0     | <1.0      | <1.0      |  |
| Benzene                             | ug/L  | 5                                              | NG         | 5                           | <1.0                                      | <1.0     | <1.0    | <1.0     | <1.0     | <1.0     | <1.0     | <1.0     | <1.0     | <1.0      | <1.0      |  |
| Bromodichloromethane                | ug/L  | NG                                             | NG         | 100                         | <1.0                                      | <1.0     | <1.0    | <1.0     | <1.0     | <1.0     | <1.0     | <1.0     | <1.0     | <1.0      | <1.0      |  |
| Bromoform                           | ug/L  | NG                                             | NG         | 100                         | <1.0                                      | <1.0     | <1.0    | <1.0     | <1.0     | <1.0     | <1.0     | <1.0     | <1.0     | <1.0      | <1.0      |  |
| Bromomethane                        | ug/L  | NG                                             | NG         | 0.89                        | <0.50                                     | <0.50    | <0.50   | <0.50    | <0.50    | <0.50    | <0.50    | <0.50    | <0.50    | <0.50     | <0.50     |  |
| Carbon Tetrachloride                | ug/L  | 2                                              | NG         | 0.56                        | <0.50                                     | <0.50    | <0.50   | <0.50    | <0.50    | <0.50    | <0.50    | <0.50    | <0.50    | <0.50     | <0.50     |  |
| Chlorobenzene                       | ug/L  | 80                                             | ≤30        | 14                          | <1.0                                      | <1.0     | <1.0    | <1.0     | <1.0     | <1.0     | <1.0     | <1.0     | <1.0     | <1.0      | <1.0      |  |
| Chloroethane                        | ug/L  | NG                                             | NG         | NG                          | <8.0                                      | <8.0     | <8.0    | <8.0     | <8.0     | <8.0     | <8.0     | <8.0     | <8.0     | <8.0      | <8.0      |  |
| Chloroform                          | ug/L  | NG                                             | NG         | 3                           | <1.0                                      | <1.0     | <1.0    | 1.1      | <1.0     | <1.0     | 1.1      | <1.0     | <1.0     | <1.0      | <1.0      |  |
| Chloromethane                       | ug/L  | NG                                             | NG         | 38                          | <8.0                                      | <8.0     | <8.0    | <8.0     | <8.0     | <8.0     | <8.0     | <8.0     | <8.0     | <8.0      | <8.0      |  |
| cis-1,2-Dichloroethylene            | ug/L  | NG                                             | NG         | 1.6                         | <0.50                                     | <0.50    | <0.50   | <0.50    | <0.50    | <0.50    | <0.50    | <0.50    | <0.50    | <0.50     | <0.50     |  |
| cis-1,3-Dichloropropene             | ug/L  | NG                                             | NG         | NG                          | <0.50                                     | <0.50    | <0.50   | <0.50    | <0.50    | <0.50    | <0.50    | <0.50    | <0.50    | <0.50     | <0.50     |  |
| Dibromochloromethane                | ug/L  | NG                                             | NG         | 100                         | <1.0                                      | <1.0     | <1.0    | <1.0     | <1.0     | <1.0     | <1.0     | <1.0     | <1.0     | <1.0      | <1.0      |  |
| Ethylbenzene                        | ug/L  | NG                                             | ≤2.4       | 2                           | <1.0                                      | <1.0     | <1.0    | <1.0     | <1.0     | <1.0     | <1.0     | <1.0     | <1.0     | <1.0      | <1.0      |  |
| Ethylene Dibromide                  | ug/L  | NG                                             | NG         | 0.2                         | <0.20                                     | <0.20    | <0.20   | <0.20    | <0.20    | <0.20    | <0.20    | <0.20    | <0.20    | <0.20     | <0.20     |  |
| Methyl t-butyl ether (MTBE)         | ug/L  | NG                                             | ≤1.5       | 15                          | <2.0                                      | <2.0     | <2.0    | <2.0     | <2.0     | <2.0     | <2.0     | <2.0     | <2.0     | -         | -         |  |
| Methylene Chloride(Dichloromethane) | ug/L  | NG                                             | NG         | 50                          | <3.0                                      | <3.0     | <3.0    | <3.0     | <3.0     | <3.0     | <3.0     | <3.0     | <3.0     | <3.0      | <3.0      |  |
| o-Xylene                            | ug/L  | NG                                             | NG         | NG                          | <1.0                                      | <1.0     | <1.0    | <1.0     | <1.0     | <1.0     | <1.0     | <1.0     | <1.0     | <1.0      | <1.0      |  |
| p+m-Xylene                          | ug/L  | NG                                             | NG         | NG                          | <2.0                                      | <2.0     | <2.0    | <2.0     | <2.0     | <2.0     | <2.0     | <2.0     | <2.0     | <2.0      | <2.0      |  |
| Styrene                             | ug/L  | NG                                             | NG         | 1                           | <1.0                                      | <1.0     | <1.0    | <1.0     | <1.0     | <1.0     | <1.0     | <1.0     | <1.0     | <1.0      | <1.0      |  |
| Tetrachloroethylene                 | ug/L  | 30                                             | NG         | 30                          | <1.0                                      | <1.0     | <1.0    | <1.0     | <1.0     | <1.0     | <1.0     | <1.0     | <1.0     | <1.0      | <1.0      |  |
| Toluene                             | ug/L  | NG                                             | ≤2.4       | 24                          | <1.0                                      | <1.0     | <1.0    | <1.0     | <1.0     | <1.0     | <1.0     | <1.0     | <1.0     | <1.0      | <1.0      |  |
| Total Trihalomethanes               | ug/L  | 100                                            | NG         | NG                          | <1.0                                      | <1.0     | <1.0    | 1.1      | <1.0     | <1.0     | <1.0     | 1.1      | <1.0     | -         | -         |  |
| Total Xylenes                       | ug/L  | NG                                             | ≤300       | 300                         | <1.0                                      | <1.0     | <1.0    | <1.0     | <1.0     | <1.0     | <1.0     | <1.0     | <1.0     | -         | -         |  |
| trans-1,2-Dichloroethylene          | ug/L  | NG                                             | NG         | 1.6                         | <0.50                                     | <0.50    | <0.50   | <0.50    | <0.50    | <0.50    | <0.50    | <0.50    | <0.50    | <0.50     | <0.50     |  |
| trans-1,3-Dichloropropene           | ug/L  | NG                                             | NG         | NG                          | <0.50                                     | <0.50    | <0.50   | <0.50    | <0.50    | <0.50    | <0.50    | <0.50    | <0.50    | <0.50     | <0.50     |  |
| Trichloroethylene                   | ug/L  | 5                                              | NG         | 5                           | <1.0                                      | <1.0     | <1.0    | <1.0     | <1.0     | <1.0     | <1.0     | <1.0     | <1.0     | <1.0      | <1.0      |  |
| Trichlorofluoromethane (FREON 11)   | ug/L  | NG                                             | NG         | NG                          | <8.0                                      | <8.0     | <8.0    | <8.0     | <8.0     | <8.0     | <8.0     | <8.0     | <8.0     | <8.0      | <8.0      |  |
| Vinyl Chloride                      | ug/L  | 2                                              | NG         | 1.1                         | <0.50                                     | <0.50    | <0.50   | <0.50    | <0.50    | <0.50    | <0.50    | <0.50    | <0.50    | <0.50     | <0.50     |  |

Notes:

AO - Aesthetic Objective

**value** - exceeds CCME drinking water guidelines

MAC - Maximum Acceptable Concentration

**value** -exceeds NSE EQS

NG - no guideline

**value** -exceeds both CCME and NSE EQS

OG - Operational Guideline

<sup>1</sup>Criteria taken from Health Canada's Canadian Water Quality Guidelines for Community (Drinking) Water (Update 2014)

<sup>2</sup>Criteria taken from the 2013 Nova Scotia Environment (NSE) Tier 1 Environmental Quality Standards (EQS) for potable water at a residential site with coarse-grained soil



TABLE 4: GENERAL CHEMISTRY in Surface Water  
Client: Town of Yarmouth  
Site Location: Lake George Road, Lake George, NS  
Englobe Project No.: 21347

| PARAMETER                                        | UNITS | CCME FAL <sup>1</sup>  | NSE Tier 1 EQS <sup>2</sup> | SAMPLE ID                           |         |                   |                                     |      |
|--------------------------------------------------|-------|------------------------|-----------------------------|-------------------------------------|---------|-------------------|-------------------------------------|------|
|                                                  |       |                        |                             | SW1                                 |         | SW2               | SW3                                 |      |
|                                                  |       |                        |                             | Lake George Road W Side<br>2-Feb-16 | Lab Dup | Brook<br>2-Feb-16 | Lake George Road E Side<br>2-Feb-16 |      |
| Field pH                                         | pH    | 6.5-9.0                | NG                          | 3.64                                | -       | 6.55              | 6.29                                | -    |
| Field Conductivity                               | uS/cm | NG                     | NG                          | 63                                  | -       | 46                | 93                                  | -    |
| Field Temperature                                | °C    | NG                     | NG                          | 2.85                                | -       | 2.91              | 2.56                                | -    |
| Field Dissolved Oxygen                           | mg/L  | varies <sup>3</sup>    | NG                          | 12.44                               | -       | 10.48             | 10.27                               | -    |
| Anion Sum                                        | me/L  | NG                     | NG                          | 0.790                               | -       | 0.530             | 1.50                                | -    |
| Bicarb. Alkalinity (calc. as CaCO <sub>3</sub> ) | mg/L  | NG                     | NG                          | <1.0                                | -       | <1.0              | 39                                  | -    |
| Calculated TDS                                   | mg/L  | NG                     | NG                          | 57                                  | -       | 42                | 99                                  | -    |
| Carb. Alkalinity (calc. as CaCO <sub>3</sub> )   | mg/L  | NG                     | NG                          | <1.0                                | -       | <1.0              | <1.0                                | -    |
| Carbanaceous BOD                                 | mg/L  | NG                     | NG                          | <5.0                                | -       | <5.0              | <5.0                                | -    |
| Cation Sum                                       | me/L  | NG                     | NG                          | 0.870                               | -       | 0.720             | 1.68                                | -    |
| Colour                                           | TCU   | Narrative              | NG                          | 510                                 | 590     | 310               | 460                                 | -    |
| Conductivity                                     | uS/cm | NG                     | NG                          | 98                                  | -       | 72                | 150                                 | -    |
| Chloride (Cl)                                    | mg/L  | NG                     | NG                          | 24                                  | 24      | 16                | 22                                  | -    |
| Sulphate (SO <sub>4</sub> )                      | mg/L  | NG                     | NG                          | 5.5                                 | 5.3     | 3.3               | 3.6                                 | -    |
| Hardness (CaCO <sub>3</sub> )                    | mg/L  | NG                     | NG                          | 5.3                                 | -       | 5.2               | 25                                  | -    |
| Ion Balance (% Difference)                       | %     | NG                     | NG                          | 4.82                                | -       | 15.2              | 5.66                                | -    |
| Langelier Index (@ 20C)                          | N/A   | NG                     | NG                          | NC                                  | -       | NC                | -2.19                               | -    |
| Langelier Index (@ 4C)                           | N/A   | NG                     | NG                          | NC                                  | -       | NC                | -2.45                               | -    |
| Nitrate (N)                                      | mg/L  | 13                     | NG                          | 0.056                               | -       | 0.065             | 0.18                                | -    |
| Nitrate + Nitrite                                | mg/L  | NG                     | NG                          | 0.056                               | 0.057   | 0.065             | 0.18                                | -    |
| Nitrite (N)                                      | mg/L  | NG                     | NG                          | <0.010                              | <0.010  | <0.010            | <0.010                              | -    |
| Nitrogen (Ammonia Nitrogen)                      | mg/L  | Varies <sup>4</sup>    | NG                          | <0.050                              | -       | <0.050            | 0.14                                | -    |
| Orthophosphate (P)                               | mg/L  | NG                     | NG                          | 0.031                               | 0.032   | 0.030             | 0.044                               | -    |
| Phenol                                           | mg/L  | 0.004                  | 0.004                       | 0.0085 (2)                          | -       | 0.0026 (3)        | 0.0052 (3)                          | -    |
| pH                                               | pH    | 6.5-9.0                | NG                          | 5.38                                | -       | 5.89              | 6.74                                | -    |
| Phosphorous                                      | mg/L  | Framework <sup>5</sup> | NG                          | 0.072                               | -       | 0.069             | 0.13                                | 0.13 |
| Reactive Silica (SiO <sub>2</sub> )              | mg/L  | NG                     | NG                          | 5.1                                 | 5.1     | 4.6               | 7.0                                 | -    |
| Saturation pH (@ 20C)                            | N/A   | NG                     | NG                          | NC                                  | -       | NC                | 8.94                                | -    |
| Saturation pH (@ 4C)                             | N/A   | NG                     | NG                          | NC                                  | -       | NC                | 9.19                                | -    |
| Total Alkalinity (Total as CaCO <sub>3</sub> )   | mg/L  | NG                     | NG                          | <5.0                                | <5.0    | <5.0              | 39                                  | -    |
| Tannins/Lignins                                  | mg/L  | NG                     | NG                          | 7.4                                 | -       | 4.7               | 6.2                                 | -    |
| Total Chemical Oxygen Demand                     | mg/L  | NG                     | NG                          | 110                                 | -       | 72                | 110                                 | -    |
| Total Kjeldahl Nitrogen                          | mg/L  | NG                     | NG                          | 3.4 (4)                             | -       | 2.0 (4)           | 2.9 (4)                             | -    |
| Total Organic Carbon (C)                         | mg/L  | NG                     | NG                          | 21 (2)                              | -       | 12 (2)            | 22 (2)                              | -    |
| Total Suspended Solids                           | mg/L  | NG                     | NG                          | <1.0                                | -       | 3.2               | 26                                  | -    |
| Turbidity                                        | NTU   | Narrative              | NG                          | 6.0                                 | -       | 3.9               | 11                                  | -    |

Notes:

AO - Aesthetic Objective

MAC - Maximum Acceptable Concentration

NG - no guideline

**value** - exceeds CCME guidelines

**value** - exceeds NSE EQS

**value** - exceeds both CCME and NSE EQS

(1) Elevated reporting limit due to sample matrix.

(2) Reporting limit was increased due to turbidity.

(3) The sample was decanted due to sediment.

(4) Elevated reporting limit due to blank performance.

<sup>1</sup> Criteria taken from the Canadian Council of Ministers of the Environment (CCME) Fresh Water Aquatic Life Guidelines (Update 2015)

<sup>2</sup> Criteria taken from the 2013 Nova Scotia Environment (NSE) Tier 1 Environmental Quality Standards (EQS) for fresh water surface water

<sup>3</sup> Lowest acceptable dissolved oxygen concentration:

for warm water biota: early life stages = 6 mg/L

for warm water biota: other life stages = 5.5 mg/L

for cold water biota: early life stages = 9.5 mg/L

for cold water biota: other life stages = 6.5 mg/L

<sup>4</sup> Ammonia - calculations as per [http://st-ts.ccme.ca/en/index.html?lang=en&factsheet=5#aql\\_fresh\\_concentration](http://st-ts.ccme.ca/en/index.html?lang=en&factsheet=5#aql_fresh_concentration).

<sup>5</sup> Canadian Guidance Framework for Phosphorus is for developing phosphorus guidelines ( does not provide guidance on other freshwater nutrients).

It provides Trigger Ranges for Total Phosphorus ( µg/L) (see Guidance Framework for Phosphorus factsheet):

ultra-oligotrophic <4

oligotrophic 4-10

mesotrophic 10-20

meso-eutrophic 20-35

eutrophic 35-100

hyper-eutrophic >100

TABLE 5: TOTAL METALS in Surface Water

Client: Town of Yarmouth

Site Location: Lake George Road, Lake George, NS

Englobe Project No.: 21347

| PARAMETER  | UNITS | CCME FAL <sup>1</sup>    | NSE Tier 1 EQS <sup>2</sup> | SAMPLE ID                                  |                          |                                            |
|------------|-------|--------------------------|-----------------------------|--------------------------------------------|--------------------------|--------------------------------------------|
|            |       |                          |                             | SW1<br>Lake George Road W Side<br>2-Feb-16 | SW2<br>Brook<br>2-Feb-16 | SW3<br>Lake George Road E side<br>2-Feb-16 |
| Aluminum   | µg/L  | 5 or 100 <sup>3</sup>    | 5                           | <u>550</u>                                 | <u>450</u>               | <u>530</u>                                 |
| Antimony   | µg/L  | NG                       | 20                          | <1.0                                       | <1.0                     | <1.0                                       |
| Arsenic    | µg/L  | 5                        | 5                           | <1.0                                       | <1.0                     | 1.3                                        |
| Barium     | µg/L  | NG                       | 1000                        | 3.0                                        | 3.0                      | 9.5                                        |
| Beryllium  | µg/L  | NG                       | 5.3                         | <1.0                                       | <1.0                     | <1.0                                       |
| Bismuth    | µg/L  | NG                       | NG                          | <2.0                                       | <2.0                     | <2.0                                       |
| Boron      | µg/L  | 1500                     | 1200                        | <50                                        | <50                      | <50                                        |
| Cadmium    | µg/L  | 0.04 - 0.37 <sup>4</sup> | 0.01                        | <u>0.21</u>                                | <u>0.11</u>              | <u>0.063</u>                               |
| Calcium    | µg/L  | NG                       | NG                          | 1100                                       | 1000                     | 6500                                       |
| Chromium   | µg/L  | 8.9                      | NG                          | 1.1                                        | <1.0                     | 1.5                                        |
| Cobalt     | µg/L  | NG                       | 10                          | 1.2                                        | 0.73                     | 1.4                                        |
| Copper     | µg/L  | 2 - 4 <sup>5</sup>       | 2                           | <u>7.3</u>                                 | <u>4.5</u>               | <u>6.6</u>                                 |
| Iron       | µg/L  | 300                      | 300                         | <u>820</u>                                 | <u>560</u>               | <u>2200</u>                                |
| Lead       | µg/L  | 1 to 7 <sup>6</sup>      | 1                           | <u>13</u>                                  | <u>5.9</u>               | <u>1.5</u>                                 |
| Magnesium  | µg/L  | NG                       | NG                          | 620                                        | 660                      | 2000                                       |
| Manganese  | µg/L  | NG                       | 820                         | 13                                         | 16                       | 160                                        |
| Mercury    | µg/L  | 0.026                    | 0.026                       | <u>0.028</u>                               | 0.022                    | 0.020                                      |
| Molybdenum | µg/L  | 73                       | 73                          | <2.0                                       | <2.0                     | <2.0                                       |
| Nickel     | µg/L  | 25 - 150 <sup>7</sup>    | 25                          | 7.4                                        | 3.5                      | 4.4                                        |
| Phosphorus | µg/L  | NG                       | NG                          | <100                                       | 100                      | 160                                        |
| Potassium  | µg/L  | NG                       | NG                          | 5800                                       | 5500                     | 14000                                      |
| Selenium   | µg/L  | 1                        | 1                           | <1.0                                       | <1.0                     | <1.0                                       |
| Silver     | µg/L  | 0.25                     | 0.1                         | <0.10                                      | <0.10                    | <0.10                                      |
| Sodium     | µg/L  | NG                       | NG                          | 13000                                      | 10000                    | 17000                                      |
| Strontium  | µg/L  | NG                       | 21000                       | 7.4                                        | 6.7                      | 31                                         |
| Thallium   | µg/L  | 0.8                      | 0.8                         | <0.10                                      | <0.10                    | <0.10                                      |
| Tin        | µg/L  | NG                       | NG                          | <2.0                                       | <2.0                     | <2.0                                       |
| Titanium   | µg/L  | NG                       | NG                          | 12                                         | 8.4                      | 10                                         |
| Uranium    | µg/L  | 15                       | 300                         | <0.10                                      | <0.10                    | 0.15                                       |
| Vanadium   | µg/L  | NG                       | 6                           | 2.4                                        | <2.0                     | <2.0                                       |
| Zinc       | µg/L  | 30                       | 30                          | 11                                         | 11                       | 21                                         |

Notes:

AO - Aesthetic Objective

MAC - Maximum Acceptable Concentration

NG - no guideline

value - exceeds CCME guidelines

value -exceeds NSE EQS

value -exceeds both CCME and NSE EQS

<sup>1</sup>Criteria taken from the Canadian Council of Ministers of the Environment (CCME) Fresh Water Aquatic Life Guidelines (Update 2015)

<sup>2</sup>Criteria taken from the 2013 Nova Scotia Environment (NSE) Tier 1 Environmental Quality Standards (EQS) for fresh water surface water

<sup>3</sup>Aluminium Guideline for pH < 6.5 = 5 µg/L  
Aluminium Guideline for pH ≥ 6.5 = 100 µg/L

<sup>4</sup>At [CaCO<sub>3</sub>] = > 0 to < 17 mg/L, cadmium guideline = 0.04 µg/L  
At [CaCO<sub>3</sub>] = ≥ 17 to ≤ 280 mg/L, cadmium guideline (µg/L) =  $10^{(0.83[\ln(\text{hardness})] - 2.46)}$   
At [CaCO<sub>3</sub>] = > 280 mg/L, cadmium guideline = 0.37 µg/L

<sup>5</sup>At [CaCO<sub>3</sub>] = 0 to 120 mg/L, copper guideline = 2 µg/L.  
At [CaCO<sub>3</sub>] = 120 to 180 mg/L, copper guideline = 3 µg/L.  
At [CaCO<sub>3</sub>] = > 180 mg/L, copper guideline = 4 µg/L.  
If hardness unknown, the CWQG is 2 µg/L

<sup>6</sup>At [CaCO<sub>3</sub>] = 0 to ≤ 60 mg/L, lead guideline = 1 µg/L  
At [CaCO<sub>3</sub>] = > 60 to ≤ 180 mg/L, lead guideline =  $e^{(1.273[\ln(\text{hardness})] - 4.705)}$   
At [CaCO<sub>3</sub>] = > 180 mg/L, lead guideline = 7 µg/L

<sup>7</sup>At [CaCO<sub>3</sub>] = 0 to 60 mg/L, nickel guideline = 25 µg/L.  
At [CaCO<sub>3</sub>] = > 60 to ≤ 180 mg/L, nickel guideline (µg/L) =  $e^{(0.76[\ln(\text{hardness})] + 1.06)}$   
At [CaCO<sub>3</sub>] = > 180 mg/L, nickel guideline = 150 µg/L

TABLE 6: VOCs in Surface Water

Client: Town of Yarmouth

Site Location: Lake George Road, Lake George, NS

Englobe Project No.: 21347

| PARAMETER                           | UNITS | CCME FAL <sup>1</sup> | NSE Tier 1 EQS <sup>2</sup> | SAMPLE ID                                     |                          |                                               |
|-------------------------------------|-------|-----------------------|-----------------------------|-----------------------------------------------|--------------------------|-----------------------------------------------|
|                                     |       |                       |                             | SW1<br>Lake George<br>Road W Side<br>2-Feb-16 | SW2<br>Brook<br>2-Feb-16 | SW3<br>Lake George<br>Road E side<br>2-Feb-16 |
| 1,1,1-Trichloroethane               | ug/L  | NG                    | 10                          | <1.0                                          | <1.0                     | <1.0                                          |
| 1,1,2,2-Tetrachloroethane           | ug/L  | NG                    | 70                          | <0.50                                         | <0.50                    | <0.50                                         |
| 1,1,2-Trichloroethane               | ug/L  | NG                    | 800                         | <1.0                                          | <1.0                     | <1.0                                          |
| 1,1-Dichloroethane                  | ug/L  | NG                    | 200                         | <2.0                                          | <2.0                     | <2.0                                          |
| 1,1-Dichloroethylene                | ug/L  | NG                    | 40                          | <0.50                                         | <0.50                    | <0.50                                         |
| 1,2-Dichlorobenzene                 | ug/L  | 0.7                   | 0.7                         | <0.50                                         | <0.50                    | <0.50                                         |
| 1,2-Dichloroethane                  | ug/L  | 100                   | 100                         | <1.0                                          | <1.0                     | <1.0                                          |
| 1,2-Dichloropropane                 | ug/L  | NG                    | 0.7                         | <0.50                                         | <0.50                    | <0.50                                         |
| 1,3-Dichlorobenzene                 | ug/L  | 150                   | 150                         | <1.0                                          | <1.0                     | <1.0                                          |
| 1,4-Dichlorobenzene                 | ug/L  | 26                    | 26                          | <1.0                                          | <1.0                     | <1.0                                          |
| Benzene                             | ug/L  | 370                   | 2100                        | <1.0                                          | <1.0                     | <1.0                                          |
| Bromodichloromethane                | ug/L  | NG                    | 200                         | <1.0                                          | <1.0                     | <1.0                                          |
| Bromoform                           | ug/L  | NG                    | 60                          | <1.0                                          | <1.0                     | <1.0                                          |
| Bromomethane                        | ug/L  | NG                    | 0.9                         | <0.50                                         | <0.50                    | <0.50                                         |
| Carbon Tetrachloride                | ug/L  | 13.3                  | 13.3                        | <0.50                                         | <0.50                    | <0.50                                         |
| Chlorobenzene                       | ug/L  | 1.3                   | 1.3                         | <1.0                                          | <1.0                     | <1.0                                          |
| Chloroethane                        | ug/L  | NG                    | 1100                        | <8.0                                          | <8.0                     | <8.0                                          |
| Chloroform                          | ug/L  | 1.8                   | 1.8                         | <1.0                                          | <1.0                     | <1.0                                          |
| Chloromethane                       | ug/L  | NG                    | 700                         | <8.0                                          | <8.0                     | <8.0                                          |
| cis-1,2-Dichloroethylene            | ug/L  | NG                    | 200                         | <0.50                                         | <0.50                    | <0.50                                         |
| cis-1,3-Dichloropropene             | ug/L  | NG                    | NG                          | <0.50                                         | <0.50                    | <0.50                                         |
| Dibromochloromethane                | ug/L  | NG                    | 40                          | <1.0                                          | <1.0                     | <1.0                                          |
| Ethylbenzene                        | ug/L  | 90                    | 320                         | <1.0                                          | <1.0                     | <1.0                                          |
| Ethylene Dibromide                  | ug/L  | NG                    | 5                           | <0.20                                         | <0.20                    | <0.20                                         |
| Methyl t-butyl ether (MTBE)         | ug/L  | 10,000                | 10,000                      | <2.0                                          | <2.0                     | <2.0                                          |
| Methylene Chloride(Dichloromethane) | ug/L  | 98.1                  | 98.1                        | <3.0                                          | <3.0                     | <3.0                                          |
| o-Xylene                            | ug/L  | NG                    | NG                          | <1.0                                          | <1.0                     | <1.0                                          |
| p+m-Xylene                          | ug/L  | NG                    | NG                          | <2.0                                          | <2.0                     | <2.0                                          |
| Styrene                             | ug/L  | 72                    | 72                          | <1.0                                          | <1.0                     | <1.0                                          |
| Tetrachloroethylene (PCE)           | ug/L  | 110                   | 111                         | <1.0                                          | <1.0                     | <1.0                                          |
| Toluene                             | ug/L  | 2                     | 770                         | <1.0                                          | <1.0                     | <1.0                                          |
| Total Trihalomethanes               | ug/L  | NG                    | NG                          | <1.0                                          | <1.0                     | <1.0                                          |
| Total Xylenes                       | ug/L  | NG                    | 330                         | <1.0                                          | <1.0                     | <1.0                                          |
| trans-1,2-Dichloroethylene          | ug/L  | NG                    | 200                         | <0.50                                         | <0.50                    | <0.50                                         |
| trans-1,3-Dichloropropene           | ug/L  | NG                    | NG                          | <0.50                                         | <0.50                    | <0.50                                         |
| Trichloroethylene                   | ug/L  | 21                    | 21                          | <1.0                                          | <1.0                     | <1.0                                          |
| Trichlorofluoromethane (FREON 11)   | ug/L  | NG                    | 2100                        | <8.0                                          | <8.0                     | <8.0                                          |
| Vinyl Chloride                      | ug/L  | NG                    | 600                         | <0.50                                         | <0.50                    | <0.50                                         |

Notes:

**value** - exceeds CCME guidelines

value -exceeds NSE EQS

**value** -exceeds both CCME and NSE EQS

<sup>1</sup>Criteria taken from the Canadian Council of Ministers of the Environment (CCME) Fresh Water Aquatic Life Guidelines (Update 2015)

<sup>2</sup> Criteria taken from the 2013 Nova Scotia Environment (NSE) Tier 1 Environmental Quality Standards (EQS) for fresh water surface water

TABLE 7: GENERAL CHEMISTRY in Groundwater (Monitor Wells)  
Client: Town of Yarmouth  
Site Location: Lake George Road, Lake George, NS  
Englobe Project No.: 21347

| PARAMETER                           | UNITS | Health<br>Canada<br>Drinking<br>Water<br>Guidelines <sup>1</sup> | NSE Tier 1<br>EQS <sup>2</sup> | Sample ID<br>(Civic No. Lake George Road) |         |                   |
|-------------------------------------|-------|------------------------------------------------------------------|--------------------------------|-------------------------------------------|---------|-------------------|
|                                     |       |                                                                  |                                | MW1<br>(2014 Crock)                       |         | MW2<br>(2014)     |
|                                     |       |                                                                  |                                | 2-Feb-16                                  | Lab Dup | 2-Feb-16          |
| Field pH                            | pH    | 6.5-8.5                                                          | NG                             | 6.44                                      | -       | 6.1               |
| Field Conductivity                  | uS/cm | NG                                                               | NG                             | 366                                       | -       | 409               |
| Field Temperature                   | °C    | NG                                                               | NG                             | 4.14                                      | -       | 5.6               |
| Anion Sum                           | me/L  | NG                                                               | NG                             | 6.12                                      | -       | 6.29              |
| Bicarb. Alkalinity (calc. as CaCO3) | mg/L  | NG                                                               | NG                             | 220                                       | -       | 120               |
| Calculated TDS                      | mg/L  | ≤ 500 (AO)                                                       | NG                             | 360                                       | -       | 510               |
| Carb. Alkalinity (calc. as CaCO3)   | mg/L  | NG                                                               | NG                             | <1.0                                      | -       | <1.0              |
| Cation Sum                          | me/L  | NG                                                               | NG                             | 6.12                                      | -       | 12.2              |
| Colour                              | TCU   | ≤ 15 (AO)                                                        | NG                             | 1100                                      | -       | 14                |
| Conductivity                        | uS/cm | NG                                                               | NG                             | 530                                       | -       | 600               |
| Chloride (Cl)                       | mg/L  | ≤ 250 (AO)                                                       | 250                            | 41                                        | -       | 90                |
| Sulphate (SO4)                      | mg/L  | ≤ 500 (AO)                                                       | NG                             | 18                                        | -       | 45                |
| Hardness (CaCO3)                    | mg/L  | NG                                                               | NG                             | 120                                       | -       | 310               |
| Ion Balance (% Difference)          | %     | NG                                                               | NG                             | 0.00                                      | -       | 31.9              |
| Langelier Index (@ 20C)             | N/A   | NG                                                               | NG                             | -0.146                                    | -       | -0.571            |
| Langelier Index (@ 4C)              | N/A   | NG                                                               | NG                             | -0.395                                    | -       | -0.819            |
| Nitrate (N)                         | mg/L  | 10 (MAC)                                                         | NG                             | 0.75                                      | -       | 4.8               |
| Nitrate + Nitrite                   | mg/L  | NG                                                               | NG                             | 0.75                                      | -       | 4.8               |
| Nitrite (N)                         | mg/L  | 3.2 (MAC)                                                        | NG                             | <0.010                                    | -       | 0.044             |
| Nitrogen (Ammonia Nitrogen)         | mg/L  | NG                                                               | NG                             | 0.35                                      | -       | 0.37              |
| Orthophosphate (P)                  | mg/L  | NG                                                               | NG                             | 0.28                                      | -       | 0.011             |
| Phenol                              | mg/L  | NG                                                               | 0.0008                         | <u>0.040 (2)</u>                          | -       | <u>0.0037 (3)</u> |
| pH                                  | pH    | 6.5-8.5                                                          | NG                             | 7.42                                      | -       | 6.94              |
| Phosphorous                         | mg/L  | NG                                                               | NG                             | 0.76                                      | -       | 4.30              |
| Reactive Silica (SiO2)              | mg/L  | NG                                                               | NG                             | 8.0                                       | -       | 6.7               |
| Saturation pH (@ 20C)               | N/A   | NG                                                               | NG                             | 7.56                                      | -       | 7.51              |
| Saturation pH (@ 4C)                | N/A   | NG                                                               | NG                             | 7.81                                      | -       | 7.76              |
| Total Alkalinity (Total as CaCO3)   | mg/L  | NG                                                               | NG                             | 230                                       | -       | 120               |
| Dissolved Organic Carbon            | mg/L  | NG                                                               | NG                             | 41 (1)                                    | -       | 14                |
| Total Chemical Oxygen Demand        | mg/L  | NG                                                               | NG                             | 230                                       | -       | 110               |
| Total Kjeldahl Nitrogen             | mg/L  | NG                                                               | NG                             | 8.2 (4)                                   | -       | 3.3 (4)           |
| Total Organic Carbon (C)            | mg/L  | NG                                                               | NG                             | 40 (1)                                    | -       | <50 (2)           |
| Total Suspended Solids              | mg/L  | NG                                                               | NG                             | 300                                       | -       | 9300              |
| Turbidity                           | NTU   | 1 (MAC)                                                          | NG                             | 89                                        | 88      | >1000             |

Notes:

AO - Aesthetic Objective

value- exceeds CCME guidelines

MAC - Maximum Acceptable Concentration

value-exceeds NSE EQS

NG - no guideline

value-exceeds both CCME and NSE EQS

| PARAMETER                           | UNITS | CCME FAL <sup>3</sup>  | NSE Tier 1<br>EQS <sup>4</sup> | Sample ID<br>(Civic No. Lake George Road) |         |               |
|-------------------------------------|-------|------------------------|--------------------------------|-------------------------------------------|---------|---------------|
|                                     |       |                        |                                | MW1<br>(2014 Crock)                       |         | MW2<br>(2014) |
|                                     |       |                        |                                | 2-Feb-16                                  | Lab Dup | 2-Feb-16      |
| Field pH                            | pH    | 6.5-9.0                | NG                             | 6.44                                      | -       | 6.1           |
| Field Conductivity                  | uS/cm | NG                     | NG                             | 366                                       | -       | 409           |
| Field Temperature                   | °C    | NG                     | NG                             | 4.14                                      | -       | 5.6           |
| Anion Sum                           | me/L  | NG                     | NG                             | 6.12                                      | -       | 6.29          |
| Bicarb. Alkalinity (calc. as CaCO3) | mg/L  | NG                     | NG                             | 220                                       | -       | 120           |
| Calculated TDS                      | mg/L  | NG                     | NG                             | 360                                       | -       | 510           |
| Carb. Alkalinity (calc. as CaCO3)   | mg/L  | NG                     | NG                             | <1.0                                      | -       | <1.0          |
| Cation Sum                          | me/L  | NG                     | NG                             | 6.12                                      | -       | 12.2          |
| Colour                              | TCU   | NG                     | NG                             | 1100                                      | -       | 14            |
| Conductivity                        | uS/cm | NG                     | NG                             | 530                                       | -       | 600           |
| Chloride (Cl)                       | mg/L  | Narrative              | NG                             | 41                                        | -       | 90            |
| Sulphate (SO4)                      | mg/L  | NG                     | NG                             | 18                                        | -       | 45            |
| Hardness (CaCO3)                    | mg/L  | NG                     | NG                             | 120                                       | -       | 310           |
| Ion Balance (% Difference)          | %     | NG                     | NG                             | 0.00                                      | -       | 31.9          |
| Langelier Index (@ 20C)             | N/A   | NG                     | NG                             | -0.146                                    | -       | -0.571        |
| Langelier Index (@ 4C)              | N/A   | NG                     | NG                             | -0.395                                    | -       | -0.819        |
| Nitrate (N)                         | mg/L  | NG                     | NG                             | 0.75                                      | -       | 4.8           |
| Nitrate + Nitrite                   | mg/L  | NG                     | NG                             | 0.75                                      | -       | 4.8           |
| Nitrite (N)                         | mg/L  | 13                     | NG                             | <0.010                                    | -       | 0.044         |
| Nitrogen (Ammonia Nitrogen)         | mg/L  | Varies <sup>5</sup>    | NG                             | 0.35                                      | -       | 0.37          |
| Orthophosphate (P)                  | mg/L  | NG                     | NG                             | 0.28                                      | -       | 0.011         |
| Phenol                              | mg/L  | 0.004                  | 0.004                          | <u>0.040 (2)</u>                          | -       | 0.0037 (3)    |
| pH                                  | pH    | 6.5-9.0                | NG                             | 7.42                                      | -       | 6.94          |
| Phosphorous                         | mg/L  | Framework <sup>6</sup> | NG                             | 0.76                                      | -       | 4.30          |
| Reactive Silica (SiO2)              | mg/L  | NG                     | NG                             | 8.0                                       | -       | 6.7           |
| Saturation pH (@ 20C)               | N/A   | NG                     | NG                             | 7.56                                      | -       | 7.51          |
| Saturation pH (@ 4C)                | N/A   | NG                     | NG                             | 7.81                                      | -       | 7.76          |
| Total Alkalinity (Total as CaCO3)   | mg/L  | NG                     | NG                             | 230                                       | -       | 120           |
| Dissolved Organic Carbon            | mg/L  | NG                     | NG                             | 41 (1)                                    | -       | 14            |
| Total Chemical Oxygen Demand        | mg/L  | NG                     | NG                             | 230                                       | -       | 110           |
| Total Kjeldahl Nitrogen             | mg/L  | NG                     | NG                             | 8.2 (4)                                   | -       | 3.3 (4)       |
| Total Organic Carbon (C)            | mg/L  | NG                     | NG                             | 40 (1)                                    | -       | <50 (2)       |
| Total Suspended Solids              | mg/L  | NG                     | NG                             | 300                                       | -       | 9300          |
| Turbidity                           | NTU   | Narrative              | NG                             | 89                                        | 88      | >1000         |

<sup>1</sup>Criteria taken from Health Canada's Canadian Water Quality Guidelines for Community (Drinking) Water (Update 2014)

<sup>2</sup>Criteria taken from the 2013 Nova Scotia Environment (NSE) Tier 1 Environmental Quality Standards (EQS) for potable water at a residential site with coarse-grained soil

<sup>3</sup>Criteria taken from the Canadian Council of Ministers of the Environment (CCME) Fresh Water Aquatic Life Guidelines (Update 2015)

<sup>4</sup>Criteria taken from the 2013 Nova Scotia Environment (NSE) Tier 1 Environmental Quality Standards (EQS) for fresh water surface water

<sup>5</sup>Ammonia - calculations as per [http://st-ts.ccme.ca/en/index.html?lang=en&factsheet=5#aql\\_fresh\\_concentration](http://st-ts.ccme.ca/en/index.html?lang=en&factsheet=5#aql_fresh_concentration).

<sup>6</sup>Canadian Guidance Framework for Phosphorus is for developing phosphorus guidelines ( does not provide guidance on other freshwater nutrients).

It provides Trigger Ranges for Total Phosphorus ( µg/L) (see Guidance Framework for Phosphorus factsheet):

- ultra-oligotrophic <4
- oligotrophic 4-10
- mesotrophic 10-20
- meso-eutrophic 20-35
- eutrophic 35-100
- hyper-eutrophic >100



TABLE 8: TOTAL METALS in Groundwater  
Client: Town of Yarmouth  
Site Location: Lake George Road, Lake George, NS  
Englobe Project No.: 21347

| PARAMETER  | UNITS | Health Canada<br>Drinking Water<br>Guidelines <sup>1</sup> | NSE Tier 1<br>EQS <sup>2</sup> | Sample ID                    |                                        |           |
|------------|-------|------------------------------------------------------------|--------------------------------|------------------------------|----------------------------------------|-----------|
|            |       |                                                            |                                | (Civic No. Lake George Road) |                                        |           |
|            |       |                                                            |                                | MW1<br>(2014 Crock)          | MW2<br>(onsite Monitor well)<br>Feb-16 |           |
|            |       |                                                            |                                | 2-Feb-16                     | Total                                  | Dissolved |
| Aluminum   | µg/L  | 100                                                        | NG                             | 810                          | 70000                                  | 40        |
| Antimony   | µg/L  | 6 (MAC)                                                    | 6                              | <1.0                         | <1.0                                   | <1.0      |
| Arsenic    | µg/L  | 10 (MAC)                                                   | 10                             | 10                           | 49                                     | <1.0      |
| Barium     | µg/L  | 1000 (MAC)                                                 | 1000                           | 31                           | 280                                    | 77        |
| Beryllium  | µg/L  | NG                                                         | 4                              | <1.0                         | 3.2                                    | <1.0      |
| Bismuth    | µg/L  | NG                                                         | NG                             | <2.0                         | <2.0                                   | <2.0      |
| Boron      | µg/L  | 5000 (MAC)                                                 | 5000                           | 75                           | 250                                    | 240       |
| Cadmium    | µg/L  | 5 (MAC)                                                    | 5                              | 0.33                         | 0.17                                   | 0.07      |
| Calcium    | µg/L  | NG                                                         | NG                             | 33000                        | 74000                                  | 71000     |
| Chromium   | µg/L  | 50 (MAC)                                                   | 50                             | 3.0                          | 110                                    | <1.0      |
| Cobalt     | µg/L  | NG                                                         | 10                             | 7.9                          | 61                                     | 2.5       |
| Copper     | µg/L  | ≤1000 (AO)                                                 | NG                             | 37                           | 260                                    | 8.3       |
| Iron       | µg/L  | ≤300 (AO)                                                  | NG                             | 14000                        | 110000                                 | 820       |
| Lead       | µg/L  | 10 (MAC)                                                   | 10                             | 5.0                          | 30                                     | <0.50     |
| Magnesium  | µg/L  | NG                                                         | NG                             | 9600                         | 31000                                  | 4800      |
| Manganese  | µg/L  | ≤50 (AO)                                                   | NG                             | 1100                         | 3600                                   | 2000      |
| Mercury    | µg/L  | 1 (MAC)                                                    | 1                              | 0.020                        | <0.013                                 | -         |
| Molybdenum | µg/L  | NG                                                         | 70                             | 2.2                          | <2.0                                   | <2.0      |
| Nickel     | µg/L  | NG                                                         | 100                            | 10                           | 120                                    | <2.0      |
| Phosphorus | µg/L  | NG                                                         | NG                             | 740                          | 3300                                   | <100      |
| Potassium  | µg/L  | NG                                                         | NG                             | 51000                        | 21000                                  | 17000     |
| Selenium   | µg/L  | 10 (MAC)                                                   | 10                             | <1.0                         | <1.0                                   | <1.0      |
| Silver     | µg/L  | NG                                                         | 100                            | <0.10                        | 0.24                                   | <0.10     |
| Sodium     | µg/L  | ≤ 200,000 (AO)                                             | 200,000                        | 42000                        | 33000                                  | 35000     |
| Strontium  | µg/L  | NG                                                         | 4400                           | 120                          | 240                                    | 220       |
| Thallium   | µg/L  | NG                                                         | 2                              | <0.10                        | 0.55                                   | <0.10     |
| Tin        | µg/L  | NG                                                         | 4400                           | <2.0                         | <2.0                                   | <2.0      |
| Titanium   | µg/L  | NG                                                         | NG                             | 22                           | 1800                                   | <2.0      |
| Uranium    | µg/L  | 20 (MAC)                                                   | 20                             | 1.4                          | 5.0                                    | 0.46      |
| Vanadium   | µg/L  | NG                                                         | 6.2                            | 3.6                          | 100                                    | <2.0      |
| Zinc       | µg/L  | ≤5000 (AO)                                                 | 5000                           | 54                           | 210                                    | <5.0      |

Notes:

|                                        |              |                                |
|----------------------------------------|--------------|--------------------------------|
| AO - Aesthetic Objective               | <u>value</u> | - exceeds CCME guidelines      |
| MAC - Maximum Acceptable Concentration | <u>value</u> | -exceeds NSE EQS               |
| NG - no guideline                      | <u>value</u> | -exceeds both CCME and NSE EQS |

<sup>1</sup> Criteria taken from Health Canada's Canadian Water Quality Guidelines for Community (Drinking) Water (Update 2014)

<sup>2</sup> Criteria taken from the 2013 Nova Scotia Environment (NSE) Tier 1 Environmental Quality Standards (EQS) for potable water at a residence

<sup>3</sup> Criteria taken from the Canadian Council of Ministers of the Environment (CCME) Fresh Water Aquatic Life Guidelines (Update 2015)

<sup>4</sup> Criteria taken from the 2013 Nova Scotia Environment (NSE) Tier 1 Environmental Quality Standards (EQS) for fresh water surface water

Aluminium Guideline for pH < 6.5 = 5 ug/L  
Aluminium Guideline for pH ≥ 6.5 = 100 ug/L

|                                                             |                                                                                                     |
|-------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|
| At $[CaCO_3] = 0$ to 120 mg/L, copper guideline = 2 ug/L.   | <sup>8</sup> At $[CaCO_3] = 0$ to $\leq 60$ mg/L, lead guideline = 1 ug/L                           |
| At $[CaCO_3] = 120$ to 180 mg/L, copper guideline = 3 ug/L. | At $[CaCO_3] = >60$ to $\leq 180$ mg/L, lead guideline = $e^{(1.273 \ln(\text{hardness}) - 4.705)}$ |
| At $[CaCO_3] = > 180$ mg/L, copper guideline = 4 ug/L.      | At $[CaCO_3] = >180$ mg/L, lead guideline = 7 ug/L                                                  |
| If hardness unknown, the CWQG is 2 ug/L                     |                                                                                                     |

At  $[\text{CaCO}_3] = 0$  to  $60$  mg/L, nickel guideline =  $25$   $\mu\text{g/L}$ .  
 At  $[\text{CaCO}_3] = > 60$  to  $\leq 180$  mg/L, nickel guideline ( $\mu\text{g/L}$ ) =  $e^{(0.76 \ln(\text{hardness}) + 1.06)}$   
 At  $[\text{CaCO}_3] = > 180$  mg/L, nickel guideline =  $150$   $\mu\text{g/L}$

| PARAMETER  | UNITS | CCME FAL <sup>3</sup>    | NSE Tier 1<br>EQS <sup>4</sup> | Sample ID<br>(Civic No. Lake George Road) |                       |
|------------|-------|--------------------------|--------------------------------|-------------------------------------------|-----------------------|
|            |       |                          |                                | MW1                                       | MW2                   |
|            |       |                          |                                | (2014 Crock)                              | (onsite Monitor well) |
|            |       |                          |                                | 2-Feb-16                                  | 2-Feb-16              |
| Aluminum   | µg/L  | 5 or 100 <sup>5</sup>    | 5                              | <u>810</u>                                | <u>70000</u>          |
| Antimony   | µg/L  | NG                       | 20                             | <1.0                                      | <1.0                  |
| Arsenic    | µg/L  | 5                        | 5                              | <u>10</u>                                 | <u>49</u>             |
| Barium     | µg/L  | NG                       | 1000                           | 31                                        | 280                   |
| Beryllium  | µg/L  | NG                       | 5.3                            | <1.0                                      | 3.2                   |
| Bismuth    | µg/L  | NG                       | NG                             | <2.0                                      | <2.0                  |
| Boron      | µg/L  | 1500                     | 1200                           | 75                                        | 250                   |
| Cadmium    | µg/L  | 0.04 - 0.37 <sup>6</sup> | 0.01                           | <u>0.33</u>                               | <u>0.17</u>           |
| Calcium    | µg/L  | NG                       | NG                             | 33000                                     | 74000                 |
| Chromium   | µg/L  | 8.9                      | NG                             | 3.0                                       | 110                   |
| Cobalt     | µg/L  | NG                       | 10                             | 7.9                                       | <u>61</u>             |
| Copper     | µg/L  | 2 - 4 <sup>7</sup>       | 2                              | <u>37</u>                                 | <u>260</u>            |
| Iron       | µg/L  | 300                      | 300                            | <u>14000</u>                              | <u>110000</u>         |
| Lead       | µg/L  | 1 to 7 <sup>8</sup>      | 1                              | <u>5.0</u>                                | <u>30</u>             |
| Magnesium  | µg/L  | NG                       | NG                             | 9600                                      | 31000                 |
| Manganese  | µg/L  | NG                       | 820                            | <u>1100</u>                               | <u>3600</u>           |
| Mercury    | µg/L  | 0.026                    | 0.026                          | 0.020                                     | <0.013                |
| Molybdenum | µg/L  | 73                       | 73                             | 2.2                                       | <2.0                  |
| Nickel     | µg/L  | 25 - 150 <sup>9</sup>    | 25                             | 10                                        | <u>120</u>            |
| Phosphorus | µg/L  | NG                       | NG                             | 740                                       | 3300                  |
| Potassium  | µg/L  | NG                       | NG                             | 51000                                     | 21000                 |
| Selenium   | µg/L  | 1                        | 1                              | <1.0                                      | <1.0                  |
| Silver     | µg/L  | 0.25                     | 0.1                            | <0.10                                     | <u>0.24</u>           |
| Sodium     | µg/L  | NG                       | NG                             | 42000                                     | 33000                 |
| Strontium  | µg/L  | NG                       | 21000                          | 120                                       | 240                   |
| Thallium   | µg/L  | 0.8                      | 0.8                            | <0.10                                     | 0.55                  |
| Tin        | µg/L  | NG                       | NG                             | <2.0                                      | <2.0                  |
| Titanium   | µg/L  | NG                       | NG                             | 22                                        | 1800                  |
| Uranium    | µg/L  | 15                       | 300                            | 1.4                                       | 5.0                   |
| Vanadium   | µg/L  | NG                       | 6                              | 3.6                                       | <u>100</u>            |
| Zinc       | µg/L  | 30                       | 30                             | <u>54</u>                                 | <u>210</u>            |

TABLE 9: VOCs in Groundwater  
Client: Town of Yarmouth  
Site Location: Lake George Road, Lake George, NS  
Englobe Project No.: 21347

| PARAMETER                           | UNITS | Drinking Water Quality Guidelines <sup>1</sup> |            | NSE Tier 1 EQS <sup>2</sup> | Sample ID (Civic No. Lake George Road) |                     |
|-------------------------------------|-------|------------------------------------------------|------------|-----------------------------|----------------------------------------|---------------------|
|                                     |       | MAC                                            | AO (or OG) |                             | MW1 (2014 Crock) 2-Feb-16              | MW2 (2014) 2-Feb-16 |
| 1,1,1-Trichloroethane               | ug/L  | NG                                             | NG         | 200                         | <1.0                                   | <1.0                |
| 1,1,2,2-Tetrachloroethane           | ug/L  | NG                                             | NG         | 1                           | <0.50                                  | <0.50               |
| 1,1,2-Trichloroethane               | ug/L  | NG                                             | NG         | 5                           | <1.0                                   | <1.0                |
| 1,1-Dichloroethane                  | ug/L  | NG                                             | NG         | 5                           | <2.0                                   | <2.0                |
| 1,1-Dichloroethylene                | ug/L  | 14                                             | NG         | 14                          | <0.50                                  | <0.50               |
| 1,2-Dichlorobenzene                 | ug/L  | 200                                            | ≤3         | 200                         | <0.50                                  | <0.50               |
| 1,2-Dichloroethane                  | ug/L  | 5                                              | NG         | 5                           | <1.0                                   | <1.0                |
| 1,2-Dichloropropane                 | ug/L  | NG                                             | NG         | 5                           | <0.50                                  | <0.50               |
| 1,3-Dichlorobenzene                 | ug/L  | NG                                             | NG         | 59                          | <1.0                                   | <1.0                |
| 1,4-Dichlorobenzene                 | ug/L  | 5                                              | NG         | 5                           | <1.0                                   | <1.0                |
| Benzene                             | ug/L  | 5                                              | NG         | 5                           | <1.0                                   | <1.0                |
| Bromodichloromethane                | ug/L  | NG                                             | NG         | 100                         | <1.0                                   | <1.0                |
| Bromoform                           | ug/L  | NG                                             | NG         | 100                         | <1.0                                   | <1.0                |
| Bromomethane                        | ug/L  | NG                                             | NG         | 0.89                        | <0.50                                  | <0.50               |
| Carbon Tetrachloride                | ug/L  | 2                                              | NG         | 0.56                        | <0.50                                  | <0.50               |
| Chlorobenzene                       | ug/L  | 80                                             | ≤30        | 14                          | <1.0                                   | <1.0                |
| Chloroethane                        | ug/L  | NG                                             | NG         | NG                          | <8.0                                   | <8.0                |
| Chloroform                          | ug/L  | NG                                             | NG         | 3                           | <1.0                                   | <1.0                |
| Chloromethane                       | ug/L  | NG                                             | NG         | 38                          | <8.0                                   | <8.0                |
| cis-1,2-Dichloroethylene            | ug/L  | NG                                             | NG         | 1.6                         | <0.50                                  | <0.50               |
| cis-1,3-Dichloropropene             | ug/L  | NG                                             | NG         | NG                          | <0.50                                  | <0.50               |
| Dibromochloromethane                | ug/L  | NG                                             | NG         | 100                         | <1.0                                   | <1.0                |
| Ethylbenzene                        | ug/L  | NG                                             | ≤2.4       | 2                           | <1.0                                   | <1.0                |
| Ethylene Dibromide                  | ug/L  | NG                                             | NG         | 0.2                         | <0.20                                  | <0.20               |
| Methyl t-butyl ether (MTBE)         | ug/L  | NG                                             | ≤1.5       | 15                          | <2.0                                   | <2.0                |
| Methylene Chloride(Dichloromethane) | ug/L  | NG                                             | NG         | 50                          | <3.0                                   | <3.0                |
| o-Xylene                            | ug/L  | NG                                             | NG         | NG                          | <1.0                                   | <1.0                |
| p+m-Xylene                          | ug/L  | NG                                             | NG         | NG                          | <2.0                                   | <2.0                |
| Styrene                             | ug/L  | NG                                             | NG         | 1                           | <1.0                                   | <1.0                |
| Tetrachloroethylene                 | ug/L  | 30                                             | NG         | 30                          | <1.0                                   | <1.0                |
| Toluene                             | ug/L  | NG                                             | ≤2.4       | 24                          | <1.0                                   | <1.0                |
| Total Trihalomethanes               | ug/L  | 100                                            | NG         | NG                          | <1.0                                   | <1.0                |
| Total Xylenes                       | ug/L  | NG                                             | ≤300       | 300                         | <1.0                                   | <1.0                |
| trans-1,2-Dichloroethylene          | ug/L  | NG                                             | NG         | 1.6                         | <0.50                                  | <0.50               |
| trans-1,3-Dichloropropene           | ug/L  | NG                                             | NG         | NG                          | <0.50                                  | <0.50               |
| Trichloroethylene                   | ug/L  | 5                                              | NG         | 5                           | <1.0                                   | <1.0                |
| Trichlorofluoromethane (FREON 11)   | ug/L  | NG                                             | NG         | NG                          | <8.0                                   | <8.0                |
| Vinyl Chloride                      | ug/L  | 2                                              | NG         | 1.1                         | <0.50                                  | <0.50               |

Notes:

AO - Aesthetic Objective  
MAC - Maximum Acceptable Concentration  
NG - no guideline  
OG - Operational Guideline

**value** - exceeds CCME guidelines  
**value** -exceeds NSE EQS  
**value** -exceeds both CCME and NSE EQS

<sup>1</sup>Criteria taken from Health Canada's Canadian Water Quality Guidelines for Community (Drinking) Water (Update 2014)

<sup>2</sup>Criteria taken from the 2013 Nova Scotia Environment (NSE) Tier 1 Environmental Quality Standards (EQS) for potable water at a residential site with coarse-grained soil

<sup>3</sup>Criteria taken from the Canadian Council of Ministers of the Environment (CCME) Fresh Water Aquatic Life Guidelines (Update 2015)

<sup>4</sup>Criteria taken from the 2013 Nova Scotia Environment (NSE) Tier 1 Environmental Quality Standards (EQS) for fresh water surface water

| PARAMETER                           | UNITS | CCME FAL <sup>3</sup> | NSE Tier 1 EQS <sup>4</sup> | Sample ID (Civic No. Lake George Road) |                     |
|-------------------------------------|-------|-----------------------|-----------------------------|----------------------------------------|---------------------|
|                                     |       |                       |                             | MW1 (2014 Crock) 2-Feb-16              | MW2 (2014) 2-Feb-16 |
| 1,1,1-Trichloroethane               | ug/L  | NG                    | 10                          | <1.0                                   | <1.0                |
| 1,1,2,2-Tetrachloroethane           | ug/L  | NG                    | 70                          | <0.50                                  | <0.50               |
| 1,1,2-Trichloroethane               | ug/L  | NG                    | 800                         | <1.0                                   | <1.0                |
| 1,1-Dichloroethane                  | ug/L  | NG                    | 200                         | <2.0                                   | <2.0                |
| 1,1-Dichloroethylene                | ug/L  | NG                    | 40                          | <0.50                                  | <0.50               |
| 1,2-Dichlorobenzene                 | ug/L  | 0.7                   | 0.7                         | <0.50                                  | <0.50               |
| 1,2-Dichloroethane                  | ug/L  | 100                   | 100                         | <1.0                                   | <1.0                |
| 1,2-Dichloropropane                 | ug/L  | NG                    | 0.7                         | <0.50                                  | <0.50               |
| 1,3-Dichlorobenzene                 | ug/L  | 150                   | 150                         | <1.0                                   | <1.0                |
| 1,4-Dichlorobenzene                 | ug/L  | 26                    | 26                          | <1.0                                   | <1.0                |
| Benzene                             | ug/L  | 370                   | 2100                        | <1.0                                   | <1.0                |
| Bromodichloromethane                | ug/L  | NG                    | 200                         | <1.0                                   | <1.0                |
| Bromoform                           | ug/L  | NG                    | 60                          | <1.0                                   | <1.0                |
| Bromomethane                        | ug/L  | NG                    | 0.9                         | <0.50                                  | <0.50               |
| Carbon Tetrachloride                | ug/L  | 13.3                  | 13.3                        | <0.50                                  | <0.50               |
| Chlorobenzene                       | ug/L  | 1.3                   | 1.3                         | <1.0                                   | <1.0                |
| Chloroethane                        | ug/L  | NG                    | 1100                        | <8.0                                   | <8.0                |
| Chloroform                          | ug/L  | 1.8                   | 1.8                         | <1.0                                   | <1.0                |
| Chloromethane                       | ug/L  | NG                    | 700                         | <8.0                                   | <8.0                |
| cis-1,2-Dichloroethylene            | ug/L  | NG                    | 200                         | <0.50                                  | <0.50               |
| cis-1,3-Dichloropropene             | ug/L  | NG                    | NG                          | <0.50                                  | <0.50               |
| Dibromochloromethane                | ug/L  | NG                    | 40                          | <1.0                                   | <1.0                |
| Ethylbenzene                        | ug/L  | 90                    | 320                         | <1.0                                   | <1.0                |
| Ethylene Dibromide                  | ug/L  | NG                    | 5                           | <0.20                                  | <0.20               |
| Methyl t-butyl ether (MTBE)         | ug/L  | 10,000                | 10,000                      | <2.0                                   | <2.0                |
| Methylene Chloride(Dichloromethane) | ug/L  | 98.1                  | 98.1                        | <3.0                                   | <3.0                |
| o-Xylene                            | ug/L  | NG                    | NG                          | <1.0                                   | <1.0                |
| p+m-Xylene                          | ug/L  | NG                    | NG                          | <2.0                                   | <2.0                |
| Styrene                             | ug/L  | 72                    | 72                          | <1.0                                   | <1.0                |
| Tetrachloroethylene                 | ug/L  | 110                   | 111                         | <1.0                                   | <1.0                |
| Toluene                             | ug/L  | 2                     | 770                         | <1.0                                   | <1.0                |
| Total Trihalomethanes               | ug/L  | NG                    | NG                          | <1.0                                   | <1.0                |
| Total Xylenes                       | ug/L  | NG                    | 330                         | <1.0                                   | <1.0                |
| trans-1,2-Dichloroethylene          | ug/L  | NG                    | 200                         | <0.50                                  | <0.50               |
| trans-1,3-Dichloropropene           | ug/L  | NG                    | NG                          | <0.50                                  | <0.50               |
| Trichloroethylene                   | ug/L  | 21                    | 21                          | <1.0                                   | <1.0                |
| Trichlorofluoromethane (FREON 11)   | ug/L  | NG                    | 2100                        | <8.0                                   | <8.0                |
| Vinyl Chloride                      | ug/L  | NG                    | 600                         | <0.50                                  | <0.50               |

## **Appendix 3   Laboratory Certificates of Analysis**

Your Project #: 21347  
Your C.O.C. #: 547372-01-01, 547372-02-01

**Attention: Lisa Ladouceur**

Englobe Corp.  
97 Troop Ave  
Dartmouth, NS  
CANADA B3B 2A7

**Report Date: 2016/02/17**  
Report #: R3897347  
Version: 2 - Revision

**CERTIFICATE OF ANALYSIS – REVISED REPORT**

**MAXXAM JOB #: B622733**

**Received: 2016/02/03, 12:14**

Sample Matrix: Adsorbable  
# Samples Received: 1

| Analyses               | Quantity | Date<br>Extracted | Date<br>Analyzed | Laboratory Method | Reference     |
|------------------------|----------|-------------------|------------------|-------------------|---------------|
| Total Suspended Solids | 1        | 2016/02/08        | 2016/02/09       | ATL SOP 00007     | SM 22 2540D m |

Sample Matrix: Drinking Water  
# Samples Received: 8

| Analyses                                   | Quantity | Date<br>Extracted | Date<br>Analyzed | Laboratory Method | Reference            |
|--------------------------------------------|----------|-------------------|------------------|-------------------|----------------------|
| Carbonate, Bicarbonate and Hydroxide       | 8        | N/A               | 2016/02/05       | N/A               | SM 22 4500-CO2 D     |
| Alkalinity                                 | 8        | N/A               | 2016/02/09       | ATL SOP 00013     | EPA 310.2 R1974 m    |
| Chloride                                   | 8        | N/A               | 2016/02/08       | ATL SOP 00014     | SM 22 4500-Cl- E m   |
| Chemical Oxygen Demand (COD)               | 8        | N/A               | 2016/02/12       | ATL SOP 00042     | SM 22 5220D m        |
| Colour                                     | 8        | N/A               | 2016/02/08       | ATL SOP 00020     | SM 22 2120C m        |
| Organic carbon - Diss (DOC) (as rec'd) (1) | 8        | N/A               | 2016/02/10       | ATL SOP 00037     | SM 22 5310C m        |
| Conductance - water                        | 8        | N/A               | 2016/02/05       | ATL SOP 00004     | SM 22 2510B m        |
| Hardness (calculated as CaCO3)             | 8        | N/A               | 2016/02/08       | ATL SOP 00048     | SM 22 2340 B         |
| Mercury - Total (CVAA,LL)                  | 8        | 2016/02/09        | 2016/02/10       | ATL SOP 00026     | EPA 245.1 R3 m       |
| Metals Water Total MS                      | 8        | 2016/02/05        | 2016/02/05       | ATL SOP 00058     | EPA 6020A R1 m       |
| Ion Balance (% Difference)                 | 8        | N/A               | 2016/02/10       |                   | Auto Calc.           |
| Anion and Cation Sum                       | 8        | N/A               | 2016/02/10       |                   | Auto Calc.           |
| Nitrogen Ammonia - water                   | 8        | N/A               | 2016/02/09       | ATL SOP 00015     | EPA 350.1 R2 m       |
| Nitrogen - Nitrate + Nitrite               | 8        | N/A               | 2016/02/09       | ATL SOP 00016     | USGS SOPINCF0452.2 m |
| Nitrogen - Nitrite                         | 8        | N/A               | 2016/02/08       | ATL SOP 00017     | SM 22 4500-NO2- B m  |
| Nitrogen - Nitrate (as N)                  | 8        | N/A               | 2016/02/09       | ATL SOP 00018     | ASTM D3867           |
| Phenols (4-AAP)                            | 7        | N/A               | 2016/02/11       | ATL SOP 00039     | EPA 420.2 m          |
| Phenols (4-AAP)                            | 1        | N/A               | 2016/02/12       | ATL SOP 00039     | EPA 420.2 m          |
| pH (2)                                     | 8        | N/A               | 2016/02/05       | ATL SOP 00003     | SM 22 4500-H+ B m    |
| Phosphorus - ortho                         | 8        | N/A               | 2016/02/08       | ATL SOP 00021     | EPA 365.2 m          |
| Sat. pH and Langelier Index (@ 20C)        | 8        | N/A               | 2016/02/10       | ATL SOP 00049     | Auto Calc.           |
| Sat. pH and Langelier Index (@ 4C)         | 8        | N/A               | 2016/02/10       | ATL SOP 00049     | Auto Calc.           |
| Reactive Silica                            | 8        | N/A               | 2016/02/09       | ATL SOP 00022     | EPA 366.0 m          |
| Sulphate                                   | 8        | N/A               | 2016/02/09       | ATL SOP 00023     | EPA 375.4 R1978 m    |
| Total Dissolved Solids (TDS calc)          | 8        | N/A               | 2016/02/10       |                   | Auto Calc.           |



Your Project #: 21347  
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Englobe Corp.  
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CANADA B3B 2A7

**Report Date: 2016/02/17**  
Report #: R3897347  
Version: 2 - Revision

**CERTIFICATE OF ANALYSIS – REVISED REPORT**

**MAXXAM JOB #: B622733**

**Received: 2016/02/03, 12:14**

Sample Matrix: Drinking Water  
# Samples Received: 8

| Analyses                            | Quantity | Date<br>Extracted | Date<br>Analyzed | Laboratory Method | Reference      |
|-------------------------------------|----------|-------------------|------------------|-------------------|----------------|
| Nitrogen TKN - water (as N)         | 8        | 2016/02/08        | 2016/02/09       | ATL SOP 00019     | EPA 351.2 R2 m |
| Organic carbon - Total (TOC) (3)    | 8        | N/A               | 2016/02/08       | ATL SOP 00037     | SM 22 5310C m  |
| Phosphorus Total Colourimetry       | 8        | 2016/02/04        | 2016/02/08       | ATL SOP 00057     | EPA 365.1 R2 m |
| Total Suspended Solids              | 2        | 2016/02/08        | 2016/02/09       | ATL SOP 00007     | SM 22 2540D m  |
| Total Suspended Solids              | 6        | 2016/02/08        | 2016/02/10       | ATL SOP 00007     | SM 22 2540D m  |
| Turbidity                           | 8        | N/A               | 2016/02/05       | ATL SOP 00011     | EPA 180.1 R2 m |
| Volatile Organic Compounds in Water | 1        | N/A               | 2016/02/09       | ATL SOP 00133     | EPA 8260C R3 m |
| Volatile Organic Compounds in Water | 7        | N/A               | 2016/02/11       | ATL SOP 00133     | EPA 8260C R3 m |

Sample Matrix: Water  
# Samples Received: 5

| Analyses                                   | Quantity | Date<br>Extracted | Date<br>Analyzed | Laboratory Method | Reference            |
|--------------------------------------------|----------|-------------------|------------------|-------------------|----------------------|
| Carbonate, Bicarbonate and Hydroxide       | 5        | N/A               | 2016/02/05       | N/A               | SM 22 4500-CO2 D     |
| Alkalinity                                 | 5        | N/A               | 2016/02/09       | ATL SOP 00013     | EPA 310.2 R1974 m    |
| Carbonaceous BOD                           | 3        | 2016/02/04        | 2016/02/09       | ATL SOP 00041     | SM 22 5210B m        |
| Chloride                                   | 5        | N/A               | 2016/02/08       | ATL SOP 00014     | SM 22 4500-Cl- E m   |
| Chemical Oxygen Demand (COD)               | 5        | N/A               | 2016/02/12       | ATL SOP 00042     | SM 22 5220D m        |
| Colour                                     | 5        | N/A               | 2016/02/08       | ATL SOP 00020     | SM 22 2120C m        |
| Organic carbon - Diss (DOC) (as rec'd) (1) | 2        | N/A               | 2016/02/10       | ATL SOP 00037     | SM 22 5310C m        |
| Conductance - water                        | 5        | N/A               | 2016/02/05       | ATL SOP 00004     | SM 22 2510B m        |
| Hardness (calculated as CaCO3)             | 3        | N/A               | 2016/02/08       | ATL SOP 00048     | SM 22 2340 B         |
| Hardness (calculated as CaCO3)             | 2        | N/A               | 2016/02/09       | ATL SOP 00048     | SM 22 2340 B         |
| Mercury - Total (CVAA,LL)                  | 2        | 2016/02/04        | 2016/02/05       | ATL SOP 00026     | EPA 245.1 R3 m       |
| Mercury - Total (CVAA,LL)                  | 3        | 2016/02/09        | 2016/02/10       | ATL SOP 00026     | EPA 245.1 R3 m       |
| Metals Water Total MS                      | 3        | 2016/02/05        | 2016/02/05       | ATL SOP 00058     | EPA 6020A R1 m       |
| Metals Water Total MS                      | 2        | 2016/02/08        | 2016/02/09       | ATL SOP 00058     | EPA 6020A R1 m       |
| Ion Balance (% Difference)                 | 5        | N/A               | 2016/02/10       |                   | Auto Calc.           |
| Anion and Cation Sum                       | 5        | N/A               | 2016/02/10       |                   | Auto Calc.           |
| Nitrogen Ammonia - water                   | 5        | N/A               | 2016/02/09       | ATL SOP 00015     | EPA 350.1 R2 m       |
| Nitrogen - Nitrate + Nitrite               | 5        | N/A               | 2016/02/09       | ATL SOP 00016     | USGS SOPINCF0452.2 m |

Your Project #: 21347  
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CANADA B3B 2A7

**Report Date: 2016/02/17**  
Report #: R3897347  
Version: 2 - Revision

**CERTIFICATE OF ANALYSIS – REVISED REPORT**

**MAXXAM JOB #: B622733**

**Received: 2016/02/03, 12:14**

Sample Matrix: Water  
# Samples Received: 5

| Analyses                            | Quantity | Date<br>Extracted | Date<br>Analyzed | Laboratory Method | Reference           |
|-------------------------------------|----------|-------------------|------------------|-------------------|---------------------|
| Nitrogen - Nitrite                  | 5        | N/A               | 2016/02/08       | ATL SOP 00017     | SM 22 4500-NO2- B m |
| Nitrogen - Nitrate (as N)           | 5        | N/A               | 2016/02/09       | ATL SOP 00018     | ASTM D3867          |
| Phenols (4-AAP)                     | 5        | N/A               | 2016/02/11       | ATL SOP 00039     | EPA 420.2 m         |
| pH (2)                              | 5        | N/A               | 2016/02/05       | ATL SOP 00003     | SM 22 4500-H+ B m   |
| Phosphorus - ortho                  | 5        | N/A               | 2016/02/08       | ATL SOP 00021     | EPA 365.2 m         |
| Sat. pH and Langelier Index (@ 20C) | 2        | N/A               | 2016/02/09       | ATL SOP 00049     | Auto Calc.          |
| Sat. pH and Langelier Index (@ 20C) | 3        | N/A               | 2016/02/10       | ATL SOP 00049     | Auto Calc.          |
| Sat. pH and Langelier Index (@ 4C)  | 2        | N/A               | 2016/02/09       | ATL SOP 00049     | Auto Calc.          |
| Sat. pH and Langelier Index (@ 4C)  | 3        | N/A               | 2016/02/10       | ATL SOP 00049     | Auto Calc.          |
| Reactive Silica                     | 5        | N/A               | 2016/02/09       | ATL SOP 00022     | EPA 366.0 m         |
| Sulphate                            | 5        | N/A               | 2016/02/09       | ATL SOP 00023     | EPA 375.4 R1978 m   |
| Tannins & Lignins (4)               | 3        | N/A               | 2016/02/11       | CAM SOP-00410     | SM 22 5550 B m      |
| Total Dissolved Solids (TDS calc)   | 5        | N/A               | 2016/02/10       |                   | Auto Calc.          |
| Nitrogen TKN - water (as N)         | 5        | 2016/02/08        | 2016/02/09       | ATL SOP 00019     | EPA 351.2 R2 m      |
| Organic carbon - Total (TOC) (3)    | 5        | N/A               | 2016/02/08       | ATL SOP 00037     | SM 22 5310C m       |
| Phosphorus Total Colourimetry       | 5        | 2016/02/04        | 2016/02/08       | ATL SOP 00057     | EPA 365.1 R2 m      |
| Total Suspended Solids              | 3        | 2016/02/08        | 2016/02/10       | ATL SOP 00007     | SM 22 2540D m       |
| Total Suspended Solids              | 1        | 2016/02/10        | 2016/02/11       | ATL SOP 00007     | SM 22 2540D m       |
| Turbidity                           | 5        | N/A               | 2016/02/05       | ATL SOP 00011     | EPA 180.1 R2 m      |
| Volatile Organic Compounds in Water | 2        | N/A               | 2016/02/09       | ATL SOP 00133     | EPA 8260C R3 m      |
| Volatile Organic Compounds in Water | 3        | N/A               | 2016/02/11       | ATL SOP 00133     | EPA 8260C R3 m      |

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

Your Project #: 21347  
Your C.O.C. #: 547372-01-01, 547372-02-01

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CANADA B3B 2A7

**Report Date: 2016/02/17**  
Report #: R3897347  
Version: 2 - Revision

**CERTIFICATE OF ANALYSIS – REVISED REPORT**

**MAXXAM JOB #: B622733**

**Received: 2016/02/03, 12:14**

Encryption Key

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

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### ATLANTIC RCAP-MS TOTAL METALS IN WATER (DRINKING WATER)

| Maxxam ID     |       | BUC622              | BUC623              |          | BUC624              |          | BUC625              |     |          |     |
|---------------|-------|---------------------|---------------------|----------|---------------------|----------|---------------------|-----|----------|-----|
| Sampling Date |       | 2016/02/02<br>10:00 | 2016/02/02<br>10:30 |          | 2016/02/02<br>11:00 |          | 2016/02/02<br>11:30 |     |          |     |
| COC Number    |       | 547372-01-01        | 547372-01-01        |          | 547372-01-01        |          | 547372-01-01        |     |          |     |
|               | UNITS | PW1                 | PW2                 | QC Batch | PW3                 | QC Batch | PW4                 | RDL | QC Batch | MDL |

| Calculated Parameters                            |      |       |       |         |       |         |        |       |         |      |
|--------------------------------------------------|------|-------|-------|---------|-------|---------|--------|-------|---------|------|
| Anion Sum                                        | me/L | 0.850 | 1.51  | 4369555 | 2.64  | 4369555 | 1.72   | N/A   | 4369555 | N/A  |
| Bicarb. Alkalinity (calc. as CaCO <sub>3</sub> ) | mg/L | 29    | 41    | 4369552 | 12    | 4369552 | 61     | 1.0   | 4369552 | 0.20 |
| Calculated TDS                                   | mg/L | 54    | 97    | 4369559 | 150   | 4369559 | 110    | 1.0   | 4369559 | 0.20 |
| Carb. Alkalinity (calc. as CaCO <sub>3</sub> )   | mg/L | <1.0  | <1.0  | 4369552 | <1.0  | 4369552 | <1.0   | 1.0   | 4369552 | 0.20 |
| Cation Sum                                       | me/L | 0.820 | 1.36  | 4369555 | 2.30  | 4369555 | 1.57   | N/A   | 4369555 | N/A  |
| Hardness (CaCO <sub>3</sub> )                    | mg/L | 27    | 45    | 4369553 | 23    | 4369553 | 59     | 1.0   | 4369553 | 1.0  |
| Ion Balance (% Difference)                       | %    | 1.80  | 5.23  | 4369554 | 6.88  | 4369554 | 4.56   | N/A   | 4369554 | N/A  |
| Langelier Index (@ 20C)                          | N/A  | -2.42 | -1.58 | 4369557 | -3.27 | 4369557 | -0.896 |       | 4369557 |      |
| Langelier Index (@ 4C)                           | N/A  | -2.67 | -1.84 | 4369558 | -3.52 | 4369558 | -1.15  |       | 4369558 |      |
| Nitrate (N)                                      | mg/L | 0.54  | 0.45  | 4369507 | 0.15  | 4369507 | 0.18   | 0.050 | 4369507 | N/A  |
| Saturation pH (@ 20C)                            | N/A  | 9.00  | 8.59  | 4369557 | 9.47  | 4369557 | 8.27   |       | 4369557 |      |
| Saturation pH (@ 4C)                             | N/A  | 9.25  | 8.84  | 4369558 | 9.72  | 4369558 | 8.53   |       | 4369558 |      |

| Inorganics                                     |       |        |        |         |        |         |        |       |         |      |
|------------------------------------------------|-------|--------|--------|---------|--------|---------|--------|-------|---------|------|
| Total Alkalinity (Total as CaCO <sub>3</sub> ) | mg/L  | 29     | 41     | 4373744 | 12     | 4373744 | 62     | 5.0   | 4373744 | N/A  |
| Dissolved Chloride (Cl)                        | mg/L  | 5.2    | 15     | 4373752 | 78     | 4373752 | 9.5    | 1.0   | 4373752 | N/A  |
| Colour                                         | TCU   | 6.1    | <5.0   | 4373757 | <5.0   | 4373757 | <5.0   | 5.0   | 4373757 | N/A  |
| Nitrate + Nitrite (N)                          | mg/L  | 0.54   | 0.45   | 4373771 | 0.15   | 4373771 | 0.18   | 0.050 | 4373771 | N/A  |
| Nitrite (N)                                    | mg/L  | <0.010 | <0.010 | 4373774 | <0.010 | 4373774 | <0.010 | 0.010 | 4373774 | N/A  |
| Nitrogen (Ammonia Nitrogen)                    | mg/L  | 0.077  | <0.050 | 4375798 | 0.051  | 4375798 | 0.17   | 0.050 | 4375798 | N/A  |
| Total Organic Carbon (C)                       | mg/L  | 3.1    | <0.50  | 4373953 | 0.56   | 4373953 | <0.50  | 0.50  | 4373953 | N/A  |
| Orthophosphate (P)                             | mg/L  | 0.011  | 0.015  | 4373758 | <0.010 | 4373758 | 0.020  | 0.010 | 4373758 | N/A  |
| pH                                             | pH    | 6.59   | 7.00   | 4371214 | 6.19   | 4371214 | 7.38   | N/A   | 4371214 | N/A  |
| Reactive Silica (SiO <sub>2</sub> )            | mg/L  | 8.0    | 16     | 4373754 | 5.9    | 4373754 | 18     | 0.50  | 4373754 | N/A  |
| Dissolved Sulphate (SO <sub>4</sub> )          | mg/L  | 4.5    | 12     | 4373753 | 8.7    | 4373753 | 10     | 2.0   | 4373753 | N/A  |
| Turbidity                                      | NTU   | 0.39   | 0.49   | 4371365 | 0.66   | 4371365 | <0.10  | 0.10  | 4371365 | 0.10 |
| Conductivity                                   | uS/cm | 75     | 130    | 4371213 | 260    | 4371213 | 140    | 1.0   | 4371213 | N/A  |

| Metals               |      |      |      |         |      |         |      |     |         |     |
|----------------------|------|------|------|---------|------|---------|------|-----|---------|-----|
| Total Aluminum (Al)  | ug/L | 85   | 12   | 4371212 | 110  | 4371349 | <5.0 | 5.0 | 4371212 | N/A |
| Total Antimony (Sb)  | ug/L | <1.0 | <1.0 | 4371212 | <1.0 | 4371349 | <1.0 | 1.0 | 4371212 | N/A |
| Total Arsenic (As)   | ug/L | 1.2  | <1.0 | 4371212 | <1.0 | 4371349 | 3.1  | 1.0 | 4371212 | N/A |
| Total Barium (Ba)    | ug/L | 12   | 8.1  | 4371212 | 18   | 4371349 | 6.2  | 1.0 | 4371212 | N/A |
| Total Beryllium (Be) | ug/L | <1.0 | <1.0 | 4371212 | <1.0 | 4371349 | <1.0 | 1.0 | 4371212 | N/A |
| Total Bismuth (Bi)   | ug/L | <2.0 | <2.0 | 4371212 | <2.0 | 4371349 | <2.0 | 2.0 | 4371212 | N/A |
| Total Boron (B)      | ug/L | <50  | <50  | 4371212 | <50  | 4371349 | <50  | 50  | 4371212 | N/A |

RDL = Reportable Detection Limit

QC Batch = Quality Control Batch

N/A = Not Applicable

### ATLANTIC RCAP-MS TOTAL METALS IN WATER (DRINKING WATER)

| Maxxam ID                        |       | BUC622              | BUC623              |          | BUC624              |          | BUC625              |       |          |     |
|----------------------------------|-------|---------------------|---------------------|----------|---------------------|----------|---------------------|-------|----------|-----|
| Sampling Date                    |       | 2016/02/02<br>10:00 | 2016/02/02<br>10:30 |          | 2016/02/02<br>11:00 |          | 2016/02/02<br>11:30 |       |          |     |
| COC Number                       |       | 547372-01-01        | 547372-01-01        |          | 547372-01-01        |          | 547372-01-01        |       |          |     |
|                                  | UNITS | PW1                 | PW2                 | QC Batch | PW3                 | QC Batch | PW4                 | RDL   | QC Batch | MDL |
| Total Cadmium (Cd)               | ug/L  | 0.086               | 0.025               | 4371212  | 0.072               | 4371349  | 0.016               | 0.010 | 4371212  | N/A |
| Total Calcium (Ca)               | ug/L  | 7100                | 14000               | 4371212  | 6500                | 4371349  | 19000               | 100   | 4371212  | N/A |
| Total Chromium (Cr)              | ug/L  | <1.0                | <1.0                | 4371212  | <1.0                | 4371349  | <1.0                | 1.0   | 4371212  | N/A |
| Total Cobalt (Co)                | ug/L  | <0.40               | <0.40               | 4371212  | <0.40               | 4371349  | <0.40               | 0.40  | 4371212  | N/A |
| Total Copper (Cu)                | ug/L  | 79                  | 86                  | 4371212  | 260                 | 4371349  | 120                 | 2.0   | 4371212  | N/A |
| Total Iron (Fe)                  | ug/L  | 100                 | <50                 | 4371212  | 120                 | 4371349  | <50                 | 50    | 4371212  | N/A |
| Total Lead (Pb)                  | ug/L  | 1.2                 | 1.3                 | 4371212  | 15                  | 4371349  | <0.50               | 0.50  | 4371212  | N/A |
| Total Magnesium (Mg)             | ug/L  | 2100                | 2600                | 4371212  | 1600                | 4371349  | 2800                | 100   | 4371212  | N/A |
| Total Manganese (Mn)             | ug/L  | 9.8                 | 9.8                 | 4371212  | 30                  | 4371349  | <2.0                | 2.0   | 4371212  | N/A |
| Total Molybdenum (Mo)            | ug/L  | <2.0                | <2.0                | 4371212  | <2.0                | 4371349  | <2.0                | 2.0   | 4371212  | N/A |
| Total Nickel (Ni)                | ug/L  | <2.0                | <2.0                | 4371212  | 7.5                 | 4371349  | 2.2                 | 2.0   | 4371212  | N/A |
| Total Phosphorus (P)             | ug/L  | <100                | <100                | 4371212  | <100                | 4371349  | <100                | 100   | 4371212  | N/A |
| Total Potassium (K)              | ug/L  | 2700                | 1700                | 4371212  | 690                 | 4371349  | 1100                | 100   | 4371212  | N/A |
| Total Selenium (Se)              | ug/L  | <1.0                | <1.0                | 4371212  | <1.0                | 4371349  | <1.0                | 1.0   | 4371212  | N/A |
| Total Silver (Ag)                | ug/L  | <0.10               | <0.10               | 4371212  | <0.10               | 4371349  | <0.10               | 0.10  | 4371212  | N/A |
| Total Sodium (Na)                | ug/L  | 4700                | 9400                | 4371212  | 42000               | 4371349  | 7900                | 100   | 4371212  | N/A |
| Total Strontium (Sr)             | ug/L  | 51                  | 77                  | 4371212  | 33                  | 4371349  | 73                  | 2.0   | 4371212  | N/A |
| Total Thallium (Tl)              | ug/L  | <0.10               | <0.10               | 4371212  | <0.10               | 4371349  | <0.10               | 0.10  | 4371212  | N/A |
| Total Tin (Sn)                   | ug/L  | <2.0                | <2.0                | 4371212  | <2.0                | 4371349  | <2.0                | 2.0   | 4371212  | N/A |
| Total Titanium (Ti)              | ug/L  | <2.0                | <2.0                | 4371212  | <2.0                | 4371349  | <2.0                | 2.0   | 4371212  | N/A |
| Total Uranium (U)                | ug/L  | 0.19                | <0.10               | 4371212  | <0.10               | 4371349  | <0.10               | 0.10  | 4371212  | N/A |
| Total Vanadium (V)               | ug/L  | <2.0                | <2.0                | 4371212  | <2.0                | 4371349  | <2.0                | 2.0   | 4371212  | N/A |
| Total Zinc (Zn)                  | ug/L  | 8.3                 | 33                  | 4371212  | 210                 | 4371349  | 11                  | 5.0   | 4371212  | N/A |
| RDL = Reportable Detection Limit |       |                     |                     |          |                     |          |                     |       |          |     |
| QC Batch = Quality Control Batch |       |                     |                     |          |                     |          |                     |       |          |     |
| N/A = Not Applicable             |       |                     |                     |          |                     |          |                     |       |          |     |



### ATLANTIC RCAP-MS TOTAL METALS IN WATER (DRINKING WATER)

| Maxxam ID                                                                                                                                |       | BUC625              |          | BUC626              | BUC627              | BUC628              |       |          |      |
|------------------------------------------------------------------------------------------------------------------------------------------|-------|---------------------|----------|---------------------|---------------------|---------------------|-------|----------|------|
| Sampling Date                                                                                                                            |       | 2016/02/02<br>11:30 |          | 2016/02/02<br>12:00 | 2016/02/02<br>12:30 | 2016/02/02<br>12:45 |       |          |      |
| COC Number                                                                                                                               |       | 547372-01-01        |          | 547372-01-01        | 547372-01-01        | 547372-01-01        |       |          |      |
|                                                                                                                                          | UNITS | PW4<br>Lab-Dup      | QC Batch | PW5                 | PW6                 | PW7                 | RDL   | QC Batch | MDL  |
| <b>Calculated Parameters</b>                                                                                                             |       |                     |          |                     |                     |                     |       |          |      |
| Anion Sum                                                                                                                                | me/L  |                     | 4369555  | 1.81                | 1.29                | 1.01                | N/A   | 4369555  | N/A  |
| Bicarb. Alkalinity (calc. as CaCO <sub>3</sub> )                                                                                         | mg/L  |                     | 4369552  | 59                  | 26                  | 14                  | 1.0   | 4369552  | 0.20 |
| Calculated TDS                                                                                                                           | mg/L  |                     | 4369559  | 120                 | 86                  | 67                  | 1.0   | 4369559  | 0.20 |
| Carb. Alkalinity (calc. as CaCO <sub>3</sub> )                                                                                           | mg/L  |                     | 4369552  | <1.0                | <1.0                | <1.0                | 1.0   | 4369552  | 0.20 |
| Cation Sum                                                                                                                               | me/L  |                     | 4369555  | 1.66                | 1.13                | 0.890               | N/A   | 4369555  | N/A  |
| Hardness (CaCO <sub>3</sub> )                                                                                                            | mg/L  |                     | 4369553  | 59                  | 31                  | 18                  | 1.0   | 4369553  | 1.0  |
| Ion Balance (% Difference)                                                                                                               | %     |                     | 4369554  | 4.32                | 6.61                | 6.32                | N/A   | 4369554  | N/A  |
| Langelier Index (@ 20C)                                                                                                                  | N/A   |                     | 4369557  | -1.26               | -2.16               | -2.94               |       | 4369557  |      |
| Langelier Index (@ 4C)                                                                                                                   | N/A   |                     | 4369558  | -1.51               | -2.41               | -3.19               |       | 4369558  |      |
| Nitrate (N)                                                                                                                              | mg/L  |                     | 4369507  | 0.26                | 0.15                | 0.16                | 0.050 | 4369507  | N/A  |
| Saturation pH (@ 20C)                                                                                                                    | N/A   |                     | 4369557  | 8.36                | 8.97                | 9.57                |       | 4369557  |      |
| Saturation pH (@ 4C)                                                                                                                     | N/A   |                     | 4369558  | 8.62                | 9.22                | 9.83                |       | 4369558  |      |
| <b>Inorganics</b>                                                                                                                        |       |                     |          |                     |                     |                     |       |          |      |
| Total Alkalinity (Total as CaCO <sub>3</sub> )                                                                                           | mg/L  |                     | 4373744  | 59                  | 26                  | 14                  | 5.0   | 4373775  | N/A  |
| Dissolved Chloride (Cl)                                                                                                                  | mg/L  |                     | 4373752  | 15                  | 18                  | 19                  | 1.0   | 4373780  | N/A  |
| Colour                                                                                                                                   | TCU   |                     | 4373757  | <5.0                | <5.0                | <5.0                | 5.0   | 4373786  | N/A  |
| Nitrate + Nitrite (N)                                                                                                                    | mg/L  |                     | 4373771  | 0.26                | 0.15                | 0.16                | 0.050 | 4373790  | N/A  |
| Nitrite (N)                                                                                                                              | mg/L  |                     | 4373774  | <0.010              | <0.010              | <0.010              | 0.010 | 4373795  | N/A  |
| Nitrogen (Ammonia Nitrogen)                                                                                                              | mg/L  | 0.11                | 4375798  | <0.050              | <0.050              | <0.050              | 0.050 | 4375798  | N/A  |
| Total Organic Carbon (C)                                                                                                                 | mg/L  | <0.50               | 4373963  | <0.50               | <0.50               | <0.50               | 0.50  | 4373963  | N/A  |
| Orthophosphate (P)                                                                                                                       | mg/L  |                     | 4373758  | 0.018               | 0.015               | 0.014               | 0.010 | 4373787  | N/A  |
| pH                                                                                                                                       | pH    |                     | 4371214  | 7.10                | 6.82                | 6.63                | N/A   | 4371214  | N/A  |
| Reactive Silica (SiO <sub>2</sub> )                                                                                                      | mg/L  |                     | 4373754  | 22                  | 17                  | 12                  | 0.50  | 4373783  | N/A  |
| Dissolved Sulphate (SO <sub>4</sub> )                                                                                                    | mg/L  |                     | 4373753  | 9.5                 | 12                  | 8.5                 | 2.0   | 4373781  | N/A  |
| Turbidity                                                                                                                                | NTU   |                     | 4371365  | <0.10               | 7.3                 | 0.49                | 0.10  | 4371365  | 0.10 |
| Conductivity                                                                                                                             | uS/cm |                     | 4371213  | 150                 | 110                 | 95                  | 1.0   | 4371213  | N/A  |
| <b>Metals</b>                                                                                                                            |       |                     |          |                     |                     |                     |       |          |      |
| Total Aluminum (Al)                                                                                                                      | ug/L  |                     | 4371212  | <5.0                | 11                  | 34                  | 5.0   | 4371212  | N/A  |
| Total Antimony (Sb)                                                                                                                      | ug/L  |                     | 4371212  | <1.0                | <1.0                | <1.0                | 1.0   | 4371212  | N/A  |
| Total Arsenic (As)                                                                                                                       | ug/L  |                     | 4371212  | <1.0                | <1.0                | <1.0                | 1.0   | 4371212  | N/A  |
| Total Barium (Ba)                                                                                                                        | ug/L  |                     | 4371212  | 4.0                 | 6.8                 | 4.2                 | 1.0   | 4371212  | N/A  |
| Total Beryllium (Be)                                                                                                                     | ug/L  |                     | 4371212  | <1.0                | <1.0                | <1.0                | 1.0   | 4371212  | N/A  |
| Total Bismuth (Bi)                                                                                                                       | ug/L  |                     | 4371212  | <2.0                | <2.0                | <2.0                | 2.0   | 4371212  | N/A  |
| RDL = Reportable Detection Limit<br>QC Batch = Quality Control Batch<br>Lab-Dup = Laboratory Initiated Duplicate<br>N/A = Not Applicable |       |                     |          |                     |                     |                     |       |          |      |

### ATLANTIC RCAP-MS TOTAL METALS IN WATER (DRINKING WATER)

| Maxxam ID                                                                                                                                |       | BUC625              |          | BUC626              | BUC627              | BUC628              |       |          |     |
|------------------------------------------------------------------------------------------------------------------------------------------|-------|---------------------|----------|---------------------|---------------------|---------------------|-------|----------|-----|
| Sampling Date                                                                                                                            |       | 2016/02/02<br>11:30 |          | 2016/02/02<br>12:00 | 2016/02/02<br>12:30 | 2016/02/02<br>12:45 |       |          |     |
| COC Number                                                                                                                               |       | 547372-01-01        |          | 547372-01-01        | 547372-01-01        | 547372-01-01        |       |          |     |
|                                                                                                                                          | UNITS | PW4<br>Lab-Dup      | QC Batch | PW5                 | PW6                 | PW7                 | RDL   | QC Batch | MDL |
| Total Boron (B)                                                                                                                          | ug/L  |                     | 4371212  | <50                 | <50                 | <50                 | 50    | 4371212  | N/A |
| Total Cadmium (Cd)                                                                                                                       | ug/L  |                     | 4371212  | <0.010              | <0.010              | 0.034               | 0.010 | 4371212  | N/A |
| Total Calcium (Ca)                                                                                                                       | ug/L  |                     | 4371212  | 16000               | 8900                | 4000                | 100   | 4371212  | N/A |
| Total Chromium (Cr)                                                                                                                      | ug/L  |                     | 4371212  | <1.0                | <1.0                | <1.0                | 1.0   | 4371212  | N/A |
| Total Cobalt (Co)                                                                                                                        | ug/L  |                     | 4371212  | <0.40               | <0.40               | <0.40               | 0.40  | 4371212  | N/A |
| Total Copper (Cu)                                                                                                                        | ug/L  |                     | 4371212  | 17                  | 31                  | 120                 | 2.0   | 4371212  | N/A |
| Total Iron (Fe)                                                                                                                          | ug/L  |                     | 4371212  | <50                 | 620                 | 66                  | 50    | 4371212  | N/A |
| Total Lead (Pb)                                                                                                                          | ug/L  |                     | 4371212  | <0.50               | 0.69                | 0.83                | 0.50  | 4371212  | N/A |
| Total Magnesium (Mg)                                                                                                                     | ug/L  |                     | 4371212  | 4400                | 2100                | 2000                | 100   | 4371212  | N/A |
| Total Manganese (Mn)                                                                                                                     | ug/L  |                     | 4371212  | <2.0                | 65                  | 9.1                 | 2.0   | 4371212  | N/A |
| Total Molybdenum (Mo)                                                                                                                    | ug/L  |                     | 4371212  | <2.0                | <2.0                | <2.0                | 2.0   | 4371212  | N/A |
| Total Nickel (Ni)                                                                                                                        | ug/L  |                     | 4371212  | <2.0                | <2.0                | <2.0                | 2.0   | 4371212  | N/A |
| Total Phosphorus (P)                                                                                                                     | ug/L  |                     | 4371212  | <100                | <100                | <100                | 100   | 4371212  | N/A |
| Total Potassium (K)                                                                                                                      | ug/L  |                     | 4371212  | 1500                | 980                 | 590                 | 100   | 4371212  | N/A |
| Total Selenium (Se)                                                                                                                      | ug/L  |                     | 4371212  | <1.0                | <1.0                | <1.0                | 1.0   | 4371212  | N/A |
| Total Silver (Ag)                                                                                                                        | ug/L  |                     | 4371212  | <0.10               | <0.10               | <0.10               | 0.10  | 4371212  | N/A |
| Total Sodium (Na)                                                                                                                        | ug/L  |                     | 4371212  | 10000               | 11000               | 12000               | 100   | 4371212  | N/A |
| Total Strontium (Sr)                                                                                                                     | ug/L  |                     | 4371212  | 84                  | 46                  | 29                  | 2.0   | 4371212  | N/A |
| Total Thallium (Tl)                                                                                                                      | ug/L  |                     | 4371212  | <0.10               | <0.10               | <0.10               | 0.10  | 4371212  | N/A |
| Total Tin (Sn)                                                                                                                           | ug/L  |                     | 4371212  | <2.0                | <2.0                | <2.0                | 2.0   | 4371212  | N/A |
| Total Titanium (Ti)                                                                                                                      | ug/L  |                     | 4371212  | <2.0                | <2.0                | <2.0                | 2.0   | 4371212  | N/A |
| Total Uranium (U)                                                                                                                        | ug/L  |                     | 4371212  | 0.16                | 0.14                | <0.10               | 0.10  | 4371212  | N/A |
| Total Vanadium (V)                                                                                                                       | ug/L  |                     | 4371212  | <2.0                | <2.0                | <2.0                | 2.0   | 4371212  | N/A |
| Total Zinc (Zn)                                                                                                                          | ug/L  |                     | 4371212  | <5.0                | 12                  | 40                  | 5.0   | 4371212  | N/A |
| RDL = Reportable Detection Limit<br>QC Batch = Quality Control Batch<br>Lab-Dup = Laboratory Initiated Duplicate<br>N/A = Not Applicable |       |                     |          |                     |                     |                     |       |          |     |

### ATLANTIC RCAP-MS TOTAL METALS IN WATER (DRINKING WATER)

|                                                                                              |              |                     |            |                 |            |
|----------------------------------------------------------------------------------------------|--------------|---------------------|------------|-----------------|------------|
| <b>Maxxam ID</b>                                                                             |              | BUC629              |            |                 |            |
| <b>Sampling Date</b>                                                                         |              | 2016/02/02<br>13:00 |            |                 |            |
| <b>COC Number</b>                                                                            |              | 547372-01-01        |            |                 |            |
|                                                                                              | <b>UNITS</b> | <b>PW8</b>          | <b>RDL</b> | <b>QC Batch</b> | <b>MDL</b> |
| <b>Calculated Parameters</b>                                                                 |              |                     |            |                 |            |
| Anion Sum                                                                                    | me/L         | 3.29                | N/A        | 4369555         | N/A        |
| Bicarb. Alkalinity (calc. as CaCO <sub>3</sub> )                                             | mg/L         | 58                  | 1.0        | 4369552         | 0.20       |
| Calculated TDS                                                                               | mg/L         | 190                 | 1.0        | 4369559         | 0.20       |
| Carb. Alkalinity (calc. as CaCO <sub>3</sub> )                                               | mg/L         | <1.0                | 1.0        | 4369552         | 0.20       |
| Cation Sum                                                                                   | me/L         | 2.80                | N/A        | 4369555         | N/A        |
| Hardness (CaCO <sub>3</sub> )                                                                | mg/L         | 83                  | 1.0        | 4369553         | 1.0        |
| Ion Balance (% Difference)                                                                   | %            | 8.05                | N/A        | 4369554         | N/A        |
| Langelier Index (@ 20C)                                                                      | N/A          | -0.950              |            | 4369557         |            |
| Langelier Index (@ 4C)                                                                       | N/A          | -1.20               |            | 4369558         |            |
| Nitrate (N)                                                                                  | mg/L         | <0.050              | 0.050      | 4369507         | N/A        |
| Saturation pH (@ 20C)                                                                        | N/A          | 8.24                |            | 4369557         |            |
| Saturation pH (@ 4C)                                                                         | N/A          | 8.49                |            | 4369558         |            |
| <b>Inorganics</b>                                                                            |              |                     |            |                 |            |
| Total Alkalinity (Total as CaCO <sub>3</sub> )                                               | mg/L         | 58                  | 5.0        | 4373775         | N/A        |
| Dissolved Chloride (Cl)                                                                      | mg/L         | 68                  | 1.0        | 4373780         | N/A        |
| Colour                                                                                       | TCU          | <5.0                | 5.0        | 4373786         | N/A        |
| Nitrate + Nitrite (N)                                                                        | mg/L         | <0.050              | 0.050      | 4373790         | N/A        |
| Nitrite (N)                                                                                  | mg/L         | <0.010              | 0.010      | 4373795         | N/A        |
| Nitrogen (Ammonia Nitrogen)                                                                  | mg/L         | 0.068               | 0.050      | 4375798         | N/A        |
| Total Organic Carbon (C)                                                                     | mg/L         | <0.50               | 0.50       | 4373963         | N/A        |
| Orthophosphate (P)                                                                           | mg/L         | 0.017               | 0.010      | 4373787         | N/A        |
| pH                                                                                           | pH           | 7.29                | N/A        | 4371214         | N/A        |
| Reactive Silica (SiO <sub>2</sub> )                                                          | mg/L         | 21                  | 0.50       | 4373783         | N/A        |
| Dissolved Sulphate (SO <sub>4</sub> )                                                        | mg/L         | 10                  | 2.0        | 4373781         | N/A        |
| Turbidity                                                                                    | NTU          | 12                  | 0.10       | 4371365         | 0.10       |
| Conductivity                                                                                 | uS/cm        | 290                 | 1.0        | 4371213         | N/A        |
| <b>Metals</b>                                                                                |              |                     |            |                 |            |
| Total Aluminum (Al)                                                                          | ug/L         | 5.7                 | 5.0        | 4371212         | N/A        |
| Total Antimony (Sb)                                                                          | ug/L         | <1.0                | 1.0        | 4371212         | N/A        |
| Total Arsenic (As)                                                                           | ug/L         | 1.1                 | 1.0        | 4371212         | N/A        |
| Total Barium (Ba)                                                                            | ug/L         | 18                  | 1.0        | 4371212         | N/A        |
| Total Beryllium (Be)                                                                         | ug/L         | <1.0                | 1.0        | 4371212         | N/A        |
| Total Bismuth (Bi)                                                                           | ug/L         | <2.0                | 2.0        | 4371212         | N/A        |
| Total Boron (B)                                                                              | ug/L         | <50                 | 50         | 4371212         | N/A        |
| RDL = Reportable Detection Limit<br>QC Batch = Quality Control Batch<br>N/A = Not Applicable |              |                     |            |                 |            |

### ATLANTIC RCAP-MS TOTAL METALS IN WATER (DRINKING WATER)

|                                                                                              |              |                     |            |                 |            |
|----------------------------------------------------------------------------------------------|--------------|---------------------|------------|-----------------|------------|
| <b>Maxxam ID</b>                                                                             |              | BUC629              |            |                 |            |
| <b>Sampling Date</b>                                                                         |              | 2016/02/02<br>13:00 |            |                 |            |
| <b>COC Number</b>                                                                            |              | 547372-01-01        |            |                 |            |
|                                                                                              | <b>UNITS</b> | <b>PW8</b>          | <b>RDL</b> | <b>QC Batch</b> | <b>MDL</b> |
| Total Cadmium (Cd)                                                                           | ug/L         | <0.010              | 0.010      | 4371212         | N/A        |
| Total Calcium (Ca)                                                                           | ug/L         | 24000               | 100        | 4371212         | N/A        |
| Total Chromium (Cr)                                                                          | ug/L         | <1.0                | 1.0        | 4371212         | N/A        |
| Total Cobalt (Co)                                                                            | ug/L         | <0.40               | 0.40       | 4371212         | N/A        |
| Total Copper (Cu)                                                                            | ug/L         | 21                  | 2.0        | 4371212         | N/A        |
| Total Iron (Fe)                                                                              | ug/L         | 1000                | 50         | 4371212         | N/A        |
| Total Lead (Pb)                                                                              | ug/L         | 7.5                 | 0.50       | 4371212         | N/A        |
| Total Magnesium (Mg)                                                                         | ug/L         | 5500                | 100        | 4371212         | N/A        |
| Total Manganese (Mn)                                                                         | ug/L         | 420                 | 2.0        | 4371212         | N/A        |
| Total Molybdenum (Mo)                                                                        | ug/L         | <2.0                | 2.0        | 4371212         | N/A        |
| Total Nickel (Ni)                                                                            | ug/L         | <2.0                | 2.0        | 4371212         | N/A        |
| Total Phosphorus (P)                                                                         | ug/L         | <100                | 100        | 4371212         | N/A        |
| Total Potassium (K)                                                                          | ug/L         | 1600                | 100        | 4371212         | N/A        |
| Total Selenium (Se)                                                                          | ug/L         | <1.0                | 1.0        | 4371212         | N/A        |
| Total Silver (Ag)                                                                            | ug/L         | <0.10               | 0.10       | 4371212         | N/A        |
| Total Sodium (Na)                                                                            | ug/L         | 25000               | 100        | 4371212         | N/A        |
| Total Strontium (Sr)                                                                         | ug/L         | 140                 | 2.0        | 4371212         | N/A        |
| Total Thallium (Tl)                                                                          | ug/L         | <0.10               | 0.10       | 4371212         | N/A        |
| Total Tin (Sn)                                                                               | ug/L         | <2.0                | 2.0        | 4371212         | N/A        |
| Total Titanium (Ti)                                                                          | ug/L         | <2.0                | 2.0        | 4371212         | N/A        |
| Total Uranium (U)                                                                            | ug/L         | <0.10               | 0.10       | 4371212         | N/A        |
| Total Vanadium (V)                                                                           | ug/L         | <2.0                | 2.0        | 4371212         | N/A        |
| Total Zinc (Zn)                                                                              | ug/L         | <5.0                | 5.0        | 4371212         | N/A        |
| RDL = Reportable Detection Limit<br>QC Batch = Quality Control Batch<br>N/A = Not Applicable |              |                     |            |                 |            |

### ATLANTIC RCAP-MS TOTAL METALS IN WATER (WATER)

| Maxxam ID                                                                                                                                                                                                                                             |       | BUC620              | BUC620              |       |          | BUC621              |       |          |      |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|---------------------|---------------------|-------|----------|---------------------|-------|----------|------|
| Sampling Date                                                                                                                                                                                                                                         |       | 2016/02/02<br>16:30 | 2016/02/02<br>16:30 |       |          | 2016/02/02<br>14:00 |       |          |      |
| COC Number                                                                                                                                                                                                                                            |       | 547372-01-01        | 547372-01-01        |       |          | 547372-01-01        |       |          |      |
|                                                                                                                                                                                                                                                       | UNITS | MW1                 | MW1<br>Lab-Dup      | RDL   | QC Batch | MW2                 | RDL   | QC Batch | MDL  |
| <b>Calculated Parameters</b>                                                                                                                                                                                                                          |       |                     |                     |       |          |                     |       |          |      |
| Anion Sum                                                                                                                                                                                                                                             | me/L  | 6.12                |                     | N/A   | 4369555  | 6.29                | N/A   | 4369555  | N/A  |
| Bicarb. Alkalinity (calc. as CaCO <sub>3</sub> )                                                                                                                                                                                                      | mg/L  | 220                 |                     | 1.0   | 4369552  | 120                 | 1.0   | 4369552  | 0.20 |
| Calculated TDS                                                                                                                                                                                                                                        | mg/L  | 360                 |                     | 1.0   | 4369559  | 510                 | 1.0   | 4369559  | 0.20 |
| Carb. Alkalinity (calc. as CaCO <sub>3</sub> )                                                                                                                                                                                                        | mg/L  | <1.0                |                     | 1.0   | 4369552  | <1.0                | 1.0   | 4369552  | 0.20 |
| Cation Sum                                                                                                                                                                                                                                            | me/L  | 6.12                |                     | N/A   | 4369555  | 12.2                | N/A   | 4369555  | N/A  |
| Hardness (CaCO <sub>3</sub> )                                                                                                                                                                                                                         | mg/L  | 120                 |                     | 1.0   | 4369553  | 310                 | 1.0   | 4369553  | 1.0  |
| Ion Balance (% Difference)                                                                                                                                                                                                                            | %     | 0.00                |                     | N/A   | 4369554  | 31.9                | N/A   | 4369554  | N/A  |
| Langelier Index (@ 20C)                                                                                                                                                                                                                               | N/A   | -0.146              |                     |       | 4369557  | -0.571              |       | 4369557  |      |
| Langelier Index (@ 4C)                                                                                                                                                                                                                                | N/A   | -0.395              |                     |       | 4369558  | -0.819              |       | 4369558  |      |
| Nitrate (N)                                                                                                                                                                                                                                           | mg/L  | 0.75                |                     | 0.050 | 4369507  | 4.8                 | 0.25  | 4369507  | N/A  |
| Saturation pH (@ 20C)                                                                                                                                                                                                                                 | N/A   | 7.56                |                     |       | 4369557  | 7.51                |       | 4369557  |      |
| Saturation pH (@ 4C)                                                                                                                                                                                                                                  | N/A   | 7.81                |                     |       | 4369558  | 7.76                |       | 4369558  |      |
| <b>Inorganics</b>                                                                                                                                                                                                                                     |       |                     |                     |       |          |                     |       |          |      |
| Total Alkalinity (Total as CaCO <sub>3</sub> )                                                                                                                                                                                                        | mg/L  | 230                 |                     | 25    | 4373744  | 120                 | 25    | 4373744  | N/A  |
| Dissolved Chloride (Cl)                                                                                                                                                                                                                               | mg/L  | 41                  |                     | 1.0   | 4373752  | 90                  | 1.0   | 4373752  | N/A  |
| Colour                                                                                                                                                                                                                                                | TCU   | 1100                |                     | 250   | 4373757  | 14                  | 5.0   | 4373757  | N/A  |
| Nitrate + Nitrite (N)                                                                                                                                                                                                                                 | mg/L  | 0.75                |                     | 0.050 | 4373771  | 4.8                 | 0.25  | 4373771  | N/A  |
| Nitrite (N)                                                                                                                                                                                                                                           | mg/L  | <0.010              |                     | 0.010 | 4373774  | 0.044               | 0.010 | 4373774  | N/A  |
| Nitrogen (Ammonia Nitrogen)                                                                                                                                                                                                                           | mg/L  | 0.35                |                     | 0.050 | 4375798  | 0.37                | 0.050 | 4375798  | N/A  |
| Total Organic Carbon (C)                                                                                                                                                                                                                              | mg/L  | 40 (1)              |                     | 5.0   | 4373953  | <50 (2)             | 50    | 4373953  | N/A  |
| Orthophosphate (P)                                                                                                                                                                                                                                    | mg/L  | 0.28                |                     | 0.010 | 4373758  | 0.011               | 0.010 | 4373758  | N/A  |
| pH                                                                                                                                                                                                                                                    | pH    | 7.42                |                     | N/A   | 4371214  | 6.94                | N/A   | 4371214  | N/A  |
| Reactive Silica (SiO <sub>2</sub> )                                                                                                                                                                                                                   | mg/L  | 8.0                 |                     | 0.50  | 4373754  | 6.7                 | 0.50  | 4373754  | N/A  |
| Dissolved Sulphate (SO <sub>4</sub> )                                                                                                                                                                                                                 | mg/L  | 18                  |                     | 2.0   | 4373753  | 45                  | 10    | 4373753  | N/A  |
| Turbidity                                                                                                                                                                                                                                             | NTU   | 89                  | 88                  | 0.10  | 4371370  | >1000               | 1.0   | 4371365  | 0.10 |
| Conductivity                                                                                                                                                                                                                                          | uS/cm | 530                 |                     | 1.0   | 4371213  | 600                 | 1.0   | 4371213  | N/A  |
| <b>Metals</b>                                                                                                                                                                                                                                         |       |                     |                     |       |          |                     |       |          |      |
| Total Aluminum (Al)                                                                                                                                                                                                                                   | ug/L  | 810                 |                     | 5.0   | 4371212  | 70000               | 5.0   | 4371212  | N/A  |
| Total Antimony (Sb)                                                                                                                                                                                                                                   | ug/L  | <1.0                |                     | 1.0   | 4371212  | <1.0                | 1.0   | 4371212  | N/A  |
| Total Arsenic (As)                                                                                                                                                                                                                                    | ug/L  | 10                  |                     | 1.0   | 4371212  | 49                  | 1.0   | 4371212  | N/A  |
| Total Barium (Ba)                                                                                                                                                                                                                                     | ug/L  | 31                  |                     | 1.0   | 4371212  | 280                 | 1.0   | 4371212  | N/A  |
| RDL = Reportable Detection Limit<br>QC Batch = Quality Control Batch<br>Lab-Dup = Laboratory Initiated Duplicate<br>N/A = Not Applicable<br>(1) Elevated reporting limit due to sample matrix.<br>(2) Reporting limit was increased due to turbidity. |       |                     |                     |       |          |                     |       |          |      |



### ATLANTIC RCAP-MS TOTAL METALS IN WATER (WATER)

| Maxxam ID                                                                                                                                |       | BUC620              | BUC620              |       |          | BUC621              |      |          |     |
|------------------------------------------------------------------------------------------------------------------------------------------|-------|---------------------|---------------------|-------|----------|---------------------|------|----------|-----|
| Sampling Date                                                                                                                            |       | 2016/02/02<br>16:30 | 2016/02/02<br>16:30 |       |          | 2016/02/02<br>14:00 |      |          |     |
| COC Number                                                                                                                               |       | 547372-01-01        | 547372-01-01        |       |          | 547372-01-01        |      |          |     |
|                                                                                                                                          | UNITS | MW1                 | MW1<br>Lab-Dup      | RDL   | QC Batch | MW2                 | RDL  | QC Batch | MDL |
| Total Beryllium (Be)                                                                                                                     | ug/L  | <1.0                |                     | 1.0   | 4371212  | 3.2                 | 1.0  | 4371212  | N/A |
| Total Bismuth (Bi)                                                                                                                       | ug/L  | <2.0                |                     | 2.0   | 4371212  | <2.0                | 2.0  | 4371212  | N/A |
| Total Boron (B)                                                                                                                          | ug/L  | 75                  |                     | 50    | 4371212  | 250                 | 50   | 4371212  | N/A |
| Total Cadmium (Cd)                                                                                                                       | ug/L  | 0.33                |                     | 0.010 | 4371212  | 0.17                | 0.10 | 4371212  | N/A |
| Total Calcium (Ca)                                                                                                                       | ug/L  | 33000               |                     | 100   | 4371212  | 74000               | 100  | 4371212  | N/A |
| Total Chromium (Cr)                                                                                                                      | ug/L  | 3.0                 |                     | 1.0   | 4371212  | 110                 | 1.0  | 4371212  | N/A |
| Total Cobalt (Co)                                                                                                                        | ug/L  | 7.9                 |                     | 0.40  | 4371212  | 61                  | 0.40 | 4371212  | N/A |
| Total Copper (Cu)                                                                                                                        | ug/L  | 37                  |                     | 2.0   | 4371212  | 260                 | 2.0  | 4371212  | N/A |
| Total Iron (Fe)                                                                                                                          | ug/L  | 14000               |                     | 50    | 4371212  | 110000              | 500  | 4371212  | N/A |
| Total Lead (Pb)                                                                                                                          | ug/L  | 5.0                 |                     | 0.50  | 4371212  | 30                  | 0.50 | 4371212  | N/A |
| Total Magnesium (Mg)                                                                                                                     | ug/L  | 9600                |                     | 100   | 4371212  | 31000               | 100  | 4371212  | N/A |
| Total Manganese (Mn)                                                                                                                     | ug/L  | 1100                |                     | 2.0   | 4371212  | 3600                | 2.0  | 4371212  | N/A |
| Total Molybdenum (Mo)                                                                                                                    | ug/L  | 2.2                 |                     | 2.0   | 4371212  | <2.0                | 2.0  | 4371212  | N/A |
| Total Nickel (Ni)                                                                                                                        | ug/L  | 10                  |                     | 2.0   | 4371212  | 120                 | 2.0  | 4371212  | N/A |
| Total Phosphorus (P)                                                                                                                     | ug/L  | 740                 |                     | 100   | 4371212  | 3300                | 100  | 4371212  | N/A |
| Total Potassium (K)                                                                                                                      | ug/L  | 51000               |                     | 100   | 4371212  | 21000               | 100  | 4371212  | N/A |
| Total Selenium (Se)                                                                                                                      | ug/L  | <1.0                |                     | 1.0   | 4371212  | <1.0                | 1.0  | 4371212  | N/A |
| Total Silver (Ag)                                                                                                                        | ug/L  | <0.10               |                     | 0.10  | 4371212  | 0.24                | 0.10 | 4371212  | N/A |
| Total Sodium (Na)                                                                                                                        | ug/L  | 42000               |                     | 100   | 4371212  | 33000               | 100  | 4371212  | N/A |
| Total Strontium (Sr)                                                                                                                     | ug/L  | 120                 |                     | 2.0   | 4371212  | 240                 | 2.0  | 4371212  | N/A |
| Total Thallium (Tl)                                                                                                                      | ug/L  | <0.10               |                     | 0.10  | 4371212  | 0.55                | 0.10 | 4371212  | N/A |
| Total Tin (Sn)                                                                                                                           | ug/L  | <2.0                |                     | 2.0   | 4371212  | <2.0                | 2.0  | 4371212  | N/A |
| Total Titanium (Ti)                                                                                                                      | ug/L  | 22                  |                     | 2.0   | 4371212  | 1800                | 2.0  | 4371212  | N/A |
| Total Uranium (U)                                                                                                                        | ug/L  | 1.4                 |                     | 0.10  | 4371212  | 5.0                 | 0.10 | 4371212  | N/A |
| Total Vanadium (V)                                                                                                                       | ug/L  | 3.6                 |                     | 2.0   | 4371212  | 100                 | 2.0  | 4371212  | N/A |
| Total Zinc (Zn)                                                                                                                          | ug/L  | 54                  |                     | 5.0   | 4371212  | 210                 | 5.0  | 4371212  | N/A |
| RDL = Reportable Detection Limit<br>QC Batch = Quality Control Batch<br>Lab-Dup = Laboratory Initiated Duplicate<br>N/A = Not Applicable |       |                     |                     |       |          |                     |      |          |     |

### ATLANTIC RCAP-MS TOTAL METALS IN WATER (WATER)

| Maxxam ID     |       | BUC656              | BUC656              |     |          | BUC657              | BUC658              |     |          |     |
|---------------|-------|---------------------|---------------------|-----|----------|---------------------|---------------------|-----|----------|-----|
| Sampling Date |       | 2016/02/02<br>13:30 | 2016/02/02<br>13:30 |     |          | 2016/02/02<br>15:00 | 2016/02/02<br>16:00 |     |          |     |
| COC Number    |       | 547372-02-01        | 547372-02-01        |     |          | 547372-02-01        | 547372-02-01        |     |          |     |
|               | UNITS | SW1                 | SW1<br>Lab-Dup      | RDL | QC Batch | SW2                 | SW3                 | RDL | QC Batch | MDL |

#### Calculated Parameters

|                                                  |      |       |  |       |         |       |       |       |         |      |
|--------------------------------------------------|------|-------|--|-------|---------|-------|-------|-------|---------|------|
| Anion Sum                                        | me/L | 0.790 |  | N/A   | 4369555 | 0.530 | 1.50  | N/A   | 4369555 | N/A  |
| Bicarb. Alkalinity (calc. as CaCO <sub>3</sub> ) | mg/L | <1.0  |  | 1.0   | 4369552 | <1.0  | 39    | 1.0   | 4369552 | 0.20 |
| Calculated TDS                                   | mg/L | 57    |  | 1.0   | 4369559 | 42    | 99    | 1.0   | 4369559 | 0.20 |
| Carb. Alkalinity (calc. as CaCO <sub>3</sub> )   | mg/L | <1.0  |  | 1.0   | 4369552 | <1.0  | <1.0  | 1.0   | 4369552 | 0.20 |
| Cation Sum                                       | me/L | 0.870 |  | N/A   | 4369555 | 0.720 | 1.68  | N/A   | 4369555 | N/A  |
| Hardness (CaCO <sub>3</sub> )                    | mg/L | 5.3   |  | 1.0   | 4369553 | 5.2   | 25    | 1.0   | 4369553 | 1.0  |
| Ion Balance (% Difference)                       | %    | 4.82  |  | N/A   | 4369554 | 15.2  | 5.66  | N/A   | 4369554 | N/A  |
| Langelier Index (@ 20C)                          | N/A  | NC    |  |       | 4369557 | NC    | -2.19 |       | 4369557 |      |
| Langelier Index (@ 4C)                           | N/A  | NC    |  |       | 4369558 | NC    | -2.45 |       | 4369558 |      |
| Nitrate (N)                                      | mg/L | 0.056 |  | 0.050 | 4369507 | 0.065 | 0.18  | 0.050 | 4369507 | N/A  |
| Saturation pH (@ 20C)                            | N/A  | NC    |  |       | 4369557 | NC    | 8.94  |       | 4369557 |      |
| Saturation pH (@ 4C)                             | N/A  | NC    |  |       | 4369558 | NC    | 9.19  |       | 4369558 |      |

#### Inorganics

|                                                |       |        |        |       |         |        |        |       |         |      |
|------------------------------------------------|-------|--------|--------|-------|---------|--------|--------|-------|---------|------|
| Total Alkalinity (Total as CaCO <sub>3</sub> ) | mg/L  | <5.0   | <5.0   | 5.0   | 4373775 | <5.0   | 39     | 5.0   | 4373775 | N/A  |
| Dissolved Chloride (Cl)                        | mg/L  | 24     | 24     | 1.0   | 4373780 | 16     | 22     | 1.0   | 4373780 | N/A  |
| Colour                                         | TCU   | 510    | 590    | 75    | 4373786 | 310    | 460    | 50    | 4373786 | N/A  |
| Nitrate + Nitrite (N)                          | mg/L  | 0.056  | 0.057  | 0.050 | 4373790 | 0.065  | 0.18   | 0.050 | 4373790 | N/A  |
| Nitrite (N)                                    | mg/L  | <0.010 | <0.010 | 0.010 | 4373795 | <0.010 | <0.010 | 0.010 | 4373795 | N/A  |
| Nitrogen (Ammonia Nitrogen)                    | mg/L  | <0.050 |        | 0.050 | 4375798 | <0.050 | 0.14   | 0.050 | 4375798 | N/A  |
| Total Organic Carbon (C)                       | mg/L  | 21 (1) |        | 5.0   | 4373963 | 12 (1) | 22 (1) | 5.0   | 4373963 | N/A  |
| Orthophosphate (P)                             | mg/L  | 0.031  | 0.032  | 0.010 | 4373787 | 0.030  | 0.044  | 0.010 | 4373787 | N/A  |
| pH                                             | pH    | 5.38   |        | N/A   | 4371214 | 5.89   | 6.74   | N/A   | 4371214 | N/A  |
| Reactive Silica (SiO <sub>2</sub> )            | mg/L  | 5.1    | 5.1    | 0.50  | 4373783 | 4.6    | 7.0    | 0.50  | 4373783 | N/A  |
| Dissolved Sulphate (SO <sub>4</sub> )          | mg/L  | 5.5    | 5.3    | 2.0   | 4373781 | 3.3    | 3.6    | 2.0   | 4373781 | N/A  |
| Turbidity                                      | NTU   | 6.0    |        | 0.10  | 4371365 | 3.9    | 11     | 0.10  | 4371365 | 0.10 |
| Conductivity                                   | uS/cm | 98     |        | 1.0   | 4371213 | 72     | 150    | 1.0   | 4371213 | N/A  |

#### Metals

|                      |      |      |  |     |         |      |      |     |         |     |
|----------------------|------|------|--|-----|---------|------|------|-----|---------|-----|
| Total Aluminum (Al)  | ug/L | 550  |  | 5.0 | 4371212 | 450  | 530  | 5.0 | 4373494 | N/A |
| Total Antimony (Sb)  | ug/L | <1.0 |  | 1.0 | 4371212 | <1.0 | <1.0 | 1.0 | 4373494 | N/A |
| Total Arsenic (As)   | ug/L | <1.0 |  | 1.0 | 4371212 | <1.0 | 1.3  | 1.0 | 4373494 | N/A |
| Total Barium (Ba)    | ug/L | 3.0  |  | 1.0 | 4371212 | 3.0  | 9.5  | 1.0 | 4373494 | N/A |
| Total Beryllium (Be) | ug/L | <1.0 |  | 1.0 | 4371212 | <1.0 | <1.0 | 1.0 | 4373494 | N/A |

RDL = Reportable Detection Limit

QC Batch = Quality Control Batch

Lab-Dup = Laboratory Initiated Duplicate

N/A = Not Applicable

(1) Reporting limit was increased due to turbidity.

### ATLANTIC RCAP-MS TOTAL METALS IN WATER (WATER)

| Maxxam ID                                                                                                                                |       | BUC656              | BUC656              |       |          | BUC657              | BUC658              |       |          |     |
|------------------------------------------------------------------------------------------------------------------------------------------|-------|---------------------|---------------------|-------|----------|---------------------|---------------------|-------|----------|-----|
| Sampling Date                                                                                                                            |       | 2016/02/02<br>13:30 | 2016/02/02<br>13:30 |       |          | 2016/02/02<br>15:00 | 2016/02/02<br>16:00 |       |          |     |
| COC Number                                                                                                                               |       | 547372-02-01        | 547372-02-01        |       |          | 547372-02-01        | 547372-02-01        |       |          |     |
|                                                                                                                                          | UNITS | SW1                 | SW1<br>Lab-Dup      | RDL   | QC Batch | SW2                 | SW3                 | RDL   | QC Batch | MDL |
| Total Bismuth (Bi)                                                                                                                       | ug/L  | <2.0                |                     | 2.0   | 4371212  | <2.0                | <2.0                | 2.0   | 4373494  | N/A |
| Total Boron (B)                                                                                                                          | ug/L  | <50                 |                     | 50    | 4371212  | <50                 | <50                 | 50    | 4373494  | N/A |
| Total Cadmium (Cd)                                                                                                                       | ug/L  | 0.21                |                     | 0.010 | 4371212  | 0.11                | 0.063               | 0.010 | 4373494  | N/A |
| Total Calcium (Ca)                                                                                                                       | ug/L  | 1100                |                     | 100   | 4371212  | 1000                | 6500                | 100   | 4373494  | N/A |
| Total Chromium (Cr)                                                                                                                      | ug/L  | 1.1                 |                     | 1.0   | 4371212  | <1.0                | 1.5                 | 1.0   | 4373494  | N/A |
| Total Cobalt (Co)                                                                                                                        | ug/L  | 1.2                 |                     | 0.40  | 4371212  | 0.73                | 1.4                 | 0.40  | 4373494  | N/A |
| Total Copper (Cu)                                                                                                                        | ug/L  | 7.3                 |                     | 2.0   | 4371212  | 4.5                 | 6.6                 | 2.0   | 4373494  | N/A |
| Total Iron (Fe)                                                                                                                          | ug/L  | 820                 |                     | 50    | 4371212  | 560                 | 2200                | 50    | 4373494  | N/A |
| Total Lead (Pb)                                                                                                                          | ug/L  | 13                  |                     | 0.50  | 4371212  | 5.9                 | 1.5                 | 0.50  | 4373494  | N/A |
| Total Magnesium (Mg)                                                                                                                     | ug/L  | 620                 |                     | 100   | 4371212  | 660                 | 2000                | 100   | 4373494  | N/A |
| Total Manganese (Mn)                                                                                                                     | ug/L  | 13                  |                     | 2.0   | 4371212  | 16                  | 160                 | 2.0   | 4373494  | N/A |
| Total Molybdenum (Mo)                                                                                                                    | ug/L  | <2.0                |                     | 2.0   | 4371212  | <2.0                | <2.0                | 2.0   | 4373494  | N/A |
| Total Nickel (Ni)                                                                                                                        | ug/L  | 7.4                 |                     | 2.0   | 4371212  | 3.5                 | 4.4                 | 2.0   | 4373494  | N/A |
| Total Phosphorus (P)                                                                                                                     | ug/L  | <100                |                     | 100   | 4371212  | 100                 | 160                 | 100   | 4373494  | N/A |
| Total Potassium (K)                                                                                                                      | ug/L  | 5800                |                     | 100   | 4371212  | 5500                | 14000               | 100   | 4373494  | N/A |
| Total Selenium (Se)                                                                                                                      | ug/L  | <1.0                |                     | 1.0   | 4371212  | <1.0                | <1.0                | 1.0   | 4373494  | N/A |
| Total Silver (Ag)                                                                                                                        | ug/L  | <0.10               |                     | 0.10  | 4371212  | <0.10               | <0.10               | 0.10  | 4373494  | N/A |
| Total Sodium (Na)                                                                                                                        | ug/L  | 13000               |                     | 100   | 4371212  | 10000               | 17000               | 100   | 4373494  | N/A |
| Total Strontium (Sr)                                                                                                                     | ug/L  | 7.4                 |                     | 2.0   | 4371212  | 6.7                 | 31                  | 2.0   | 4373494  | N/A |
| Total Thallium (Tl)                                                                                                                      | ug/L  | <0.10               |                     | 0.10  | 4371212  | <0.10               | <0.10               | 0.10  | 4373494  | N/A |
| Total Tin (Sn)                                                                                                                           | ug/L  | <2.0                |                     | 2.0   | 4371212  | <2.0                | <2.0                | 2.0   | 4373494  | N/A |
| Total Titanium (Ti)                                                                                                                      | ug/L  | 12                  |                     | 2.0   | 4371212  | 8.4                 | 10                  | 2.0   | 4373494  | N/A |
| Total Uranium (U)                                                                                                                        | ug/L  | <0.10               |                     | 0.10  | 4371212  | <0.10               | 0.15                | 0.10  | 4373494  | N/A |
| Total Vanadium (V)                                                                                                                       | ug/L  | 2.4                 |                     | 2.0   | 4371212  | <2.0                | <2.0                | 2.0   | 4373494  | N/A |
| Total Zinc (Zn)                                                                                                                          | ug/L  | 11                  |                     | 5.0   | 4371212  | 11                  | 21                  | 5.0   | 4373494  | N/A |
| RDL = Reportable Detection Limit<br>QC Batch = Quality Control Batch<br>Lab-Dup = Laboratory Initiated Duplicate<br>N/A = Not Applicable |       |                     |                     |       |          |                     |                     |       |          |     |

### ATLANTIC VOC IN WATER (DRINKING WATER)

| Maxxam ID                                                                                                                                |       | BUC622              |          | BUC623              | BUC623              | BUC624              |      |          |      |
|------------------------------------------------------------------------------------------------------------------------------------------|-------|---------------------|----------|---------------------|---------------------|---------------------|------|----------|------|
| Sampling Date                                                                                                                            |       | 2016/02/02<br>10:00 |          | 2016/02/02<br>10:30 | 2016/02/02<br>10:30 | 2016/02/02<br>11:00 |      |          |      |
| COC Number                                                                                                                               |       | 547372-01-01        |          | 547372-01-01        | 547372-01-01        | 547372-01-01        |      |          |      |
|                                                                                                                                          | UNITS | PW1                 | QC Batch | PW2                 | PW2<br>Lab-Dup      | PW3                 | RDL  | QC Batch | MDL  |
| <b>Chlorobenzenes</b>                                                                                                                    |       |                     |          |                     |                     |                     |      |          |      |
| 1,2-Dichlorobenzene                                                                                                                      | ug/L  | <0.50               | 4375036  | <0.50               | <0.50               | <0.50               | 0.50 | 4376377  | N/A  |
| 1,3-Dichlorobenzene                                                                                                                      | ug/L  | <1.0                | 4375036  | <1.0                | <1.0                | <1.0                | 1.0  | 4376377  | N/A  |
| 1,4-Dichlorobenzene                                                                                                                      | ug/L  | <1.0                | 4375036  | <1.0                | <1.0                | <1.0                | 1.0  | 4376377  | N/A  |
| Chlorobenzene                                                                                                                            | ug/L  | <1.0                | 4375036  | <1.0                | <1.0                | <1.0                | 1.0  | 4376377  | N/A  |
| <b>Volatile Organics</b>                                                                                                                 |       |                     |          |                     |                     |                     |      |          |      |
| 1,1,1-Trichloroethane                                                                                                                    | ug/L  | <1.0                | 4375036  | <1.0                | <1.0                | <1.0                | 1.0  | 4376377  | N/A  |
| 1,1,1,2-Tetrachloroethane                                                                                                                | ug/L  | <0.50               | 4375036  | <0.50               | <0.50               | <0.50               | 0.50 | 4376377  | N/A  |
| 1,1,2-Trichloroethane                                                                                                                    | ug/L  | <1.0                | 4375036  | <1.0                | <1.0                | <1.0                | 1.0  | 4376377  | N/A  |
| 1,1-Dichloroethane                                                                                                                       | ug/L  | <2.0                | 4375036  | <2.0                | <2.0                | <2.0                | 2.0  | 4376377  | N/A  |
| 1,1-Dichloroethylene                                                                                                                     | ug/L  | <0.50               | 4375036  | <0.50               | <0.50               | <0.50               | 0.50 | 4376377  | 1.0  |
| 1,2-Dichloroethane                                                                                                                       | ug/L  | <1.0                | 4375036  | <1.0                | <1.0                | <1.0                | 1.0  | 4376377  | N/A  |
| 1,2-Dichloropropane                                                                                                                      | ug/L  | <0.50               | 4375036  | <0.50               | <0.50               | <0.50               | 0.50 | 4376377  | N/A  |
| Benzene                                                                                                                                  | ug/L  | <1.0                | 4375036  | <1.0                | <1.0                | <1.0                | 1.0  | 4376377  | N/A  |
| Bromodichloromethane                                                                                                                     | ug/L  | <1.0                | 4375036  | <1.0                | <1.0                | <1.0                | 1.0  | 4376377  | 0.20 |
| Bromoform                                                                                                                                | ug/L  | <1.0                | 4375036  | <1.0                | <1.0                | <1.0                | 1.0  | 4376377  | 0.20 |
| Bromomethane                                                                                                                             | ug/L  | <0.50               | 4375036  | <0.50               | <0.50               | <0.50               | 0.50 | 4376377  | N/A  |
| Carbon Tetrachloride                                                                                                                     | ug/L  | <0.50               | 4375036  | <0.50               | <0.50               | <0.50               | 0.50 | 4376377  | N/A  |
| Chloroethane                                                                                                                             | ug/L  | <8.0                | 4375036  | <8.0                | <8.0                | <8.0                | 8.0  | 4376377  | N/A  |
| Chloroform                                                                                                                               | ug/L  | <1.0                | 4375036  | <1.0                | <1.0                | 1.1                 | 1.0  | 4376377  | 0.20 |
| Chloromethane                                                                                                                            | ug/L  | <8.0                | 4375036  | <8.0                | <8.0                | <8.0                | 8.0  | 4376377  | N/A  |
| cis-1,2-Dichloroethylene                                                                                                                 | ug/L  | <0.50               | 4375036  | <0.50               | <0.50               | <0.50               | 0.50 | 4376377  | N/A  |
| cis-1,3-Dichloropropene                                                                                                                  | ug/L  | <0.50               | 4375036  | <0.50               | <0.50               | <0.50               | 0.50 | 4376377  | N/A  |
| Dibromochloromethane                                                                                                                     | ug/L  | <1.0                | 4375036  | <1.0                | <1.0                | <1.0                | 1.0  | 4376377  | 0.20 |
| Ethylbenzene                                                                                                                             | ug/L  | <1.0                | 4375036  | <1.0                | <1.0                | <1.0                | 1.0  | 4376377  | N/A  |
| Ethylene Dibromide                                                                                                                       | ug/L  | <0.20               | 4375036  | <0.20               | <0.20               | <0.20               | 0.20 | 4376377  | 0.50 |
| Methyl t-butyl ether (MTBE)                                                                                                              | ug/L  | <2.0                | 4375036  | <2.0                | <2.0                | <2.0                | 2.0  | 4376377  | N/A  |
| Methylene Chloride(Dichloromethane)                                                                                                      | ug/L  | <3.0                | 4375036  | <3.0                | <3.0                | <3.0                | 3.0  | 4376377  | N/A  |
| o-Xylene                                                                                                                                 | ug/L  | <1.0                | 4375036  | <1.0                | <1.0                | <1.0                | 1.0  | 4376377  | N/A  |
| p+m-Xylene                                                                                                                               | ug/L  | <2.0                | 4375036  | <2.0                | <2.0                | <2.0                | 2.0  | 4376377  | N/A  |
| Styrene                                                                                                                                  | ug/L  | <1.0                | 4375036  | <1.0                | <1.0                | <1.0                | 1.0  | 4376377  | N/A  |
| Tetrachloroethylene                                                                                                                      | ug/L  | <1.0                | 4375036  | <1.0                | <1.0                | <1.0                | 1.0  | 4376377  | N/A  |
| Toluene                                                                                                                                  | ug/L  | <1.0                | 4375036  | <1.0                | <1.0                | <1.0                | 1.0  | 4376377  | N/A  |
| Total Trihalomethanes                                                                                                                    | ug/L  | <1.0                | 4375036  | <1.0                | <1.0                | 1.1                 | 1.0  | 4376377  | N/A  |
| RDL = Reportable Detection Limit<br>QC Batch = Quality Control Batch<br>Lab-Dup = Laboratory Initiated Duplicate<br>N/A = Not Applicable |       |                     |          |                     |                     |                     |      |          |      |

### ATLANTIC VOC IN WATER (DRINKING WATER)

| Maxxam ID                                                                                                                                |       | BUC622              |          | BUC623              | BUC623              | BUC624              |      |          |     |
|------------------------------------------------------------------------------------------------------------------------------------------|-------|---------------------|----------|---------------------|---------------------|---------------------|------|----------|-----|
| Sampling Date                                                                                                                            |       | 2016/02/02<br>10:00 |          | 2016/02/02<br>10:30 | 2016/02/02<br>10:30 | 2016/02/02<br>11:00 |      |          |     |
| COC Number                                                                                                                               |       | 547372-01-01        |          | 547372-01-01        | 547372-01-01        | 547372-01-01        |      |          |     |
|                                                                                                                                          | UNITS | PW1                 | QC Batch | PW2                 | PW2<br>Lab-Dup      | PW3                 | RDL  | QC Batch | MDL |
| Total Xylenes                                                                                                                            | ug/L  | <1.0                | 4375036  | <1.0                | <1.0                | <1.0                | 1.0  | 4376377  | 1.0 |
| trans-1,2-Dichloroethylene                                                                                                               | ug/L  | <0.50               | 4375036  | <0.50               | <0.50               | <0.50               | 0.50 | 4376377  | N/A |
| trans-1,3-Dichloropropene                                                                                                                | ug/L  | <0.50               | 4375036  | <0.50               | <0.50               | <0.50               | 0.50 | 4376377  | N/A |
| Trichloroethylene                                                                                                                        | ug/L  | <1.0                | 4375036  | <1.0                | <1.0                | <1.0                | 1.0  | 4376377  | N/A |
| Trichlorofluoromethane (FREON 11)                                                                                                        | ug/L  | <8.0                | 4375036  | <8.0                | <8.0                | <8.0                | 8.0  | 4376377  | N/A |
| Vinyl Chloride                                                                                                                           | ug/L  | <0.50               | 4375036  | <0.50               | <0.50               | <0.50               | 0.50 | 4376377  | 2.0 |
| <b>Surrogate Recovery (%)</b>                                                                                                            |       |                     |          |                     |                     |                     |      |          |     |
| 4-Bromofluorobenzene                                                                                                                     | %     | 94                  | 4375036  | 97                  | 96                  | 97                  |      | 4376377  |     |
| D4-1,2-Dichloroethane                                                                                                                    | %     | 111                 | 4375036  | 105                 | 101                 | 102                 |      | 4376377  |     |
| D8-Toluene                                                                                                                               | %     | 102                 | 4375036  | 99                  | 98                  | 95                  |      | 4376377  |     |
| RDL = Reportable Detection Limit<br>QC Batch = Quality Control Batch<br>Lab-Dup = Laboratory Initiated Duplicate<br>N/A = Not Applicable |       |                     |          |                     |                     |                     |      |          |     |



### ATLANTIC VOC IN WATER (DRINKING WATER)

| Maxxam ID                           |       | BUC625              | BUC626              | BUC627              | BUC628              | BUC629              |      |          |      |
|-------------------------------------|-------|---------------------|---------------------|---------------------|---------------------|---------------------|------|----------|------|
| Sampling Date                       |       | 2016/02/02<br>11:30 | 2016/02/02<br>12:00 | 2016/02/02<br>12:30 | 2016/02/02<br>12:45 | 2016/02/02<br>13:00 |      |          |      |
| COC Number                          |       | 547372-01-01        | 547372-01-01        | 547372-01-01        | 547372-01-01        | 547372-01-01        |      |          |      |
|                                     | UNITS | PW4                 | PW5                 | PW6                 | PW7                 | PW8                 | RDL  | QC Batch | MDL  |
| <b>Chlorobenzenes</b>               |       |                     |                     |                     |                     |                     |      |          |      |
| 1,2-Dichlorobenzene                 | ug/L  | <0.50               | <0.50               | <0.50               | <0.50               | <0.50               | 0.50 | 4376377  | N/A  |
| 1,3-Dichlorobenzene                 | ug/L  | <1.0                | <1.0                | <1.0                | <1.0                | <1.0                | 1.0  | 4376377  | N/A  |
| 1,4-Dichlorobenzene                 | ug/L  | <1.0                | <1.0                | <1.0                | <1.0                | <1.0                | 1.0  | 4376377  | N/A  |
| Chlorobenzene                       | ug/L  | <1.0                | <1.0                | <1.0                | <1.0                | <1.0                | 1.0  | 4376377  | N/A  |
| <b>Volatile Organics</b>            |       |                     |                     |                     |                     |                     |      |          |      |
| 1,1,1-Trichloroethane               | ug/L  | <1.0                | <1.0                | <1.0                | <1.0                | <1.0                | 1.0  | 4376377  | N/A  |
| 1,1,2,2-Tetrachloroethane           | ug/L  | <0.50               | <0.50               | <0.50               | <0.50               | <0.50               | 0.50 | 4376377  | N/A  |
| 1,1,2-Trichloroethane               | ug/L  | <1.0                | <1.0                | <1.0                | <1.0                | <1.0                | 1.0  | 4376377  | N/A  |
| 1,1-Dichloroethane                  | ug/L  | <2.0                | <2.0                | <2.0                | <2.0                | <2.0                | 2.0  | 4376377  | N/A  |
| 1,1-Dichloroethylene                | ug/L  | <0.50               | <0.50               | <0.50               | <0.50               | <0.50               | 0.50 | 4376377  | 1.0  |
| 1,2-Dichloroethane                  | ug/L  | <1.0                | <1.0                | <1.0                | <1.0                | <1.0                | 1.0  | 4376377  | N/A  |
| 1,2-Dichloropropane                 | ug/L  | <0.50               | <0.50               | <0.50               | <0.50               | <0.50               | 0.50 | 4376377  | N/A  |
| Benzene                             | ug/L  | <1.0                | <1.0                | <1.0                | <1.0                | <1.0                | 1.0  | 4376377  | N/A  |
| Bromodichloromethane                | ug/L  | <1.0                | <1.0                | <1.0                | <1.0                | <1.0                | 1.0  | 4376377  | 0.20 |
| Bromoform                           | ug/L  | <1.0                | <1.0                | <1.0                | <1.0                | <1.0                | 1.0  | 4376377  | 0.20 |
| Bromomethane                        | ug/L  | <0.50               | <0.50               | <0.50               | <0.50               | <0.50               | 0.50 | 4376377  | N/A  |
| Carbon Tetrachloride                | ug/L  | <0.50               | <0.50               | <0.50               | <0.50               | <0.50               | 0.50 | 4376377  | N/A  |
| Chloroethane                        | ug/L  | <8.0                | <8.0                | <8.0                | <8.0                | <8.0                | 8.0  | 4376377  | N/A  |
| Chloroform                          | ug/L  | <1.0                | <1.0                | <1.0                | 1.1                 | <1.0                | 1.0  | 4376377  | 0.20 |
| Chloromethane                       | ug/L  | <8.0                | <8.0                | <8.0                | <8.0                | <8.0                | 8.0  | 4376377  | N/A  |
| cis-1,2-Dichloroethylene            | ug/L  | <0.50               | <0.50               | <0.50               | <0.50               | <0.50               | 0.50 | 4376377  | N/A  |
| cis-1,3-Dichloropropene             | ug/L  | <0.50               | <0.50               | <0.50               | <0.50               | <0.50               | 0.50 | 4376377  | N/A  |
| Dibromochloromethane                | ug/L  | <1.0                | <1.0                | <1.0                | <1.0                | <1.0                | 1.0  | 4376377  | 0.20 |
| Ethylbenzene                        | ug/L  | <1.0                | <1.0                | <1.0                | <1.0                | <1.0                | 1.0  | 4376377  | N/A  |
| Ethylene Dibromide                  | ug/L  | <0.20               | <0.20               | <0.20               | <0.20               | <0.20               | 0.20 | 4376377  | 0.50 |
| Methyl t-butyl ether (MTBE)         | ug/L  | <2.0                | <2.0                | <2.0                | <2.0                | <2.0                | 2.0  | 4376377  | N/A  |
| Methylene Chloride(Dichloromethane) | ug/L  | <3.0                | <3.0                | <3.0                | <3.0                | <3.0                | 3.0  | 4376377  | N/A  |
| o-Xylene                            | ug/L  | <1.0                | <1.0                | <1.0                | <1.0                | <1.0                | 1.0  | 4376377  | N/A  |
| p+m-Xylene                          | ug/L  | <2.0                | <2.0                | <2.0                | <2.0                | <2.0                | 2.0  | 4376377  | N/A  |
| Styrene                             | ug/L  | <1.0                | <1.0                | <1.0                | <1.0                | <1.0                | 1.0  | 4376377  | N/A  |
| Tetrachloroethylene                 | ug/L  | <1.0                | <1.0                | <1.0                | <1.0                | <1.0                | 1.0  | 4376377  | N/A  |
| Toluene                             | ug/L  | <1.0                | <1.0                | <1.0                | <1.0                | <1.0                | 1.0  | 4376377  | N/A  |
| Total Trihalomethanes               | ug/L  | <1.0                | <1.0                | <1.0                | 1.1                 | <1.0                | 1.0  | 4376377  | N/A  |
| Total Xylenes                       | ug/L  | <1.0                | <1.0                | <1.0                | <1.0                | <1.0                | 1.0  | 4376377  | 1.0  |
| RDL = Reportable Detection Limit    |       |                     |                     |                     |                     |                     |      |          |      |
| QC Batch = Quality Control Batch    |       |                     |                     |                     |                     |                     |      |          |      |
| N/A = Not Applicable                |       |                     |                     |                     |                     |                     |      |          |      |

### ATLANTIC VOC IN WATER (DRINKING WATER)

| Maxxam ID                                                                                    |       | BUC625              | BUC626              | BUC627              | BUC628              | BUC629              |      |          |     |
|----------------------------------------------------------------------------------------------|-------|---------------------|---------------------|---------------------|---------------------|---------------------|------|----------|-----|
| Sampling Date                                                                                |       | 2016/02/02<br>11:30 | 2016/02/02<br>12:00 | 2016/02/02<br>12:30 | 2016/02/02<br>12:45 | 2016/02/02<br>13:00 |      |          |     |
| COC Number                                                                                   |       | 547372-01-01        | 547372-01-01        | 547372-01-01        | 547372-01-01        | 547372-01-01        |      |          |     |
|                                                                                              | UNITS | PW4                 | PW5                 | PW6                 | PW7                 | PW8                 | RDL  | QC Batch | MDL |
| trans-1,2-Dichloroethylene                                                                   | ug/L  | <0.50               | <0.50               | <0.50               | <0.50               | <0.50               | 0.50 | 4376377  | N/A |
| trans-1,3-Dichloropropene                                                                    | ug/L  | <0.50               | <0.50               | <0.50               | <0.50               | <0.50               | 0.50 | 4376377  | N/A |
| Trichloroethylene                                                                            | ug/L  | <1.0                | <1.0                | <1.0                | <1.0                | <1.0                | 1.0  | 4376377  | N/A |
| Trichlorofluoromethane (FREON 11)                                                            | ug/L  | <8.0                | <8.0                | <8.0                | <8.0                | <8.0                | 8.0  | 4376377  | N/A |
| Vinyl Chloride                                                                               | ug/L  | <0.50               | <0.50               | <0.50               | <0.50               | <0.50               | 0.50 | 4376377  | 2.0 |
| <b>Surrogate Recovery (%)</b>                                                                |       |                     |                     |                     |                     |                     |      |          |     |
| 4-Bromofluorobenzene                                                                         | %     | 101                 | 97                  | 95                  | 95                  | 95                  |      | 4376377  |     |
| D4-1,2-Dichloroethane                                                                        | %     | 100                 | 100                 | 103                 | 105                 | 102                 |      | 4376377  |     |
| D8-Toluene                                                                                   | %     | 98                  | 98                  | 99                  | 94                  | 98                  |      | 4376377  |     |
| RDL = Reportable Detection Limit<br>QC Batch = Quality Control Batch<br>N/A = Not Applicable |       |                     |                     |                     |                     |                     |      |          |     |

### ATLANTIC VOC IN WATER (WATER)

| Maxxam ID                           |       | BUC620              | BUC621              |          | BUC656              | BUC657              |      |          |      |
|-------------------------------------|-------|---------------------|---------------------|----------|---------------------|---------------------|------|----------|------|
| Sampling Date                       |       | 2016/02/02<br>16:30 | 2016/02/02<br>14:00 |          | 2016/02/02<br>13:30 | 2016/02/02<br>15:00 |      |          |      |
| COC Number                          |       | 547372-01-01        | 547372-01-01        |          | 547372-02-01        | 547372-02-01        |      |          |      |
|                                     | UNITS | MW1                 | MW2                 | QC Batch | SW1                 | SW2                 | RDL  | QC Batch | MDL  |
| <b>Chlorobenzenes</b>               |       |                     |                     |          |                     |                     |      |          |      |
| 1,2-Dichlorobenzene                 | ug/L  | <0.50               | <0.50               | 4375036  | <0.50               | <0.50               | 0.50 | 4376377  | N/A  |
| 1,3-Dichlorobenzene                 | ug/L  | <1.0                | <1.0                | 4375036  | <1.0                | <1.0                | 1.0  | 4376377  | N/A  |
| 1,4-Dichlorobenzene                 | ug/L  | <1.0                | <1.0                | 4375036  | <1.0                | <1.0                | 1.0  | 4376377  | N/A  |
| Chlorobenzene                       | ug/L  | <1.0                | <1.0                | 4375036  | <1.0                | <1.0                | 1.0  | 4376377  | N/A  |
| <b>Volatile Organics</b>            |       |                     |                     |          |                     |                     |      |          |      |
| 1,1,1-Trichloroethane               | ug/L  | <1.0                | <1.0                | 4375036  | <1.0                | <1.0                | 1.0  | 4376377  | N/A  |
| 1,1,2,2-Tetrachloroethane           | ug/L  | <0.50               | <0.50               | 4375036  | <0.50               | <0.50               | 0.50 | 4376377  | N/A  |
| 1,1,2-Trichloroethane               | ug/L  | <1.0                | <1.0                | 4375036  | <1.0                | <1.0                | 1.0  | 4376377  | N/A  |
| 1,1-Dichloroethane                  | ug/L  | <2.0                | <2.0                | 4375036  | <2.0                | <2.0                | 2.0  | 4376377  | N/A  |
| 1,1-Dichloroethylene                | ug/L  | <0.50               | <0.50               | 4375036  | <0.50               | <0.50               | 0.50 | 4376377  | 1.0  |
| 1,2-Dichloroethane                  | ug/L  | <1.0                | <1.0                | 4375036  | <1.0                | <1.0                | 1.0  | 4376377  | N/A  |
| 1,2-Dichloropropane                 | ug/L  | <0.50               | <0.50               | 4375036  | <0.50               | <0.50               | 0.50 | 4376377  | N/A  |
| Benzene                             | ug/L  | <1.0                | <1.0                | 4375036  | <1.0                | <1.0                | 1.0  | 4376377  | N/A  |
| Bromodichloromethane                | ug/L  | <1.0                | <1.0                | 4375036  | <1.0                | <1.0                | 1.0  | 4376377  | 0.20 |
| Bromoform                           | ug/L  | <1.0                | <1.0                | 4375036  | <1.0                | <1.0                | 1.0  | 4376377  | 0.20 |
| Bromomethane                        | ug/L  | <0.50               | <0.50               | 4375036  | <0.50               | <0.50               | 0.50 | 4376377  | N/A  |
| Carbon Tetrachloride                | ug/L  | <0.50               | <0.50               | 4375036  | <0.50               | <0.50               | 0.50 | 4376377  | N/A  |
| Chloroethane                        | ug/L  | <8.0                | <8.0                | 4375036  | <8.0                | <8.0                | 8.0  | 4376377  | N/A  |
| Chloroform                          | ug/L  | <1.0                | <1.0                | 4375036  | <1.0                | <1.0                | 1.0  | 4376377  | 0.20 |
| Chloromethane                       | ug/L  | <8.0                | <8.0                | 4375036  | <8.0                | <8.0                | 8.0  | 4376377  | N/A  |
| cis-1,2-Dichloroethylene            | ug/L  | <0.50               | <0.50               | 4375036  | <0.50               | <0.50               | 0.50 | 4376377  | N/A  |
| cis-1,3-Dichloropropene             | ug/L  | <0.50               | <0.50               | 4375036  | <0.50               | <0.50               | 0.50 | 4376377  | N/A  |
| Dibromochloromethane                | ug/L  | <1.0                | <1.0                | 4375036  | <1.0                | <1.0                | 1.0  | 4376377  | 0.20 |
| Ethylbenzene                        | ug/L  | <1.0                | <1.0                | 4375036  | <1.0                | <1.0                | 1.0  | 4376377  | N/A  |
| Ethylene Dibromide                  | ug/L  | <0.20               | <0.20               | 4375036  | <0.20               | <0.20               | 0.20 | 4376377  | 0.50 |
| Methyl t-butyl ether (MTBE)         | ug/L  | <2.0                | <2.0                | 4375036  | <2.0                | <2.0                | 2.0  | 4376377  | N/A  |
| Methylene Chloride(Dichloromethane) | ug/L  | <3.0                | <3.0                | 4375036  | <3.0                | <3.0                | 3.0  | 4376377  | N/A  |
| o-Xylene                            | ug/L  | <1.0                | <1.0                | 4375036  | <1.0                | <1.0                | 1.0  | 4376377  | N/A  |
| p+m-Xylene                          | ug/L  | <2.0                | <2.0                | 4375036  | <2.0                | <2.0                | 2.0  | 4376377  | N/A  |
| Styrene                             | ug/L  | <1.0                | <1.0                | 4375036  | <1.0                | <1.0                | 1.0  | 4376377  | N/A  |
| Tetrachloroethylene                 | ug/L  | <1.0                | <1.0                | 4375036  | <1.0                | <1.0                | 1.0  | 4376377  | N/A  |
| Toluene                             | ug/L  | <1.0                | <1.0                | 4375036  | <1.0                | <1.0                | 1.0  | 4376377  | N/A  |
| Total Trihalomethanes               | ug/L  | <1.0                | <1.0                | 4375036  | <1.0                | <1.0                | 1.0  | 4376377  | N/A  |
| Total Xylenes                       | ug/L  | <1.0                | <1.0                | 4375036  | <1.0                | <1.0                | 1.0  | 4376377  | 1.0  |
| RDL = Reportable Detection Limit    |       |                     |                     |          |                     |                     |      |          |      |
| QC Batch = Quality Control Batch    |       |                     |                     |          |                     |                     |      |          |      |
| N/A = Not Applicable                |       |                     |                     |          |                     |                     |      |          |      |

### ATLANTIC VOC IN WATER (WATER)

| Maxxam ID                                                                                                                          |       | BUC620              | BUC621              |          | BUC656              | BUC657              |      |          |     |
|------------------------------------------------------------------------------------------------------------------------------------|-------|---------------------|---------------------|----------|---------------------|---------------------|------|----------|-----|
| Sampling Date                                                                                                                      |       | 2016/02/02<br>16:30 | 2016/02/02<br>14:00 |          | 2016/02/02<br>13:30 | 2016/02/02<br>15:00 |      |          |     |
| COC Number                                                                                                                         |       | 547372-01-01        | 547372-01-01        |          | 547372-02-01        | 547372-02-01        |      |          |     |
|                                                                                                                                    | UNITS | MW1                 | MW2                 | QC Batch | SW1                 | SW2                 | RDL  | QC Batch | MDL |
| trans-1,2-Dichloroethylene                                                                                                         | ug/L  | <0.50               | <0.50               | 4375036  | <0.50               | <0.50               | 0.50 | 4376377  | N/A |
| trans-1,3-Dichloropropene                                                                                                          | ug/L  | <0.50               | <0.50               | 4375036  | <0.50               | <0.50               | 0.50 | 4376377  | N/A |
| Trichloroethylene                                                                                                                  | ug/L  | <1.0                | <1.0                | 4375036  | <1.0                | <1.0                | 1.0  | 4376377  | N/A |
| Trichlorofluoromethane (FREON 11)                                                                                                  | ug/L  | <8.0                | <8.0                | 4375036  | <8.0                | <8.0                | 8.0  | 4376377  | N/A |
| Vinyl Chloride                                                                                                                     | ug/L  | <0.50               | <0.50               | 4375036  | <0.50               | <0.50               | 0.50 | 4376377  | 2.0 |
| <b>Surrogate Recovery (%)</b>                                                                                                      |       |                     |                     |          |                     |                     |      |          |     |
| 4-Bromofluorobenzene                                                                                                               | %     | 94                  | 98                  | 4375036  | 96 (1)              | 95 (1)              |      | 4376377  |     |
| D4-1,2-Dichloroethane                                                                                                              | %     | 115                 | 101                 | 4375036  | 107                 | 104                 |      | 4376377  |     |
| D8-Toluene                                                                                                                         | %     | 102                 | 95                  | 4375036  | 92                  | 103                 |      | 4376377  |     |
| RDL = Reportable Detection Limit<br>QC Batch = Quality Control Batch<br>N/A = Not Applicable<br>(1) VOC sample contained sediment. |       |                     |                     |          |                     |                     |      |          |     |

### ATLANTIC VOC IN WATER (WATER)

|                                     |              |                     |            |                 |            |
|-------------------------------------|--------------|---------------------|------------|-----------------|------------|
| <b>Maxxam ID</b>                    |              | BUC658              |            |                 |            |
| <b>Sampling Date</b>                |              | 2016/02/02<br>16:00 |            |                 |            |
| <b>COC Number</b>                   |              | 547372-02-01        |            |                 |            |
|                                     | <b>UNITS</b> | <b>SW3</b>          | <b>RDL</b> | <b>QC Batch</b> | <b>MDL</b> |
| <b>Chlorobenzenes</b>               |              |                     |            |                 |            |
| 1,2-Dichlorobenzene                 | ug/L         | <0.50               | 0.50       | 4376377         | N/A        |
| 1,3-Dichlorobenzene                 | ug/L         | <1.0                | 1.0        | 4376377         | N/A        |
| 1,4-Dichlorobenzene                 | ug/L         | <1.0                | 1.0        | 4376377         | N/A        |
| Chlorobenzene                       | ug/L         | <1.0                | 1.0        | 4376377         | N/A        |
| <b>Volatile Organics</b>            |              |                     |            |                 |            |
| 1,1,1-Trichloroethane               | ug/L         | <1.0                | 1.0        | 4376377         | N/A        |
| 1,1,2,2-Tetrachloroethane           | ug/L         | <0.50               | 0.50       | 4376377         | N/A        |
| 1,1,2-Trichloroethane               | ug/L         | <1.0                | 1.0        | 4376377         | N/A        |
| 1,1-Dichloroethane                  | ug/L         | <2.0                | 2.0        | 4376377         | N/A        |
| 1,1-Dichloroethylene                | ug/L         | <0.50               | 0.50       | 4376377         | 1.0        |
| 1,2-Dichloroethane                  | ug/L         | <1.0                | 1.0        | 4376377         | N/A        |
| 1,2-Dichloropropane                 | ug/L         | <0.50               | 0.50       | 4376377         | N/A        |
| Benzene                             | ug/L         | <1.0                | 1.0        | 4376377         | N/A        |
| Bromodichloromethane                | ug/L         | <1.0                | 1.0        | 4376377         | 0.20       |
| Bromoform                           | ug/L         | <1.0                | 1.0        | 4376377         | 0.20       |
| Bromomethane                        | ug/L         | <0.50               | 0.50       | 4376377         | N/A        |
| Carbon Tetrachloride                | ug/L         | <0.50               | 0.50       | 4376377         | N/A        |
| Chloroethane                        | ug/L         | <8.0                | 8.0        | 4376377         | N/A        |
| Chloroform                          | ug/L         | <1.0                | 1.0        | 4376377         | 0.20       |
| Chloromethane                       | ug/L         | <8.0                | 8.0        | 4376377         | N/A        |
| cis-1,2-Dichloroethylene            | ug/L         | <0.50               | 0.50       | 4376377         | N/A        |
| cis-1,3-Dichloropropene             | ug/L         | <0.50               | 0.50       | 4376377         | N/A        |
| Dibromochloromethane                | ug/L         | <1.0                | 1.0        | 4376377         | 0.20       |
| Ethylbenzene                        | ug/L         | <1.0                | 1.0        | 4376377         | N/A        |
| Ethylene Dibromide                  | ug/L         | <0.20               | 0.20       | 4376377         | 0.50       |
| Methyl t-butyl ether (MTBE)         | ug/L         | <2.0                | 2.0        | 4376377         | N/A        |
| Methylene Chloride(Dichloromethane) | ug/L         | <3.0                | 3.0        | 4376377         | N/A        |
| o-Xylene                            | ug/L         | <1.0                | 1.0        | 4376377         | N/A        |
| p+m-Xylene                          | ug/L         | <2.0                | 2.0        | 4376377         | N/A        |
| Styrene                             | ug/L         | <1.0                | 1.0        | 4376377         | N/A        |
| Tetrachloroethylene                 | ug/L         | <1.0                | 1.0        | 4376377         | N/A        |
| Toluene                             | ug/L         | <1.0                | 1.0        | 4376377         | N/A        |
| Total Trihalomethanes               | ug/L         | <1.0                | 1.0        | 4376377         | N/A        |
| Total Xylenes                       | ug/L         | <1.0                | 1.0        | 4376377         | 1.0        |
| RDL = Reportable Detection Limit    |              |                     |            |                 |            |
| QC Batch = Quality Control Batch    |              |                     |            |                 |            |
| N/A = Not Applicable                |              |                     |            |                 |            |

### ATLANTIC VOC IN WATER (WATER)

|                                                                                                                                    |              |                     |            |                 |            |
|------------------------------------------------------------------------------------------------------------------------------------|--------------|---------------------|------------|-----------------|------------|
| <b>Maxxam ID</b>                                                                                                                   |              | BUC658              |            |                 |            |
| <b>Sampling Date</b>                                                                                                               |              | 2016/02/02<br>16:00 |            |                 |            |
| <b>COC Number</b>                                                                                                                  |              | 547372-02-01        |            |                 |            |
|                                                                                                                                    | <b>UNITS</b> | <b>SW3</b>          | <b>RDL</b> | <b>QC Batch</b> | <b>MDL</b> |
| trans-1,2-Dichloroethylene                                                                                                         | ug/L         | <0.50               | 0.50       | 4376377         | N/A        |
| trans-1,3-Dichloropropene                                                                                                          | ug/L         | <0.50               | 0.50       | 4376377         | N/A        |
| Trichloroethylene                                                                                                                  | ug/L         | <1.0                | 1.0        | 4376377         | N/A        |
| Trichlorofluoromethane (FREON 11)                                                                                                  | ug/L         | <8.0                | 8.0        | 4376377         | N/A        |
| Vinyl Chloride                                                                                                                     | ug/L         | <0.50               | 0.50       | 4376377         | 2.0        |
| <b>Surrogate Recovery (%)</b>                                                                                                      |              |                     |            |                 |            |
| 4-Bromofluorobenzene                                                                                                               | %            | 92 (1)              |            | 4376377         |            |
| D4-1,2-Dichloroethane                                                                                                              | %            | 103                 |            | 4376377         |            |
| D8-Toluene                                                                                                                         | %            | 94                  |            | 4376377         |            |
| RDL = Reportable Detection Limit<br>QC Batch = Quality Control Batch<br>N/A = Not Applicable<br>(1) VOC sample contained sediment. |              |                     |            |                 |            |



### RESULTS OF ANALYSES OF ADSORBABLE

|                                                                                              |              |                     |            |                 |            |
|----------------------------------------------------------------------------------------------|--------------|---------------------|------------|-----------------|------------|
| <b>Maxxam ID</b>                                                                             |              | BUC620              |            |                 |            |
| <b>Sampling Date</b>                                                                         |              | 2016/02/02<br>16:30 |            |                 |            |
| <b>COC Number</b>                                                                            |              | 547372-01-01        |            |                 |            |
|                                                                                              | <b>UNITS</b> | <b>MW1</b>          | <b>RDL</b> | <b>QC Batch</b> | <b>MDL</b> |
| <b>Inorganics</b>                                                                            |              |                     |            |                 |            |
| Total Suspended Solids                                                                       | mg/L         | 300                 | 20         | 4373537         | N/A        |
| RDL = Reportable Detection Limit<br>QC Batch = Quality Control Batch<br>N/A = Not Applicable |              |                     |            |                 |            |

### RESULTS OF ANALYSES OF DRINKING WATER

| Maxxam ID     |       | BUC622              | BUC622              | BUC623              |          | BUC624              |     |          |     |
|---------------|-------|---------------------|---------------------|---------------------|----------|---------------------|-----|----------|-----|
| Sampling Date |       | 2016/02/02<br>10:00 | 2016/02/02<br>10:00 | 2016/02/02<br>10:30 |          | 2016/02/02<br>11:00 |     |          |     |
| COC Number    |       | 547372-01-01        | 547372-01-01        | 547372-01-01        |          | 547372-01-01        |     |          |     |
|               | UNITS | PW1                 | PW1<br>Lab-Dup      | PW2                 | QC Batch | PW3                 | RDL | QC Batch | MDL |

| Inorganics                   |      |          |     |           |         |           |        |         |     |
|------------------------------|------|----------|-----|-----------|---------|-----------|--------|---------|-----|
| Total Chemical Oxygen Demand | mg/L | 7.7      |     | <5.0      | 4380079 | <5.0      | 5.0    | 4380079 | N/A |
| Dissolved Organic Carbon (C) | mg/L | 3.4      | 3.3 | 0.5       | 4376538 | 0.8       | 0.5    | 4376538 | N/A |
| Phenols-4AAP                 | mg/L | 0.0019   |     | 0.0011    | 4378919 | <0.0010   | 0.0010 | 4378919 | N/A |
| Total Phosphorus             | mg/L | <0.020   |     | <0.020    | 4369948 | <0.020    | 0.020  | 4369948 | N/A |
| Total Suspended Solids       | mg/L | <1.0     |     | <1.0      | 4373537 | <1.0      | 1.0    | 4373700 | N/A |
| Total Kjeldahl Nitrogen      | mg/L | 0.29 (1) |     | <0.20 (1) | 4373731 | <0.20 (1) | 0.20   | 4373731 | N/A |

RDL = Reportable Detection Limit

QC Batch = Quality Control Batch

Lab-Dup = Laboratory Initiated Duplicate

N/A = Not Applicable

(1) Elevated reporting limit due to blank performance.

| Maxxam ID     |       | BUC625              |          | BUC626              | BUC627              |          | BUC628              |     |          |     |
|---------------|-------|---------------------|----------|---------------------|---------------------|----------|---------------------|-----|----------|-----|
| Sampling Date |       | 2016/02/02<br>11:30 |          | 2016/02/02<br>12:00 | 2016/02/02<br>12:30 |          | 2016/02/02<br>12:45 |     |          |     |
| COC Number    |       | 547372-01-01        |          | 547372-01-01        | 547372-01-01        |          | 547372-01-01        |     |          |     |
|               | UNITS | PW4                 | QC Batch | PW5                 | PW6                 | QC Batch | PW7                 | RDL | QC Batch | MDL |

| Inorganics                   |      |           |         |           |           |         |           |        |         |     |
|------------------------------|------|-----------|---------|-----------|-----------|---------|-----------|--------|---------|-----|
| Total Chemical Oxygen Demand | mg/L | <5.0      | 4380079 | <5.0      | <5.0      | 4380079 | <5.0      | 5.0    | 4380079 | N/A |
| Dissolved Organic Carbon (C) | mg/L | <0.5      | 4376538 | <0.5      | <0.5      | 4376538 | <0.5      | 0.5    | 4376538 | N/A |
| Phenols-4AAP                 | mg/L | <0.0010   | 4378919 | <0.0010   | <0.0010   | 4378919 | <0.0010   | 0.0010 | 4378919 | N/A |
| Total Phosphorus             | mg/L | <0.020    | 4369948 | <0.020    | <0.020    | 4369948 | <0.020    | 0.020  | 4369956 | N/A |
| Total Suspended Solids       | mg/L | <1.0      | 4373700 | <1.0      | <1.0      | 4373700 | 1.6       | 1.0    | 4373700 | N/A |
| Total Kjeldahl Nitrogen      | mg/L | <0.20 (1) | 4373731 | <0.20 (1) | <0.20 (1) | 4373737 | <0.20 (1) | 0.20   | 4373737 | N/A |

RDL = Reportable Detection Limit

QC Batch = Quality Control Batch

N/A = Not Applicable

(1) Elevated reporting limit due to blank performance.

### RESULTS OF ANALYSES OF DRINKING WATER

|                                                                                                                                                                                                    |              |                        |                 |                     |            |                 |            |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|------------------------|-----------------|---------------------|------------|-----------------|------------|
| <b>Maxxam ID</b>                                                                                                                                                                                   |              | BUC628                 |                 | BUC629              |            |                 |            |
| <b>Sampling Date</b>                                                                                                                                                                               |              | 2016/02/02<br>12:45    |                 | 2016/02/02<br>13:00 |            |                 |            |
| <b>COC Number</b>                                                                                                                                                                                  |              | 547372-01-01           |                 | 547372-01-01        |            |                 |            |
|                                                                                                                                                                                                    | <b>UNITS</b> | <b>PW7<br/>Lab-Dup</b> | <b>QC Batch</b> | <b>PW8</b>          | <b>RDL</b> | <b>QC Batch</b> | <b>MDL</b> |
| <b>Inorganics</b>                                                                                                                                                                                  |              |                        |                 |                     |            |                 |            |
| Total Chemical Oxygen Demand                                                                                                                                                                       | mg/L         | <5.0                   | 4380079         | <5.0                | 5.0        | 4380079         | N/A        |
| Dissolved Organic Carbon (C)                                                                                                                                                                       | mg/L         |                        | 4376538         | <0.5                | 0.5        | 4376538         | N/A        |
| Phenols-4AAP                                                                                                                                                                                       | mg/L         |                        | 4378919         | <0.0010             | 0.0010     | 4380484         | N/A        |
| Total Phosphorus                                                                                                                                                                                   | mg/L         |                        | 4369956         | 0.047               | 0.020      | 4369956         | N/A        |
| Total Suspended Solids                                                                                                                                                                             | mg/L         |                        | 4373700         | <1.0                | 1.0        | 4373700         | N/A        |
| Total Kjeldahl Nitrogen                                                                                                                                                                            | mg/L         |                        | 4373737         | <0.20 (1)           | 0.20       | 4373737         | N/A        |
| RDL = Reportable Detection Limit<br>QC Batch = Quality Control Batch<br>Lab-Dup = Laboratory Initiated Duplicate<br>N/A = Not Applicable<br>(1) Elevated reporting limit due to blank performance. |              |                        |                 |                     |            |                 |            |

### MERCURY BY COLD VAPOUR AA (DRINKING WATER)

|                      |              |                     |                     |                     |                     |                     |                     |            |                 |            |
|----------------------|--------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|------------|-----------------|------------|
| <b>Maxxam ID</b>     |              | BUC622              | BUC623              | BUC624              | BUC625              | BUC626              | BUC627              |            |                 |            |
| <b>Sampling Date</b> |              | 2016/02/02<br>10:00 | 2016/02/02<br>10:30 | 2016/02/02<br>11:00 | 2016/02/02<br>11:30 | 2016/02/02<br>12:00 | 2016/02/02<br>12:30 |            |                 |            |
| <b>COC Number</b>    |              | 547372-01-01        | 547372-01-01        | 547372-01-01        | 547372-01-01        | 547372-01-01        | 547372-01-01        |            |                 |            |
|                      | <b>UNITS</b> | <b>PW1</b>          | <b>PW2</b>          | <b>PW3</b>          | <b>PW4</b>          | <b>PW5</b>          | <b>PW6</b>          | <b>RDL</b> | <b>QC Batch</b> | <b>MDL</b> |

#### Metals

|                    |      |       |        |        |        |        |        |       |         |     |
|--------------------|------|-------|--------|--------|--------|--------|--------|-------|---------|-----|
| Total Mercury (Hg) | ug/L | 0.015 | <0.013 | <0.013 | <0.013 | <0.013 | <0.013 | 0.013 | 4375116 | N/A |
|--------------------|------|-------|--------|--------|--------|--------|--------|-------|---------|-----|

RDL = Reportable Detection Limit

QC Batch = Quality Control Batch

N/A = Not Applicable

|                      |              |                     |                     |            |                 |            |
|----------------------|--------------|---------------------|---------------------|------------|-----------------|------------|
| <b>Maxxam ID</b>     |              | BUC628              | BUC629              |            |                 |            |
| <b>Sampling Date</b> |              | 2016/02/02<br>12:45 | 2016/02/02<br>13:00 |            |                 |            |
| <b>COC Number</b>    |              | 547372-01-01        | 547372-01-01        |            |                 |            |
|                      | <b>UNITS</b> | <b>PW7</b>          | <b>PW8</b>          | <b>RDL</b> | <b>QC Batch</b> | <b>MDL</b> |

#### Metals

|                    |      |        |        |       |         |     |
|--------------------|------|--------|--------|-------|---------|-----|
| Total Mercury (Hg) | ug/L | <0.013 | <0.013 | 0.013 | 4375116 | N/A |
|--------------------|------|--------|--------|-------|---------|-----|

RDL = Reportable Detection Limit

QC Batch = Quality Control Batch

N/A = Not Applicable

## RESULTS OF ANALYSES OF WATER

|                      |              |                     |            |                     |            |                 |                     |            |                 |            |
|----------------------|--------------|---------------------|------------|---------------------|------------|-----------------|---------------------|------------|-----------------|------------|
| <b>Maxxam ID</b>     |              | BUC620              |            | BUC621              |            |                 | BUC656              |            |                 |            |
| <b>Sampling Date</b> |              | 2016/02/02<br>16:30 |            | 2016/02/02<br>14:00 |            |                 | 2016/02/02<br>13:30 |            |                 |            |
| <b>COC Number</b>    |              | 547372-01-01        |            | 547372-01-01        |            |                 | 547372-02-01        |            |                 |            |
|                      | <b>UNITS</b> | <b>MW1</b>          | <b>RDL</b> | <b>MW2</b>          | <b>RDL</b> | <b>QC Batch</b> | <b>SW1</b>          | <b>RDL</b> | <b>QC Batch</b> | <b>MDL</b> |

|                              |      |           |       |            |        |         |            |        |         |     |
|------------------------------|------|-----------|-------|------------|--------|---------|------------|--------|---------|-----|
| <b>Inorganics</b>            |      |           |       |            |        |         |            |        |         |     |
| Carbonaceous BOD             | mg/L |           |       |            | 5.0    | 4369645 | <5.0       | 5.0    | 4369645 | N/A |
| Total Chemical Oxygen Demand | mg/L | 230       | 20    | 110        | 20     | 4378118 | 110        | 20     | 4378118 | N/A |
| Dissolved Organic Carbon (C) | mg/L | 41 (1)    | 5     | 14         | 0.5    | 4376538 |            | 0.5    | 4376538 | N/A |
| Phenols-4AAP                 | mg/L | 0.040 (2) | 0.010 | 0.0037 (3) | 0.0010 | 4378919 | 0.0085 (2) | 0.0010 | 4378919 | N/A |
| Total Phosphorus             | mg/L | 0.76      | 0.050 | 4.3        | 0.25   | 4369956 | 0.072      | 0.020  | 4369956 | N/A |
| Total Suspended Solids       | mg/L |           |       | 9300       | 100    | 4376463 | <1.0       | 1.0    | 4373700 | N/A |
| Tannins & Lignins            | mg/L |           |       |            |        |         | 7.4        | 0.2    | 4378738 | N/A |
| Total Kjeldahl Nitrogen      | mg/L | 8.2 (4)   | 1.0   | 3.3 (4)    | 0.20   | 4373731 | 3.4 (4)    | 0.20   | 4373737 | N/A |

RDL = Reportable Detection Limit

QC Batch = Quality Control Batch

N/A = Not Applicable

(1) Elevated reporting limit due to sample matrix.

(2) The reportable detection limit was elevated due to turbidity.

(3) The sample was decanted due to sediment.

(4) Elevated reporting limit due to blank performance.

|                      |              |                     |                     |                        |            |                 |            |
|----------------------|--------------|---------------------|---------------------|------------------------|------------|-----------------|------------|
| <b>Maxxam ID</b>     |              | BUC657              | BUC658              | BUC658                 |            |                 |            |
| <b>Sampling Date</b> |              | 2016/02/02<br>15:00 | 2016/02/02<br>16:00 | 2016/02/02<br>16:00    |            |                 |            |
| <b>COC Number</b>    |              | 547372-02-01        | 547372-02-01        | 547372-02-01           |            |                 |            |
|                      | <b>UNITS</b> | <b>SW2</b>          | <b>SW3</b>          | <b>SW3<br/>Lab-Dup</b> | <b>RDL</b> | <b>QC Batch</b> | <b>MDL</b> |

|                              |      |            |            |      |        |         |     |
|------------------------------|------|------------|------------|------|--------|---------|-----|
| <b>Inorganics</b>            |      |            |            |      |        |         |     |
| Carbonaceous BOD             | mg/L | <5.0       | <5.0       |      | 5.0    | 4369645 | N/A |
| Total Chemical Oxygen Demand | mg/L | 72         | 110        |      | 20     | 4378118 | N/A |
| Phenols-4AAP                 | mg/L | 0.0026 (1) | 0.0052 (1) |      | 0.0010 | 4378919 | N/A |
| Total Phosphorus             | mg/L | 0.069      | 0.13       | 0.13 | 0.020  | 4369956 | N/A |
| Total Suspended Solids       | mg/L | 3.2        | 26         | 27   | 2.0    | 4373700 | N/A |
| Tannins & Lignins            | mg/L | 4.7        | 6.2        |      | 0.2    | 4378738 | N/A |
| Total Kjeldahl Nitrogen      | mg/L | 2.0 (2)    | 2.9 (2)    |      | 0.20   | 4373737 | N/A |

RDL = Reportable Detection Limit

QC Batch = Quality Control Batch

Lab-Dup = Laboratory Initiated Duplicate

N/A = Not Applicable

(1) The sample was decanted due to sediment.

(2) Elevated reporting limit due to blank performance.

### MERCURY BY COLD VAPOUR AA (WATER)

|                      |              |                     |                     |                 |                     |                     |                     |            |                 |            |
|----------------------|--------------|---------------------|---------------------|-----------------|---------------------|---------------------|---------------------|------------|-----------------|------------|
| <b>Maxxam ID</b>     |              | BUC620              | BUC621              |                 | BUC656              | BUC657              | BUC658              |            |                 |            |
| <b>Sampling Date</b> |              | 2016/02/02<br>16:30 | 2016/02/02<br>14:00 |                 | 2016/02/02<br>13:30 | 2016/02/02<br>15:00 | 2016/02/02<br>16:00 |            |                 |            |
| <b>COC Number</b>    |              | 547372-01-01        | 547372-01-01        |                 | 547372-02-01        | 547372-02-01        | 547372-02-01        |            |                 |            |
|                      | <b>UNITS</b> | <b>MW1</b>          | <b>MW2</b>          | <b>QC Batch</b> | <b>SW1</b>          | <b>SW2</b>          | <b>SW3</b>          | <b>RDL</b> | <b>QC Batch</b> | <b>MDL</b> |

|                    |      |       |        |         |       |       |       |       |         |     |
|--------------------|------|-------|--------|---------|-------|-------|-------|-------|---------|-----|
| <b>Metals</b>      |      |       |        |         |       |       |       |       |         |     |
| Total Mercury (Hg) | ug/L | 0.020 | <0.013 | 4369926 | 0.028 | 0.022 | 0.020 | 0.013 | 4375116 | N/A |

RDL = Reportable Detection Limit

QC Batch = Quality Control Batch

N/A = Not Applicable



## TEST SUMMARY

**Maxxam ID:** BUC620  
**Sample ID:** MW1  
**Matrix:** Adsorbable

**Collected:** 2016/02/02  
**Shipped:**  
**Received:** 2016/02/03

| Test Description                       | Instrumentation | Batch   | Extracted  | Date Analyzed | Analyst               |
|----------------------------------------|-----------------|---------|------------|---------------|-----------------------|
| Carbonate, Bicarbonate and Hydroxide   | CALC            | 4369552 | N/A        | 2016/02/05    | Automated Statchk     |
| Alkalinity                             | KONE            | 4373744 | N/A        | 2016/02/09    | Arlene Rossiter       |
| Chloride                               | KONE            | 4373752 | N/A        | 2016/02/08    | Arlene Rossiter       |
| Chemical Oxygen Demand (COD)           | SPEC            | 4378118 | N/A        | 2016/02/12    | Zanxin Zhou           |
| Colour                                 | KONE            | 4373757 | N/A        | 2016/02/08    | Arlene Rossiter       |
| Organic carbon - Diss (DOC) (as rec'd) | TECH            | 4376538 | N/A        | 2016/02/10    | Soraya Merchant       |
| Conductance - water                    | AT              | 4371213 | N/A        | 2016/02/05    | Tiffany Morash        |
| Hardness (calculated as CaCO3)         |                 | 4369553 | N/A        | 2016/02/08    | Automated Statchk     |
| Mercury - Total (CVAA,LL)              | CV/AA           | 4369926 | 2016/02/04 | 2016/02/05    | Wendy Vainer Inactive |
| Metals Water Total MS                  | CICP/MS         | 4371212 | 2016/02/05 | 2016/02/05    | Bryon Angevine        |
| Ion Balance (% Difference)             | CALC            | 4369554 | N/A        | 2016/02/10    | Automated Statchk     |
| Anion and Cation Sum                   | CALC            | 4369555 | N/A        | 2016/02/10    | Automated Statchk     |
| Nitrogen Ammonia - water               | KONE            | 4375798 | N/A        | 2016/02/09    | Nancy Rogers          |
| Nitrogen - Nitrate + Nitrite           | KONE            | 4373771 | N/A        | 2016/02/09    | Soraya Merchant       |
| Nitrogen - Nitrite                     | KONE            | 4373774 | N/A        | 2016/02/08    | Arlene Rossiter       |
| Nitrogen - Nitrate (as N)              | CALC            | 4369507 | N/A        | 2016/02/09    | Automated Statchk     |
| Phenols (4-AAP)                        | TECH            | 4378919 | N/A        | 2016/02/11    | Cliff Raymond         |
| pH                                     | AT              | 4371214 | N/A        | 2016/02/05    | Tiffany Morash        |
| Phosphorus - ortho                     | KONE            | 4373758 | N/A        | 2016/02/08    | Arlene Rossiter       |
| Sat. pH and Langelier Index (@ 20C)    | CALC            | 4369557 | N/A        | 2016/02/10    | Automated Statchk     |
| Sat. pH and Langelier Index (@ 4C)     | CALC            | 4369558 | N/A        | 2016/02/10    | Automated Statchk     |
| Reactive Silica                        | KONE            | 4373754 | N/A        | 2016/02/09    | Arlene Rossiter       |
| Sulphate                               | KONE            | 4373753 | N/A        | 2016/02/09    | Arlene Rossiter       |
| Total Dissolved Solids (TDS calc)      | CALC            | 4369559 | N/A        | 2016/02/10    | Automated Statchk     |
| Nitrogen TKN - water (as N)            | KONE            | 4373731 | 2016/02/08 | 2016/02/09    | Nancy Rogers          |
| Organic carbon - Total (TOC)           | TECH            | 4373953 | N/A        | 2016/02/08    | Soraya Merchant       |
| Phosphorus Total Colourimetry          | KONE            | 4369956 | 2016/02/04 | 2016/02/08    | Arlene Rossiter       |
| Total Suspended Solids                 | BAL             | 4373537 | 2016/02/08 | 2016/02/09    | Leslie Power          |
| Turbidity                              | TURB            | 4371370 | N/A        | 2016/02/05    | Tiffany Morash        |
| Volatile Organic Compounds in Water    | HS/MS           | 4375036 | N/A        | 2016/02/09    | Shawn Helmkey         |

**Maxxam ID:** BUC620 Dup  
**Sample ID:** MW1  
**Matrix:** Adsorbable

**Collected:** 2016/02/02  
**Shipped:**  
**Received:** 2016/02/03

| Test Description | Instrumentation | Batch   | Extracted | Date Analyzed | Analyst        |
|------------------|-----------------|---------|-----------|---------------|----------------|
| Turbidity        | TURB            | 4371370 | N/A       | 2016/02/05    | Tiffany Morash |

**Maxxam ID:** BUC621  
**Sample ID:** MW2  
**Matrix:** Water

**Collected:** 2016/02/02  
**Shipped:**  
**Received:** 2016/02/03

| Test Description                     | Instrumentation | Batch   | Extracted | Date Analyzed | Analyst           |
|--------------------------------------|-----------------|---------|-----------|---------------|-------------------|
| Carbonate, Bicarbonate and Hydroxide | CALC            | 4369552 | N/A       | 2016/02/05    | Automated Statchk |
| Alkalinity                           | KONE            | 4373744 | N/A       | 2016/02/09    | Arlene Rossiter   |

## TEST SUMMARY

**Maxxam ID:** BUC621  
**Sample ID:** MW2  
**Matrix:** Water

**Collected:** 2016/02/02  
**Shipped:**  
**Received:** 2016/02/03

| Test Description                            | Instrumentation | Batch   | Extracted  | Date Analyzed | Analyst               |
|---------------------------------------------|-----------------|---------|------------|---------------|-----------------------|
| Chloride                                    | KONE            | 4373752 | N/A        | 2016/02/08    | Arlene Rossiter       |
| Chemical Oxygen Demand (COD)                | SPEC            | 4378118 | N/A        | 2016/02/12    | Zanxin Zhou           |
| Colour                                      | KONE            | 4373757 | N/A        | 2016/02/08    | Arlene Rossiter       |
| Organic carbon - Diss (DOC) (as rec'd)      | TECH            | 4376538 | N/A        | 2016/02/10    | Soraya Merchant       |
| Conductance - water                         | AT              | 4371213 | N/A        | 2016/02/05    | Tiffany Morash        |
| Hardness (calculated as CaCO <sub>3</sub> ) |                 | 4369553 | N/A        | 2016/02/08    | Automated Statchk     |
| Mercury - Total (CVAA,LL)                   | CV/AA           | 4369926 | 2016/02/04 | 2016/02/05    | Wendy Vainer Inactive |
| Metals Water Total MS                       | CICP/MS         | 4371212 | 2016/02/05 | 2016/02/05    | Bryon Angevine        |
| Ion Balance (% Difference)                  | CALC            | 4369554 | N/A        | 2016/02/10    | Automated Statchk     |
| Anion and Cation Sum                        | CALC            | 4369555 | N/A        | 2016/02/10    | Automated Statchk     |
| Nitrogen Ammonia - water                    | KONE            | 4375798 | N/A        | 2016/02/09    | Nancy Rogers          |
| Nitrogen - Nitrate + Nitrite                | KONE            | 4373771 | N/A        | 2016/02/09    | Soraya Merchant       |
| Nitrogen - Nitrite                          | KONE            | 4373774 | N/A        | 2016/02/08    | Arlene Rossiter       |
| Nitrogen - Nitrate (as N)                   | CALC            | 4369507 | N/A        | 2016/02/09    | Automated Statchk     |
| Phenols (4-AAP)                             | TECH            | 4378919 | N/A        | 2016/02/11    | Cliff Raymond         |
| pH                                          | AT              | 4371214 | N/A        | 2016/02/05    | Tiffany Morash        |
| Phosphorus - ortho                          | KONE            | 4373758 | N/A        | 2016/02/08    | Arlene Rossiter       |
| Sat. pH and Langelier Index (@ 20C)         | CALC            | 4369557 | N/A        | 2016/02/10    | Automated Statchk     |
| Sat. pH and Langelier Index (@ 4C)          | CALC            | 4369558 | N/A        | 2016/02/10    | Automated Statchk     |
| Reactive Silica                             | KONE            | 4373754 | N/A        | 2016/02/09    | Arlene Rossiter       |
| Sulphate                                    | KONE            | 4373753 | N/A        | 2016/02/09    | Arlene Rossiter       |
| Total Dissolved Solids (TDS calc)           | CALC            | 4369559 | N/A        | 2016/02/10    | Automated Statchk     |
| Nitrogen TKN - water (as N)                 | KONE            | 4373731 | 2016/02/08 | 2016/02/09    | Nancy Rogers          |
| Organic carbon - Total (TOC)                | TECH            | 4373953 | N/A        | 2016/02/08    | Soraya Merchant       |
| Phosphorus Total Colourimetry               | KONE            | 4369956 | 2016/02/04 | 2016/02/08    | Arlene Rossiter       |
| Total Suspended Solids                      | BAL             | 4376463 | 2016/02/10 | 2016/02/11    | Leslie Power          |
| Turbidity                                   | TURB            | 4371365 | N/A        | 2016/02/05    | Tiffany Morash        |
| Volatile Organic Compounds in Water         | HS/MS           | 4375036 | N/A        | 2016/02/09    | Shawn Helmkey         |

**Maxxam ID:** BUC622  
**Sample ID:** PW1  
**Matrix:** Drinking Water

**Collected:** 2016/02/02  
**Shipped:**  
**Received:** 2016/02/03

| Test Description                            | Instrumentation | Batch   | Extracted  | Date Analyzed | Analyst           |
|---------------------------------------------|-----------------|---------|------------|---------------|-------------------|
| Carbonate, Bicarbonate and Hydroxide        | CALC            | 4369552 | N/A        | 2016/02/05    | Automated Statchk |
| Alkalinity                                  | KONE            | 4373744 | N/A        | 2016/02/09    | Arlene Rossiter   |
| Chloride                                    | KONE            | 4373752 | N/A        | 2016/02/08    | Arlene Rossiter   |
| Chemical Oxygen Demand (COD)                | SPEC            | 4380079 | N/A        | 2016/02/12    | Zanxin Zhou       |
| Colour                                      | KONE            | 4373757 | N/A        | 2016/02/08    | Arlene Rossiter   |
| Organic carbon - Diss (DOC) (as rec'd)      | TECH            | 4376538 | N/A        | 2016/02/10    | Soraya Merchant   |
| Conductance - water                         | AT              | 4371213 | N/A        | 2016/02/05    | Tiffany Morash    |
| Hardness (calculated as CaCO <sub>3</sub> ) |                 | 4369553 | N/A        | 2016/02/08    | Automated Statchk |
| Mercury - Total (CVAA,LL)                   | CV/AA           | 4375116 | 2016/02/09 | 2016/02/10    | Virginia Wadden   |
| Metals Water Total MS                       | CICP/MS         | 4371212 | 2016/02/05 | 2016/02/05    | Bryon Angevine    |
| Ion Balance (% Difference)                  | CALC            | 4369554 | N/A        | 2016/02/10    | Automated Statchk |

## TEST SUMMARY

**Maxxam ID:** BUC622  
**Sample ID:** PW1  
**Matrix:** Drinking Water

**Collected:** 2016/02/02  
**Shipped:**  
**Received:** 2016/02/03

| Test Description                    | Instrumentation | Batch   | Extracted  | Date Analyzed | Analyst           |
|-------------------------------------|-----------------|---------|------------|---------------|-------------------|
| Anion and Cation Sum                | CALC            | 4369555 | N/A        | 2016/02/10    | Automated Statchk |
| Nitrogen Ammonia - water            | KONE            | 4375798 | N/A        | 2016/02/09    | Nancy Rogers      |
| Nitrogen - Nitrate + Nitrite        | KONE            | 4373771 | N/A        | 2016/02/09    | Soraya Merchant   |
| Nitrogen - Nitrite                  | KONE            | 4373774 | N/A        | 2016/02/08    | Arlene Rossiter   |
| Nitrogen - Nitrate (as N)           | CALC            | 4369507 | N/A        | 2016/02/09    | Automated Statchk |
| Phenols (4-AAP)                     | TECH            | 4378919 | N/A        | 2016/02/11    | Cliff Raymond     |
| pH                                  | AT              | 4371214 | N/A        | 2016/02/05    | Tiffany Morash    |
| Phosphorus - ortho                  | KONE            | 4373758 | N/A        | 2016/02/08    | Arlene Rossiter   |
| Sat. pH and Langelier Index (@ 20C) | CALC            | 4369557 | N/A        | 2016/02/10    | Automated Statchk |
| Sat. pH and Langelier Index (@ 4C)  | CALC            | 4369558 | N/A        | 2016/02/10    | Automated Statchk |
| Reactive Silica                     | KONE            | 4373754 | N/A        | 2016/02/09    | Arlene Rossiter   |
| Sulphate                            | KONE            | 4373753 | N/A        | 2016/02/09    | Arlene Rossiter   |
| Total Dissolved Solids (TDS calc)   | CALC            | 4369559 | N/A        | 2016/02/10    | Automated Statchk |
| Nitrogen TKN - water (as N)         | KONE            | 4373731 | 2016/02/08 | 2016/02/09    | Nancy Rogers      |
| Organic carbon - Total (TOC)        | TECH            | 4373953 | N/A        | 2016/02/08    | Soraya Merchant   |
| Phosphorus Total Colourimetry       | KONE            | 4369948 | 2016/02/04 | 2016/02/08    | Arlene Rossiter   |
| Total Suspended Solids              | BAL             | 4373537 | 2016/02/08 | 2016/02/09    | Leslie Power      |
| Turbidity                           | TURB            | 4371365 | N/A        | 2016/02/05    | Tiffany Morash    |
| Volatile Organic Compounds in Water | HS/MS           | 4375036 | N/A        | 2016/02/09    | Shawn Helmkey     |

**Maxxam ID:** BUC622 Dup  
**Sample ID:** PW1  
**Matrix:** Drinking Water

**Collected:** 2016/02/02  
**Shipped:**  
**Received:** 2016/02/03

| Test Description                       | Instrumentation | Batch   | Extracted | Date Analyzed | Analyst         |
|----------------------------------------|-----------------|---------|-----------|---------------|-----------------|
| Organic carbon - Diss (DOC) (as rec'd) | TECH            | 4376538 | N/A       | 2016/02/10    | Soraya Merchant |

**Maxxam ID:** BUC623  
**Sample ID:** PW2  
**Matrix:** Drinking Water

**Collected:** 2016/02/02  
**Shipped:**  
**Received:** 2016/02/03

| Test Description                       | Instrumentation | Batch   | Extracted  | Date Analyzed | Analyst           |
|----------------------------------------|-----------------|---------|------------|---------------|-------------------|
| Carbonate, Bicarbonate and Hydroxide   | CALC            | 4369552 | N/A        | 2016/02/05    | Automated Statchk |
| Alkalinity                             | KONE            | 4373744 | N/A        | 2016/02/09    | Arlene Rossiter   |
| Chloride                               | KONE            | 4373752 | N/A        | 2016/02/08    | Arlene Rossiter   |
| Chemical Oxygen Demand (COD)           | SPEC            | 4380079 | N/A        | 2016/02/12    | Zanxin Zhou       |
| Colour                                 | KONE            | 4373757 | N/A        | 2016/02/08    | Arlene Rossiter   |
| Organic carbon - Diss (DOC) (as rec'd) | TECH            | 4376538 | N/A        | 2016/02/10    | Soraya Merchant   |
| Conductance - water                    | AT              | 4371213 | N/A        | 2016/02/05    | Tiffany Morash    |
| Hardness (calculated as CaCO3)         |                 | 4369553 | N/A        | 2016/02/08    | Automated Statchk |
| Mercury - Total (CVAA,LL)              | CV/AA           | 4375116 | 2016/02/09 | 2016/02/10    | Virginia Wadden   |
| Metals Water Total MS                  | CICP/MS         | 4371212 | 2016/02/05 | 2016/02/05    | Bryon Angevine    |
| Ion Balance (% Difference)             | CALC            | 4369554 | N/A        | 2016/02/10    | Automated Statchk |
| Anion and Cation Sum                   | CALC            | 4369555 | N/A        | 2016/02/10    | Automated Statchk |
| Nitrogen Ammonia - water               | KONE            | 4375798 | N/A        | 2016/02/09    | Nancy Rogers      |

## TEST SUMMARY

**Maxxam ID:** BUC623  
**Sample ID:** PW2  
**Matrix:** Drinking Water

**Collected:** 2016/02/02  
**Shipped:**  
**Received:** 2016/02/03

| Test Description                    | Instrumentation | Batch   | Extracted  | Date Analyzed | Analyst           |
|-------------------------------------|-----------------|---------|------------|---------------|-------------------|
| Nitrogen - Nitrate + Nitrite        | KONE            | 4373771 | N/A        | 2016/02/09    | Soraya Merchant   |
| Nitrogen - Nitrite                  | KONE            | 4373774 | N/A        | 2016/02/08    | Arlene Rossiter   |
| Nitrogen - Nitrate (as N)           | CALC            | 4369507 | N/A        | 2016/02/09    | Automated Statchk |
| Phenols (4-AAP)                     | TECH            | 4378919 | N/A        | 2016/02/11    | Cliff Raymond     |
| pH                                  | AT              | 4371214 | N/A        | 2016/02/05    | Tiffany Morash    |
| Phosphorus - ortho                  | KONE            | 4373758 | N/A        | 2016/02/08    | Arlene Rossiter   |
| Sat. pH and Langelier Index (@ 20C) | CALC            | 4369557 | N/A        | 2016/02/10    | Automated Statchk |
| Sat. pH and Langelier Index (@ 4C)  | CALC            | 4369558 | N/A        | 2016/02/10    | Automated Statchk |
| Reactive Silica                     | KONE            | 4373754 | N/A        | 2016/02/09    | Arlene Rossiter   |
| Sulphate                            | KONE            | 4373753 | N/A        | 2016/02/09    | Arlene Rossiter   |
| Total Dissolved Solids (TDS calc)   | CALC            | 4369559 | N/A        | 2016/02/10    | Automated Statchk |
| Nitrogen TKN - water (as N)         | KONE            | 4373731 | 2016/02/08 | 2016/02/09    | Nancy Rogers      |
| Organic carbon - Total (TOC)        | TECH            | 4373953 | N/A        | 2016/02/08    | Soraya Merchant   |
| Phosphorus Total Colourimetry       | KONE            | 4369948 | 2016/02/04 | 2016/02/08    | Arlene Rossiter   |
| Total Suspended Solids              | BAL             | 4373537 | 2016/02/08 | 2016/02/09    | Leslie Power      |
| Turbidity                           | TURB            | 4371365 | N/A        | 2016/02/05    | Tiffany Morash    |
| Volatile Organic Compounds in Water | HS/MS           | 4376377 | N/A        | 2016/02/11    | Shawn Helmky      |

**Maxxam ID:** BUC623 Dup  
**Sample ID:** PW2  
**Matrix:** Drinking Water

**Collected:** 2016/02/02  
**Shipped:**  
**Received:** 2016/02/03

| Test Description                    | Instrumentation | Batch   | Extracted | Date Analyzed | Analyst      |
|-------------------------------------|-----------------|---------|-----------|---------------|--------------|
| Volatile Organic Compounds in Water | HS/MS           | 4376377 | N/A       | 2016/02/11    | Shawn Helmky |

**Maxxam ID:** BUC624  
**Sample ID:** PW3  
**Matrix:** Drinking Water

**Collected:** 2016/02/02  
**Shipped:**  
**Received:** 2016/02/03

| Test Description                       | Instrumentation | Batch   | Extracted  | Date Analyzed | Analyst           |
|----------------------------------------|-----------------|---------|------------|---------------|-------------------|
| Carbonate, Bicarbonate and Hydroxide   | CALC            | 4369552 | N/A        | 2016/02/05    | Automated Statchk |
| Alkalinity                             | KONE            | 4373744 | N/A        | 2016/02/09    | Arlene Rossiter   |
| Chloride                               | KONE            | 4373752 | N/A        | 2016/02/08    | Arlene Rossiter   |
| Chemical Oxygen Demand (COD)           | SPEC            | 4380079 | N/A        | 2016/02/12    | Zanxin Zhou       |
| Colour                                 | KONE            | 4373757 | N/A        | 2016/02/08    | Arlene Rossiter   |
| Organic carbon - Diss (DOC) (as rec'd) | TECH            | 4376538 | N/A        | 2016/02/10    | Soraya Merchant   |
| Conductance - water                    | AT              | 4371213 | N/A        | 2016/02/05    | Tiffany Morash    |
| Hardness (calculated as CaCO3)         |                 | 4369553 | N/A        | 2016/02/08    | Automated Statchk |
| Mercury - Total (CVAA,LL)              | CV/AA           | 4375116 | 2016/02/09 | 2016/02/10    | Virginia Wadden   |
| Metals Water Total MS                  | CICP/MS         | 4371349 | 2016/02/05 | 2016/02/05    | Bryon Angevine    |
| Ion Balance (% Difference)             | CALC            | 4369554 | N/A        | 2016/02/10    | Automated Statchk |
| Anion and Cation Sum                   | CALC            | 4369555 | N/A        | 2016/02/10    | Automated Statchk |
| Nitrogen Ammonia - water               | KONE            | 4375798 | N/A        | 2016/02/09    | Nancy Rogers      |
| Nitrogen - Nitrate + Nitrite           | KONE            | 4373771 | N/A        | 2016/02/09    | Soraya Merchant   |
| Nitrogen - Nitrite                     | KONE            | 4373774 | N/A        | 2016/02/08    | Arlene Rossiter   |

## TEST SUMMARY

**Maxxam ID:** BUC624  
**Sample ID:** PW3  
**Matrix:** Drinking Water

**Collected:** 2016/02/02  
**Shipped:**  
**Received:** 2016/02/03

| Test Description                    | Instrumentation | Batch   | Extracted  | Date Analyzed | Analyst           |
|-------------------------------------|-----------------|---------|------------|---------------|-------------------|
| Nitrogen - Nitrate (as N)           | CALC            | 4369507 | N/A        | 2016/02/09    | Automated Statchk |
| Phenols (4-AAP)                     | TECH            | 4378919 | N/A        | 2016/02/11    | Cliff Raymond     |
| pH                                  | AT              | 4371214 | N/A        | 2016/02/05    | Tiffany Morash    |
| Phosphorus - ortho                  | KONE            | 4373758 | N/A        | 2016/02/08    | Arlene Rossiter   |
| Sat. pH and Langelier Index (@ 20C) | CALC            | 4369557 | N/A        | 2016/02/10    | Automated Statchk |
| Sat. pH and Langelier Index (@ 4C)  | CALC            | 4369558 | N/A        | 2016/02/10    | Automated Statchk |
| Reactive Silica                     | KONE            | 4373754 | N/A        | 2016/02/09    | Arlene Rossiter   |
| Sulphate                            | KONE            | 4373753 | N/A        | 2016/02/09    | Arlene Rossiter   |
| Total Dissolved Solids (TDS calc)   | CALC            | 4369559 | N/A        | 2016/02/10    | Automated Statchk |
| Nitrogen TKN - water (as N)         | KONE            | 4373731 | 2016/02/08 | 2016/02/09    | Nancy Rogers      |
| Organic carbon - Total (TOC)        | TECH            | 4373953 | N/A        | 2016/02/08    | Soraya Merchant   |
| Phosphorus Total Colourimetry       | KONE            | 4369948 | 2016/02/04 | 2016/02/08    | Arlene Rossiter   |
| Total Suspended Solids              | BAL             | 4373700 | 2016/02/08 | 2016/02/10    | Leslie Power      |
| Turbidity                           | TURB            | 4371365 | N/A        | 2016/02/05    | Tiffany Morash    |
| Volatile Organic Compounds in Water | HS/MS           | 4376377 | N/A        | 2016/02/11    | Shawn Helmkey     |

**Maxxam ID:** BUC625  
**Sample ID:** PW4  
**Matrix:** Drinking Water

**Collected:** 2016/02/02  
**Shipped:**  
**Received:** 2016/02/03

| Test Description                       | Instrumentation | Batch   | Extracted  | Date Analyzed | Analyst           |
|----------------------------------------|-----------------|---------|------------|---------------|-------------------|
| Carbonate, Bicarbonate and Hydroxide   | CALC            | 4369552 | N/A        | 2016/02/05    | Automated Statchk |
| Alkalinity                             | KONE            | 4373744 | N/A        | 2016/02/09    | Arlene Rossiter   |
| Chloride                               | KONE            | 4373752 | N/A        | 2016/02/08    | Arlene Rossiter   |
| Chemical Oxygen Demand (COD)           | SPEC            | 4380079 | N/A        | 2016/02/12    | Zanxin Zhou       |
| Colour                                 | KONE            | 4373757 | N/A        | 2016/02/08    | Arlene Rossiter   |
| Organic carbon - Diss (DOC) (as rec'd) | TECH            | 4376538 | N/A        | 2016/02/10    | Soraya Merchant   |
| Conductance - water                    | AT              | 4371213 | N/A        | 2016/02/05    | Tiffany Morash    |
| Hardness (calculated as CaCO3)         |                 | 4369553 | N/A        | 2016/02/08    | Automated Statchk |
| Mercury - Total (CVAA,LL)              | CV/AA           | 4375116 | 2016/02/09 | 2016/02/10    | Virginia Wadden   |
| Metals Water Total MS                  | CICP/MS         | 4371212 | 2016/02/05 | 2016/02/05    | Bryon Angevine    |
| Ion Balance (% Difference)             | CALC            | 4369554 | N/A        | 2016/02/10    | Automated Statchk |
| Anion and Cation Sum                   | CALC            | 4369555 | N/A        | 2016/02/10    | Automated Statchk |
| Nitrogen Ammonia - water               | KONE            | 4375798 | N/A        | 2016/02/09    | Nancy Rogers      |
| Nitrogen - Nitrate + Nitrite           | KONE            | 4373771 | N/A        | 2016/02/09    | Soraya Merchant   |
| Nitrogen - Nitrite                     | KONE            | 4373774 | N/A        | 2016/02/08    | Arlene Rossiter   |
| Nitrogen - Nitrate (as N)              | CALC            | 4369507 | N/A        | 2016/02/09    | Automated Statchk |
| Phenols (4-AAP)                        | TECH            | 4378919 | N/A        | 2016/02/11    | Cliff Raymond     |
| pH                                     | AT              | 4371214 | N/A        | 2016/02/05    | Tiffany Morash    |
| Phosphorus - ortho                     | KONE            | 4373758 | N/A        | 2016/02/08    | Arlene Rossiter   |
| Sat. pH and Langelier Index (@ 20C)    | CALC            | 4369557 | N/A        | 2016/02/10    | Automated Statchk |
| Sat. pH and Langelier Index (@ 4C)     | CALC            | 4369558 | N/A        | 2016/02/10    | Automated Statchk |
| Reactive Silica                        | KONE            | 4373754 | N/A        | 2016/02/09    | Arlene Rossiter   |
| Sulphate                               | KONE            | 4373753 | N/A        | 2016/02/09    | Arlene Rossiter   |
| Total Dissolved Solids (TDS calc)      | CALC            | 4369559 | N/A        | 2016/02/10    | Automated Statchk |

## TEST SUMMARY

**Maxxam ID:** BUC625  
**Sample ID:** PW4  
**Matrix:** Drinking Water

**Collected:** 2016/02/02  
**Shipped:**  
**Received:** 2016/02/03

| Test Description                    | Instrumentation | Batch   | Extracted  | Date Analyzed | Analyst         |
|-------------------------------------|-----------------|---------|------------|---------------|-----------------|
| Nitrogen TKN - water (as N)         | KONE            | 4373731 | 2016/02/08 | 2016/02/09    | Nancy Rogers    |
| Organic carbon - Total (TOC)        | TECH            | 4373963 | N/A        | 2016/02/08    | Soraya Merchant |
| Phosphorus Total Colourimetry       | KONE            | 4369948 | 2016/02/04 | 2016/02/08    | Arlene Rossiter |
| Total Suspended Solids              | BAL             | 4373700 | 2016/02/08 | 2016/02/10    | Leslie Power    |
| Turbidity                           | TURB            | 4371365 | N/A        | 2016/02/05    | Tiffany Morash  |
| Volatile Organic Compounds in Water | HS/MS           | 4376377 | N/A        | 2016/02/11    | Shawn Helmkey   |

**Maxxam ID:** BUC625 Dup  
**Sample ID:** PW4  
**Matrix:** Drinking Water

**Collected:** 2016/02/02  
**Shipped:**  
**Received:** 2016/02/03

| Test Description             | Instrumentation | Batch   | Extracted | Date Analyzed | Analyst         |
|------------------------------|-----------------|---------|-----------|---------------|-----------------|
| Nitrogen Ammonia - water     | KONE            | 4375798 | N/A       | 2016/02/10    | Nancy Rogers    |
| Organic carbon - Total (TOC) | TECH            | 4373963 | N/A       | 2016/02/08    | Soraya Merchant |

**Maxxam ID:** BUC626  
**Sample ID:** PW5  
**Matrix:** Drinking Water

**Collected:** 2016/02/02  
**Shipped:**  
**Received:** 2016/02/03

| Test Description                       | Instrumentation | Batch   | Extracted  | Date Analyzed | Analyst           |
|----------------------------------------|-----------------|---------|------------|---------------|-------------------|
| Carbonate, Bicarbonate and Hydroxide   | CALC            | 4369552 | N/A        | 2016/02/05    | Automated Statchk |
| Alkalinity                             | KONE            | 4373775 | N/A        | 2016/02/09    | Arlene Rossiter   |
| Chloride                               | KONE            | 4373780 | N/A        | 2016/02/08    | Arlene Rossiter   |
| Chemical Oxygen Demand (COD)           | SPEC            | 4380079 | N/A        | 2016/02/12    | Zanxin Zhou       |
| Colour                                 | KONE            | 4373786 | N/A        | 2016/02/08    | Arlene Rossiter   |
| Organic carbon - Diss (DOC) (as rec'd) | TECH            | 4376538 | N/A        | 2016/02/10    | Soraya Merchant   |
| Conductance - water                    | AT              | 4371213 | N/A        | 2016/02/05    | Tiffany Morash    |
| Hardness (calculated as CaCO3)         |                 | 4369553 | N/A        | 2016/02/08    | Automated Statchk |
| Mercury - Total (CVAA,LL)              | CV/AA           | 4375116 | 2016/02/09 | 2016/02/10    | Virginia Wadden   |
| Metals Water Total MS                  | CICP/MS         | 4371212 | 2016/02/05 | 2016/02/05    | Bryon Angevine    |
| Ion Balance (% Difference)             | CALC            | 4369554 | N/A        | 2016/02/10    | Automated Statchk |
| Anion and Cation Sum                   | CALC            | 4369555 | N/A        | 2016/02/10    | Automated Statchk |
| Nitrogen Ammonia - water               | KONE            | 4375798 | N/A        | 2016/02/09    | Nancy Rogers      |
| Nitrogen - Nitrate + Nitrite           | KONE            | 4373790 | N/A        | 2016/02/09    | Soraya Merchant   |
| Nitrogen - Nitrite                     | KONE            | 4373795 | N/A        | 2016/02/08    | Arlene Rossiter   |
| Nitrogen - Nitrate (as N)              | CALC            | 4369507 | N/A        | 2016/02/09    | Automated Statchk |
| Phenols (4-AAP)                        | TECH            | 4378919 | N/A        | 2016/02/11    | Cliff Raymond     |
| pH                                     | AT              | 4371214 | N/A        | 2016/02/05    | Tiffany Morash    |
| Phosphorus - ortho                     | KONE            | 4373787 | N/A        | 2016/02/08    | Arlene Rossiter   |
| Sat. pH and Langelier Index (@ 20C)    | CALC            | 4369557 | N/A        | 2016/02/10    | Automated Statchk |
| Sat. pH and Langelier Index (@ 4C)     | CALC            | 4369558 | N/A        | 2016/02/10    | Automated Statchk |
| Reactive Silica                        | KONE            | 4373783 | N/A        | 2016/02/09    | Arlene Rossiter   |
| Sulphate                               | KONE            | 4373781 | N/A        | 2016/02/09    | Arlene Rossiter   |
| Total Dissolved Solids (TDS calc)      | CALC            | 4369559 | N/A        | 2016/02/10    | Automated Statchk |
| Nitrogen TKN - water (as N)            | KONE            | 4373737 | 2016/02/08 | 2016/02/09    | Nancy Rogers      |



## TEST SUMMARY

**Maxxam ID:** BUC626  
**Sample ID:** PW5  
**Matrix:** Drinking Water

**Collected:** 2016/02/02  
**Shipped:**  
**Received:** 2016/02/03

| Test Description                    | Instrumentation | Batch   | Extracted  | Date Analyzed | Analyst         |
|-------------------------------------|-----------------|---------|------------|---------------|-----------------|
| Organic carbon - Total (TOC)        | TECH            | 4373963 | N/A        | 2016/02/08    | Soraya Merchant |
| Phosphorus Total Colourimetry       | KONE            | 4369948 | 2016/02/04 | 2016/02/08    | Arlene Rossiter |
| Total Suspended Solids              | BAL             | 4373700 | 2016/02/08 | 2016/02/10    | Leslie Power    |
| Turbidity                           | TURB            | 4371365 | N/A        | 2016/02/05    | Tiffany Morash  |
| Volatile Organic Compounds in Water | HS/MS           | 4376377 | N/A        | 2016/02/11    | Shawn Helmkey   |

**Maxxam ID:** BUC627  
**Sample ID:** PW6  
**Matrix:** Drinking Water

**Collected:** 2016/02/02  
**Shipped:**  
**Received:** 2016/02/03

| Test Description                       | Instrumentation | Batch   | Extracted  | Date Analyzed | Analyst           |
|----------------------------------------|-----------------|---------|------------|---------------|-------------------|
| Carbonate, Bicarbonate and Hydroxide   | CALC            | 4369552 | N/A        | 2016/02/05    | Automated Statchk |
| Alkalinity                             | KONE            | 4373775 | N/A        | 2016/02/09    | Arlene Rossiter   |
| Chloride                               | KONE            | 4373780 | N/A        | 2016/02/08    | Arlene Rossiter   |
| Chemical Oxygen Demand (COD)           | SPEC            | 4380079 | N/A        | 2016/02/12    | Zanxin Zhou       |
| Colour                                 | KONE            | 4373786 | N/A        | 2016/02/08    | Arlene Rossiter   |
| Organic carbon - Diss (DOC) (as rec'd) | TECH            | 4376538 | N/A        | 2016/02/10    | Soraya Merchant   |
| Conductance - water                    | AT              | 4371213 | N/A        | 2016/02/05    | Tiffany Morash    |
| Hardness (calculated as CaCO3)         |                 | 4369553 | N/A        | 2016/02/08    | Automated Statchk |
| Mercury - Total (CVAA,LL)              | CV/AA           | 4375116 | 2016/02/09 | 2016/02/10    | Virginia Wadden   |
| Metals Water Total MS                  | CICP/MS         | 4371212 | 2016/02/05 | 2016/02/05    | Bryon Angevine    |
| Ion Balance (% Difference)             | CALC            | 4369554 | N/A        | 2016/02/10    | Automated Statchk |
| Anion and Cation Sum                   | CALC            | 4369555 | N/A        | 2016/02/10    | Automated Statchk |
| Nitrogen Ammonia - water               | KONE            | 4375798 | N/A        | 2016/02/09    | Nancy Rogers      |
| Nitrogen - Nitrate + Nitrite           | KONE            | 4373790 | N/A        | 2016/02/09    | Soraya Merchant   |
| Nitrogen - Nitrite                     | KONE            | 4373795 | N/A        | 2016/02/08    | Arlene Rossiter   |
| Nitrogen - Nitrate (as N)              | CALC            | 4369507 | N/A        | 2016/02/09    | Automated Statchk |
| Phenols (4-AAP)                        | TECH            | 4378919 | N/A        | 2016/02/11    | Cliff Raymond     |
| pH                                     | AT              | 4371214 | N/A        | 2016/02/05    | Tiffany Morash    |
| Phosphorus - ortho                     | KONE            | 4373787 | N/A        | 2016/02/08    | Arlene Rossiter   |
| Sat. pH and Langelier Index (@ 20C)    | CALC            | 4369557 | N/A        | 2016/02/10    | Automated Statchk |
| Sat. pH and Langelier Index (@ 4C)     | CALC            | 4369558 | N/A        | 2016/02/10    | Automated Statchk |
| Reactive Silica                        | KONE            | 4373783 | N/A        | 2016/02/09    | Arlene Rossiter   |
| Sulphate                               | KONE            | 4373781 | N/A        | 2016/02/09    | Arlene Rossiter   |
| Total Dissolved Solids (TDS calc)      | CALC            | 4369559 | N/A        | 2016/02/10    | Automated Statchk |
| Nitrogen TKN - water (as N)            | KONE            | 4373737 | 2016/02/08 | 2016/02/09    | Nancy Rogers      |
| Organic carbon - Total (TOC)           | TECH            | 4373963 | N/A        | 2016/02/08    | Soraya Merchant   |
| Phosphorus Total Colourimetry          | KONE            | 4369948 | 2016/02/04 | 2016/02/08    | Arlene Rossiter   |
| Total Suspended Solids                 | BAL             | 4373700 | 2016/02/08 | 2016/02/10    | Leslie Power      |
| Turbidity                              | TURB            | 4371365 | N/A        | 2016/02/05    | Tiffany Morash    |
| Volatile Organic Compounds in Water    | HS/MS           | 4376377 | N/A        | 2016/02/11    | Shawn Helmkey     |

## TEST SUMMARY

**Maxxam ID:** BUC628  
**Sample ID:** PW7  
**Matrix:** Drinking Water

**Collected:** 2016/02/02  
**Shipped:**  
**Received:** 2016/02/03

| Test Description                       | Instrumentation | Batch   | Extracted  | Date Analyzed | Analyst           |
|----------------------------------------|-----------------|---------|------------|---------------|-------------------|
| Carbonate, Bicarbonate and Hydroxide   | CALC            | 4369552 | N/A        | 2016/02/05    | Automated Statchk |
| Alkalinity                             | KONE            | 4373775 | N/A        | 2016/02/09    | Arlene Rossiter   |
| Chloride                               | KONE            | 4373780 | N/A        | 2016/02/08    | Arlene Rossiter   |
| Chemical Oxygen Demand (COD)           | SPEC            | 4380079 | N/A        | 2016/02/12    | Zanxin Zhou       |
| Colour                                 | KONE            | 4373786 | N/A        | 2016/02/08    | Arlene Rossiter   |
| Organic carbon - Diss (DOC) (as rec'd) | TECH            | 4376538 | N/A        | 2016/02/10    | Soraya Merchant   |
| Conductance - water                    | AT              | 4371213 | N/A        | 2016/02/05    | Tiffany Morash    |
| Hardness (calculated as CaCO3)         |                 | 4369553 | N/A        | 2016/02/08    | Automated Statchk |
| Mercury - Total (CVAA,LL)              | CV/AA           | 4375116 | 2016/02/09 | 2016/02/10    | Virginia Wadden   |
| Metals Water Total MS                  | CICP/MS         | 4371212 | 2016/02/05 | 2016/02/05    | Bryon Angevine    |
| Ion Balance (% Difference)             | CALC            | 4369554 | N/A        | 2016/02/10    | Automated Statchk |
| Anion and Cation Sum                   | CALC            | 4369555 | N/A        | 2016/02/10    | Automated Statchk |
| Nitrogen Ammonia - water               | KONE            | 4375798 | N/A        | 2016/02/09    | Nancy Rogers      |
| Nitrogen - Nitrate + Nitrite           | KONE            | 4373790 | N/A        | 2016/02/09    | Soraya Merchant   |
| Nitrogen - Nitrite                     | KONE            | 4373795 | N/A        | 2016/02/08    | Arlene Rossiter   |
| Nitrogen - Nitrate (as N)              | CALC            | 4369507 | N/A        | 2016/02/09    | Automated Statchk |
| Phenols (4-AAP)                        | TECH            | 4378919 | N/A        | 2016/02/11    | Cliff Raymond     |
| pH                                     | AT              | 4371214 | N/A        | 2016/02/05    | Tiffany Morash    |
| Phosphorus - ortho                     | KONE            | 4373787 | N/A        | 2016/02/08    | Arlene Rossiter   |
| Sat. pH and Langelier Index (@ 20C)    | CALC            | 4369557 | N/A        | 2016/02/10    | Automated Statchk |
| Sat. pH and Langelier Index (@ 4C)     | CALC            | 4369558 | N/A        | 2016/02/10    | Automated Statchk |
| Reactive Silica                        | KONE            | 4373783 | N/A        | 2016/02/09    | Arlene Rossiter   |
| Sulphate                               | KONE            | 4373781 | N/A        | 2016/02/09    | Arlene Rossiter   |
| Total Dissolved Solids (TDS calc)      | CALC            | 4369559 | N/A        | 2016/02/10    | Automated Statchk |
| Nitrogen TKN - water (as N)            | KONE            | 4373737 | 2016/02/08 | 2016/02/09    | Nancy Rogers      |
| Organic carbon - Total (TOC)           | TECH            | 4373963 | N/A        | 2016/02/08    | Soraya Merchant   |
| Phosphorus Total Colourimetry          | KONE            | 4369956 | 2016/02/04 | 2016/02/08    | Arlene Rossiter   |
| Total Suspended Solids                 | BAL             | 4373700 | 2016/02/08 | 2016/02/10    | Leslie Power      |
| Turbidity                              | TURB            | 4371365 | N/A        | 2016/02/05    | Tiffany Morash    |
| Volatile Organic Compounds in Water    | HS/MS           | 4376377 | N/A        | 2016/02/11    | Shawn Helmkey     |

**Maxxam ID:** BUC628 Dup  
**Sample ID:** PW7  
**Matrix:** Drinking Water

**Collected:** 2016/02/02  
**Shipped:**  
**Received:** 2016/02/03

| Test Description             | Instrumentation | Batch   | Extracted | Date Analyzed | Analyst     |
|------------------------------|-----------------|---------|-----------|---------------|-------------|
| Chemical Oxygen Demand (COD) | SPEC            | 4380079 | N/A       | 2016/02/12    | Zanxin Zhou |

**Maxxam ID:** BUC629  
**Sample ID:** PW8  
**Matrix:** Drinking Water

**Collected:** 2016/02/02  
**Shipped:**  
**Received:** 2016/02/03

| Test Description                     | Instrumentation | Batch   | Extracted | Date Analyzed | Analyst           |
|--------------------------------------|-----------------|---------|-----------|---------------|-------------------|
| Carbonate, Bicarbonate and Hydroxide | CALC            | 4369552 | N/A       | 2016/02/05    | Automated Statchk |
| Alkalinity                           | KONE            | 4373775 | N/A       | 2016/02/09    | Arlene Rossiter   |

## TEST SUMMARY

**Maxxam ID:** BUC629  
**Sample ID:** PW8  
**Matrix:** Drinking Water

**Collected:** 2016/02/02  
**Shipped:**  
**Received:** 2016/02/03

| Test Description                       | Instrumentation | Batch   | Extracted  | Date Analyzed | Analyst           |
|----------------------------------------|-----------------|---------|------------|---------------|-------------------|
| Chloride                               | KONE            | 4373780 | N/A        | 2016/02/08    | Arlene Rossiter   |
| Chemical Oxygen Demand (COD)           | SPEC            | 4380079 | N/A        | 2016/02/12    | Zanxin Zhou       |
| Colour                                 | KONE            | 4373786 | N/A        | 2016/02/08    | Arlene Rossiter   |
| Organic carbon - Diss (DOC) (as rec'd) | TECH            | 4376538 | N/A        | 2016/02/10    | Soraya Merchant   |
| Conductance - water                    | AT              | 4371213 | N/A        | 2016/02/05    | Tiffany Morash    |
| Hardness (calculated as CaCO3)         |                 | 4369553 | N/A        | 2016/02/08    | Automated Statchk |
| Mercury - Total (CVAA,LL)              | CV/AA           | 4375116 | 2016/02/09 | 2016/02/10    | Virginia Wadden   |
| Metals Water Total MS                  | CICP/MS         | 4371212 | 2016/02/05 | 2016/02/05    | Bryon Angevine    |
| Ion Balance (% Difference)             | CALC            | 4369554 | N/A        | 2016/02/10    | Automated Statchk |
| Anion and Cation Sum                   | CALC            | 4369555 | N/A        | 2016/02/10    | Automated Statchk |
| Nitrogen Ammonia - water               | KONE            | 4375798 | N/A        | 2016/02/09    | Nancy Rogers      |
| Nitrogen - Nitrate + Nitrite           | KONE            | 4373790 | N/A        | 2016/02/09    | Soraya Merchant   |
| Nitrogen - Nitrite                     | KONE            | 4373795 | N/A        | 2016/02/08    | Arlene Rossiter   |
| Nitrogen - Nitrate (as N)              | CALC            | 4369507 | N/A        | 2016/02/09    | Automated Statchk |
| Phenols (4-AAP)                        | TECH            | 4380484 | N/A        | 2016/02/12    | Cliff Raymond     |
| pH                                     | AT              | 4371214 | N/A        | 2016/02/05    | Tiffany Morash    |
| Phosphorus - ortho                     | KONE            | 4373787 | N/A        | 2016/02/08    | Arlene Rossiter   |
| Sat. pH and Langelier Index (@ 20C)    | CALC            | 4369557 | N/A        | 2016/02/10    | Automated Statchk |
| Sat. pH and Langelier Index (@ 4C)     | CALC            | 4369558 | N/A        | 2016/02/10    | Automated Statchk |
| Reactive Silica                        | KONE            | 4373783 | N/A        | 2016/02/09    | Arlene Rossiter   |
| Sulphate                               | KONE            | 4373781 | N/A        | 2016/02/09    | Arlene Rossiter   |
| Total Dissolved Solids (TDS calc)      | CALC            | 4369559 | N/A        | 2016/02/10    | Automated Statchk |
| Nitrogen TKN - water (as N)            | KONE            | 4373737 | 2016/02/08 | 2016/02/09    | Nancy Rogers      |
| Organic carbon - Total (TOC)           | TECH            | 4373963 | N/A        | 2016/02/08    | Soraya Merchant   |
| Phosphorus Total Colourimetry          | KONE            | 4369956 | 2016/02/04 | 2016/02/08    | Arlene Rossiter   |
| Total Suspended Solids                 | BAL             | 4373700 | 2016/02/08 | 2016/02/10    | Leslie Power      |
| Turbidity                              | TURB            | 4371365 | N/A        | 2016/02/05    | Tiffany Morash    |
| Volatile Organic Compounds in Water    | HS/MS           | 4376377 | N/A        | 2016/02/11    | Shawn Helmkey     |

**Maxxam ID:** BUC656  
**Sample ID:** SW1  
**Matrix:** Water

**Collected:** 2016/02/02  
**Shipped:**  
**Received:** 2016/02/03

| Test Description                     | Instrumentation | Batch   | Extracted  | Date Analyzed | Analyst           |
|--------------------------------------|-----------------|---------|------------|---------------|-------------------|
| Carbonate, Bicarbonate and Hydroxide | CALC            | 4369552 | N/A        | 2016/02/05    | Automated Statchk |
| Alkalinity                           | KONE            | 4373775 | N/A        | 2016/02/09    | Arlene Rossiter   |
| Carbonaceous BOD                     | SKAL/DO         | 4369645 | 2016/02/04 | 2016/02/09    | Zanxin Zhou       |
| Chloride                             | KONE            | 4373780 | N/A        | 2016/02/08    | Arlene Rossiter   |
| Chemical Oxygen Demand (COD)         | SPEC            | 4378118 | N/A        | 2016/02/12    | Zanxin Zhou       |
| Colour                               | KONE            | 4373786 | N/A        | 2016/02/08    | Arlene Rossiter   |
| Conductance - water                  | AT              | 4371213 | N/A        | 2016/02/05    | Tiffany Morash    |
| Hardness (calculated as CaCO3)       |                 | 4369553 | N/A        | 2016/02/08    | Automated Statchk |
| Mercury - Total (CVAA,LL)            | CV/AA           | 4375116 | 2016/02/09 | 2016/02/10    | Virginia Wadden   |
| Metals Water Total MS                | CICP/MS         | 4371212 | 2016/02/05 | 2016/02/05    | Bryon Angevine    |
| Ion Balance (% Difference)           | CALC            | 4369554 | N/A        | 2016/02/10    | Automated Statchk |

## TEST SUMMARY

**Maxxam ID:** BUC656  
**Sample ID:** SW1  
**Matrix:** Water

**Collected:** 2016/02/02  
**Shipped:**  
**Received:** 2016/02/03

| Test Description                    | Instrumentation | Batch   | Extracted  | Date Analyzed | Analyst           |
|-------------------------------------|-----------------|---------|------------|---------------|-------------------|
| Anion and Cation Sum                | CALC            | 4369555 | N/A        | 2016/02/10    | Automated Statchk |
| Nitrogen Ammonia - water            | KONE            | 4375798 | N/A        | 2016/02/09    | Nancy Rogers      |
| Nitrogen - Nitrate + Nitrite        | KONE            | 4373790 | N/A        | 2016/02/09    | Soraya Merchant   |
| Nitrogen - Nitrite                  | KONE            | 4373795 | N/A        | 2016/02/08    | Arlene Rossiter   |
| Nitrogen - Nitrate (as N)           | CALC            | 4369507 | N/A        | 2016/02/09    | Automated Statchk |
| Phenols (4-AAP)                     | TECH            | 4378919 | N/A        | 2016/02/11    | Cliff Raymond     |
| pH                                  | AT              | 4371214 | N/A        | 2016/02/05    | Tiffany Morash    |
| Phosphorus - ortho                  | KONE            | 4373787 | N/A        | 2016/02/08    | Arlene Rossiter   |
| Sat. pH and Langelier Index (@ 20C) | CALC            | 4369557 | N/A        | 2016/02/09    | Automated Statchk |
| Sat. pH and Langelier Index (@ 4C)  | CALC            | 4369558 | N/A        | 2016/02/09    | Automated Statchk |
| Reactive Silica                     | KONE            | 4373783 | N/A        | 2016/02/09    | Arlene Rossiter   |
| Sulphate                            | KONE            | 4373781 | N/A        | 2016/02/09    | Arlene Rossiter   |
| Tannins & Lignins                   | SPEC            | 4378738 | N/A        | 2016/02/11    | Birenkumar Patel  |
| Total Dissolved Solids (TDS calc)   | CALC            | 4369559 | N/A        | 2016/02/10    | Automated Statchk |
| Nitrogen TKN - water (as N)         | KONE            | 4373737 | 2016/02/08 | 2016/02/09    | Nancy Rogers      |
| Organic carbon - Total (TOC)        | TECH            | 4373963 | N/A        | 2016/02/08    | Soraya Merchant   |
| Phosphorus Total Colourimetry       | KONE            | 4369956 | 2016/02/04 | 2016/02/08    | Arlene Rossiter   |
| Total Suspended Solids              | BAL             | 4373700 | 2016/02/08 | 2016/02/10    | Leslie Power      |
| Turbidity                           | TURB            | 4371365 | N/A        | 2016/02/05    | Tiffany Morash    |
| Volatile Organic Compounds in Water | HS/MS           | 4376377 | N/A        | 2016/02/11    | Shawn Helmkey     |

**Maxxam ID:** BUC656 Dup  
**Sample ID:** SW1  
**Matrix:** Water

**Collected:** 2016/02/02  
**Shipped:**  
**Received:** 2016/02/03

| Test Description             | Instrumentation | Batch   | Extracted | Date Analyzed | Analyst         |
|------------------------------|-----------------|---------|-----------|---------------|-----------------|
| Alkalinity                   | KONE            | 4373775 | N/A       | 2016/02/09    | Arlene Rossiter |
| Chloride                     | KONE            | 4373780 | N/A       | 2016/02/08    | Arlene Rossiter |
| Colour                       | KONE            | 4373786 | N/A       | 2016/02/08    | Arlene Rossiter |
| Nitrogen - Nitrate + Nitrite | KONE            | 4373790 | N/A       | 2016/02/09    | Soraya Merchant |
| Nitrogen - Nitrite           | KONE            | 4373795 | N/A       | 2016/02/08    | Arlene Rossiter |
| Phosphorus - ortho           | KONE            | 4373787 | N/A       | 2016/02/08    | Arlene Rossiter |
| Reactive Silica              | KONE            | 4373783 | N/A       | 2016/02/09    | Arlene Rossiter |
| Sulphate                     | KONE            | 4373781 | N/A       | 2016/02/09    | Arlene Rossiter |

**Maxxam ID:** BUC657  
**Sample ID:** SW2  
**Matrix:** Water

**Collected:** 2016/02/02  
**Shipped:**  
**Received:** 2016/02/03

| Test Description                     | Instrumentation | Batch   | Extracted  | Date Analyzed | Analyst           |
|--------------------------------------|-----------------|---------|------------|---------------|-------------------|
| Carbonate, Bicarbonate and Hydroxide | CALC            | 4369552 | N/A        | 2016/02/05    | Automated Statchk |
| Alkalinity                           | KONE            | 4373775 | N/A        | 2016/02/09    | Arlene Rossiter   |
| Carbonaceous BOD                     | SKAL/DO         | 4369645 | 2016/02/04 | 2016/02/09    | Zanxin Zhou       |
| Chloride                             | KONE            | 4373780 | N/A        | 2016/02/08    | Arlene Rossiter   |
| Chemical Oxygen Demand (COD)         | SPEC            | 4378118 | N/A        | 2016/02/12    | Zanxin Zhou       |

## TEST SUMMARY

**Maxxam ID:** BUC657  
**Sample ID:** SW2  
**Matrix:** Water

**Collected:** 2016/02/02  
**Shipped:**  
**Received:** 2016/02/03

| Test Description                            | Instrumentation | Batch   | Extracted  | Date Analyzed | Analyst           |
|---------------------------------------------|-----------------|---------|------------|---------------|-------------------|
| Colour                                      | KONE            | 4373786 | N/A        | 2016/02/08    | Arlene Rossiter   |
| Conductance - water                         | AT              | 4371213 | N/A        | 2016/02/05    | Tiffany Morash    |
| Hardness (calculated as CaCO <sub>3</sub> ) |                 | 4369553 | N/A        | 2016/02/09    | Automated Statchk |
| Mercury - Total (CVAA,LL)                   | CV/AA           | 4375116 | 2016/02/09 | 2016/02/10    | Virginia Wadden   |
| Metals Water Total MS                       | CICP/MS         | 4373494 | 2016/02/08 | 2016/02/09    | Bryon Angevine    |
| Ion Balance (% Difference)                  | CALC            | 4369554 | N/A        | 2016/02/10    | Automated Statchk |
| Anion and Cation Sum                        | CALC            | 4369555 | N/A        | 2016/02/10    | Automated Statchk |
| Nitrogen Ammonia - water                    | KONE            | 4375798 | N/A        | 2016/02/09    | Nancy Rogers      |
| Nitrogen - Nitrate + Nitrite                | KONE            | 4373790 | N/A        | 2016/02/09    | Soraya Merchant   |
| Nitrogen - Nitrite                          | KONE            | 4373795 | N/A        | 2016/02/08    | Arlene Rossiter   |
| Nitrogen - Nitrate (as N)                   | CALC            | 4369507 | N/A        | 2016/02/09    | Automated Statchk |
| Phenols (4-AAP)                             | TECH            | 4378919 | N/A        | 2016/02/11    | Cliff Raymond     |
| pH                                          | AT              | 4371214 | N/A        | 2016/02/05    | Tiffany Morash    |
| Phosphorus - ortho                          | KONE            | 4373787 | N/A        | 2016/02/08    | Arlene Rossiter   |
| Sat. pH and Langelier Index (@ 20C)         | CALC            | 4369557 | N/A        | 2016/02/09    | Automated Statchk |
| Sat. pH and Langelier Index (@ 4C)          | CALC            | 4369558 | N/A        | 2016/02/09    | Automated Statchk |
| Reactive Silica                             | KONE            | 4373783 | N/A        | 2016/02/09    | Arlene Rossiter   |
| Sulphate                                    | KONE            | 4373781 | N/A        | 2016/02/09    | Arlene Rossiter   |
| Tannins & Lignins                           | SPEC            | 4378738 | N/A        | 2016/02/11    | Birenkumar Patel  |
| Total Dissolved Solids (TDS calc)           | CALC            | 4369559 | N/A        | 2016/02/10    | Automated Statchk |
| Nitrogen TKN - water (as N)                 | KONE            | 4373737 | 2016/02/08 | 2016/02/09    | Nancy Rogers      |
| Organic carbon - Total (TOC)                | TECH            | 4373963 | N/A        | 2016/02/08    | Soraya Merchant   |
| Phosphorus Total Colourimetry               | KONE            | 4369956 | 2016/02/04 | 2016/02/08    | Arlene Rossiter   |
| Total Suspended Solids                      | BAL             | 4373700 | 2016/02/08 | 2016/02/10    | Leslie Power      |
| Turbidity                                   | TURB            | 4371365 | N/A        | 2016/02/05    | Tiffany Morash    |
| Volatile Organic Compounds in Water         | HS/MS           | 4376377 | N/A        | 2016/02/11    | Shawn Helmkey     |

**Maxxam ID:** BUC658  
**Sample ID:** SW3  
**Matrix:** Water

**Collected:** 2016/02/02  
**Shipped:**  
**Received:** 2016/02/03

| Test Description                            | Instrumentation | Batch   | Extracted  | Date Analyzed | Analyst           |
|---------------------------------------------|-----------------|---------|------------|---------------|-------------------|
| Carbonate, Bicarbonate and Hydroxide        | CALC            | 4369552 | N/A        | 2016/02/05    | Automated Statchk |
| Alkalinity                                  | KONE            | 4373775 | N/A        | 2016/02/09    | Arlene Rossiter   |
| Carbonaceous BOD                            | SKAL/DO         | 4369645 | 2016/02/04 | 2016/02/09    | Zanxin Zhou       |
| Chloride                                    | KONE            | 4373780 | N/A        | 2016/02/08    | Arlene Rossiter   |
| Chemical Oxygen Demand (COD)                | SPEC            | 4378118 | N/A        | 2016/02/12    | Zanxin Zhou       |
| Colour                                      | KONE            | 4373786 | N/A        | 2016/02/08    | Arlene Rossiter   |
| Conductance - water                         | AT              | 4371213 | N/A        | 2016/02/05    | Tiffany Morash    |
| Hardness (calculated as CaCO <sub>3</sub> ) |                 | 4369553 | N/A        | 2016/02/09    | Automated Statchk |
| Mercury - Total (CVAA,LL)                   | CV/AA           | 4375116 | 2016/02/09 | 2016/02/10    | Virginia Wadden   |
| Metals Water Total MS                       | CICP/MS         | 4373494 | 2016/02/08 | 2016/02/09    | Bryon Angevine    |
| Ion Balance (% Difference)                  | CALC            | 4369554 | N/A        | 2016/02/10    | Automated Statchk |
| Anion and Cation Sum                        | CALC            | 4369555 | N/A        | 2016/02/10    | Automated Statchk |
| Nitrogen Ammonia - water                    | KONE            | 4375798 | N/A        | 2016/02/09    | Nancy Rogers      |

Maxxam Job #: B622733  
Report Date: 2016/02/17

Englobe Corp.  
Client Project #: 21347  
Sampler Initials: LL

## TEST SUMMARY

**Maxxam ID:** BUC658  
**Sample ID:** SW3  
**Matrix:** Water

**Collected:** 2016/02/02  
**Shipped:**  
**Received:** 2016/02/03

| Test Description                    | Instrumentation | Batch   | Extracted  | Date Analyzed | Analyst           |
|-------------------------------------|-----------------|---------|------------|---------------|-------------------|
| Nitrogen - Nitrate + Nitrite        | KONE            | 4373790 | N/A        | 2016/02/09    | Soraya Merchant   |
| Nitrogen - Nitrite                  | KONE            | 4373795 | N/A        | 2016/02/08    | Arlene Rossiter   |
| Nitrogen - Nitrate (as N)           | CALC            | 4369507 | N/A        | 2016/02/09    | Automated Statchk |
| Phenols (4-AAP)                     | TECH            | 4378919 | N/A        | 2016/02/11    | Cliff Raymond     |
| pH                                  | AT              | 4371214 | N/A        | 2016/02/05    | Tiffany Morash    |
| Phosphorus - ortho                  | KONE            | 4373787 | N/A        | 2016/02/08    | Arlene Rossiter   |
| Sat. pH and Langelier Index (@ 20C) | CALC            | 4369557 | N/A        | 2016/02/10    | Automated Statchk |
| Sat. pH and Langelier Index (@ 4C)  | CALC            | 4369558 | N/A        | 2016/02/10    | Automated Statchk |
| Reactive Silica                     | KONE            | 4373783 | N/A        | 2016/02/09    | Arlene Rossiter   |
| Sulphate                            | KONE            | 4373781 | N/A        | 2016/02/09    | Arlene Rossiter   |
| Tannins & Lignins                   | SPEC            | 4378738 | N/A        | 2016/02/11    | Birenkumar Patel  |
| Total Dissolved Solids (TDS calc)   | CALC            | 4369559 | N/A        | 2016/02/10    | Automated Statchk |
| Nitrogen TKN - water (as N)         | KONE            | 4373737 | 2016/02/08 | 2016/02/09    | Nancy Rogers      |
| Organic carbon - Total (TOC)        | TECH            | 4373963 | N/A        | 2016/02/08    | Soraya Merchant   |
| Phosphorus Total Colourimetry       | KONE            | 4369956 | 2016/02/04 | 2016/02/08    | Arlene Rossiter   |
| Total Suspended Solids              | BAL             | 4373700 | 2016/02/08 | 2016/02/10    | Leslie Power      |
| Turbidity                           | TURB            | 4371365 | N/A        | 2016/02/05    | Tiffany Morash    |
| Volatile Organic Compounds in Water | HS/MS           | 4376377 | N/A        | 2016/02/11    | Shawn Helmkey     |

**Maxxam ID:** BUC658 Dup  
**Sample ID:** SW3  
**Matrix:** Water

**Collected:** 2016/02/02  
**Shipped:**  
**Received:** 2016/02/03

| Test Description              | Instrumentation | Batch   | Extracted  | Date Analyzed | Analyst         |
|-------------------------------|-----------------|---------|------------|---------------|-----------------|
| Phosphorus Total Colourimetry | KONE            | 4369956 | 2016/02/05 | 2016/02/08    | Arlene Rossiter |
| Total Suspended Solids        | BAL             | 4373700 | 2016/02/10 | 2016/02/10    | Leslie Power    |



## GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

|           |       |
|-----------|-------|
| Package 1 | 1.7°C |
| Package 2 | 2.0°C |
| Package 3 | 1.7°C |

Revised report: Re-issued to include full VOC scan as per Lisa L. 2016/02/17

Sample BUC621-01 : Total Suspended Solids: Dilution required, rework analysis conducted past hold time.

Poor RCap Ion Balance due to sample matrix. Excess cations due to presence of turbidity.

Sample BUC623-01 : RCap Ion Balance acceptable. Anion/cation agreement within 0.2 meq/L.

Sample BUC624-01 : Poor RCap Ion Balance due to sample matrix.

Sample BUC625-01 : NH<sub>4</sub> vs TKN: Statistically, there is no significant difference between the values.

Sample BUC627-01 : RCap Ion Balance acceptable. Anion/cation agreement within 0.2 meq/L.

Sample BUC628-01 : RCap Ion Balance acceptable. Anion/cation agreement within 0.2 meq/L.

Sample BUC629-01 : Poor RCap Ion Balance due to sample matrix.

Sample BUC657-01 : RCap Ion Balance acceptable. Anion/cation agreement within 0.2 meq/L.

Sample BUC658-01 : RCap Ion Balance acceptable. Anion/cation agreement within 0.2 meq/L.

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

### QUALITY ASSURANCE REPORT

| QA/QC   | Batch | Init | QC Type                 | Parameter             | Date Analyzed | Value  | % Recovery | UNITS | QC Limits |
|---------|-------|------|-------------------------|-----------------------|---------------|--------|------------|-------|-----------|
| 4369645 | ZZH   |      | QC Standard             | Carbonaceous BOD      | 2016/02/09    |        | 102        | %     | 80 - 120  |
| 4369645 | ZZH   |      | Spiked Blank            | Carbonaceous BOD      | 2016/02/09    |        | 94         | %     | 80 - 120  |
| 4369645 | ZZH   |      | Method Blank            | Carbonaceous BOD      | 2016/02/09    | <2.0   |            | mg/L  |           |
| 4369645 | ZZH   |      | RPD - Sample/Sample Dup | Carbonaceous BOD      | 2016/02/09    | NC     |            | %     | 25        |
| 4369926 | WVA   |      | Matrix Spike            | Total Mercury (Hg)    | 2016/02/05    |        | 97         | %     | 80 - 120  |
| 4369926 | WVA   |      | Spiked Blank            | Total Mercury (Hg)    | 2016/02/05    |        | 101        | %     | 80 - 120  |
| 4369926 | WVA   |      | Method Blank            | Total Mercury (Hg)    | 2016/02/05    | <0.013 |            | ug/L  |           |
| 4369926 | WVA   |      | RPD - Sample/Sample Dup | Total Mercury (Hg)    | 2016/02/05    | NC     |            | %     | 20        |
| 4369948 | ARS   |      | Matrix Spike            | Total Phosphorus      | 2016/02/08    |        | 103        | %     | 80 - 120  |
| 4369948 | ARS   |      | Spiked Blank            | Total Phosphorus      | 2016/02/08    |        | 101        | %     | 80 - 120  |
| 4369948 | ARS   |      | Method Blank            | Total Phosphorus      | 2016/02/08    | <0.020 |            | mg/L  |           |
| 4369948 | ARS   |      | RPD - Sample/Sample Dup | Total Phosphorus      | 2016/02/08    | NC     |            | %     | 25        |
| 4369956 | ARS   |      | Matrix Spike(BUC658)    | Total Phosphorus      | 2016/02/08    |        | 109        | %     | 80 - 120  |
| 4369956 | ARS   |      | Spiked Blank            | Total Phosphorus      | 2016/02/08    |        | 97         | %     | 80 - 120  |
| 4369956 | ARS   |      | Method Blank            | Total Phosphorus      | 2016/02/08    | <0.020 |            | mg/L  |           |
| 4369956 | ARS   |      | RPD - Sample/Sample Dup | Total Phosphorus      | 2016/02/08    | 3.0    |            | %     | 25        |
| 4371212 | BAN   |      | Matrix Spike            | Total Aluminum (Al)   | 2016/02/05    |        | 97         | %     | 80 - 120  |
|         |       |      |                         | Total Antimony (Sb)   | 2016/02/05    |        | 105        | %     | 80 - 120  |
|         |       |      |                         | Total Arsenic (As)    | 2016/02/05    |        | 95         | %     | 80 - 120  |
|         |       |      |                         | Total Barium (Ba)     | 2016/02/05    |        | 95         | %     | 80 - 120  |
|         |       |      |                         | Total Beryllium (Be)  | 2016/02/05    |        | 102        | %     | 80 - 120  |
|         |       |      |                         | Total Bismuth (Bi)    | 2016/02/05    |        | 95         | %     | 80 - 120  |
|         |       |      |                         | Total Boron (B)       | 2016/02/05    |        | NC         | %     | 80 - 120  |
|         |       |      |                         | Total Cadmium (Cd)    | 2016/02/05    |        | 96         | %     | 80 - 120  |
|         |       |      |                         | Total Calcium (Ca)    | 2016/02/05    |        | 100        | %     | 80 - 120  |
|         |       |      |                         | Total Chromium (Cr)   | 2016/02/05    |        | 94         | %     | 80 - 120  |
|         |       |      |                         | Total Cobalt (Co)     | 2016/02/05    |        | 94         | %     | 80 - 120  |
|         |       |      |                         | Total Copper (Cu)     | 2016/02/05    |        | 89         | %     | 80 - 120  |
|         |       |      |                         | Total Iron (Fe)       | 2016/02/05    |        | NC         | %     | 80 - 120  |
|         |       |      |                         | Total Lead (Pb)       | 2016/02/05    |        | 91         | %     | 80 - 120  |
|         |       |      |                         | Total Magnesium (Mg)  | 2016/02/05    |        | 103        | %     | 80 - 120  |
|         |       |      |                         | Total Manganese (Mn)  | 2016/02/05    |        | 96         | %     | 80 - 120  |
|         |       |      |                         | Total Molybdenum (Mo) | 2016/02/05    |        | NC         | %     | 80 - 120  |
|         |       |      |                         | Total Nickel (Ni)     | 2016/02/05    |        | 89         | %     | 80 - 120  |
|         |       |      |                         | Total Phosphorus (P)  | 2016/02/05    |        | 103        | %     | 80 - 120  |
|         |       |      |                         | Total Potassium (K)   | 2016/02/05    |        | NC         | %     | 80 - 120  |
|         |       |      |                         | Total Selenium (Se)   | 2016/02/05    |        | 93         | %     | 80 - 120  |
|         |       |      |                         | Total Silver (Ag)     | 2016/02/05    |        | 97         | %     | 80 - 120  |
|         |       |      |                         | Total Sodium (Na)     | 2016/02/05    |        | NC         | %     | 80 - 120  |
|         |       |      |                         | Total Strontium (Sr)  | 2016/02/05    |        | NC         | %     | 80 - 120  |
|         |       |      |                         | Total Thallium (Tl)   | 2016/02/05    |        | 94         | %     | 80 - 120  |
|         |       |      |                         | Total Tin (Sn)        | 2016/02/05    |        | 107        | %     | 80 - 120  |
|         |       |      |                         | Total Titanium (Ti)   | 2016/02/05    |        | 104        | %     | 80 - 120  |
|         |       |      |                         | Total Uranium (U)     | 2016/02/05    |        | 104        | %     | 80 - 120  |
|         |       |      |                         | Total Vanadium (V)    | 2016/02/05    |        | 98         | %     | 80 - 120  |
|         |       |      |                         | Total Zinc (Zn)       | 2016/02/05    |        | 91         | %     | 80 - 120  |
| 4371212 | BAN   |      | Spiked Blank            | Total Aluminum (Al)   | 2016/02/05    |        | 96         | %     | 80 - 120  |
|         |       |      |                         | Total Antimony (Sb)   | 2016/02/05    |        | 100        | %     | 80 - 120  |
|         |       |      |                         | Total Arsenic (As)    | 2016/02/05    |        | 93         | %     | 80 - 120  |
|         |       |      |                         | Total Barium (Ba)     | 2016/02/05    |        | 93         | %     | 80 - 120  |
|         |       |      |                         | Total Beryllium (Be)  | 2016/02/05    |        | 98         | %     | 80 - 120  |
|         |       |      |                         | Total Bismuth (Bi)    | 2016/02/05    |        | 98         | %     | 80 - 120  |
|         |       |      |                         | Total Boron (B)       | 2016/02/05    |        | 99         | %     | 80 - 120  |

### QUALITY ASSURANCE REPORT(CONT'D)

| QA/QC   |      |              |                       | Date       |        | %        |       |           |
|---------|------|--------------|-----------------------|------------|--------|----------|-------|-----------|
| Batch   | Init | QC Type      | Parameter             | Analyzed   | Value  | Recovery | UNITS | QC Limits |
|         |      |              | Total Cadmium (Cd)    | 2016/02/05 |        | 98       | %     | 80 - 120  |
|         |      |              | Total Calcium (Ca)    | 2016/02/05 |        | 98       | %     | 80 - 120  |
|         |      |              | Total Chromium (Cr)   | 2016/02/05 |        | 94       | %     | 80 - 120  |
|         |      |              | Total Cobalt (Co)     | 2016/02/05 |        | 98       | %     | 80 - 120  |
|         |      |              | Total Copper (Cu)     | 2016/02/05 |        | 97       | %     | 80 - 120  |
|         |      |              | Total Iron (Fe)       | 2016/02/05 |        | 100      | %     | 80 - 120  |
|         |      |              | Total Lead (Pb)       | 2016/02/05 |        | 94       | %     | 80 - 120  |
|         |      |              | Total Magnesium (Mg)  | 2016/02/05 |        | 100      | %     | 80 - 120  |
|         |      |              | Total Manganese (Mn)  | 2016/02/05 |        | 95       | %     | 80 - 120  |
|         |      |              | Total Molybdenum (Mo) | 2016/02/05 |        | 101      | %     | 80 - 120  |
|         |      |              | Total Nickel (Ni)     | 2016/02/05 |        | 94       | %     | 80 - 120  |
|         |      |              | Total Phosphorus (P)  | 2016/02/05 |        | 103      | %     | 80 - 120  |
|         |      |              | Total Potassium (K)   | 2016/02/05 |        | 100      | %     | 80 - 120  |
|         |      |              | Total Selenium (Se)   | 2016/02/05 |        | 97       | %     | 80 - 120  |
|         |      |              | Total Silver (Ag)     | 2016/02/05 |        | 99       | %     | 80 - 120  |
|         |      |              | Total Sodium (Na)     | 2016/02/05 |        | 98       | %     | 80 - 120  |
|         |      |              | Total Strontium (Sr)  | 2016/02/05 |        | 92       | %     | 80 - 120  |
|         |      |              | Total Thallium (Tl)   | 2016/02/05 |        | 97       | %     | 80 - 120  |
|         |      |              | Total Tin (Sn)        | 2016/02/05 |        | 101      | %     | 80 - 120  |
|         |      |              | Total Titanium (Ti)   | 2016/02/05 |        | 96       | %     | 80 - 120  |
|         |      |              | Total Uranium (U)     | 2016/02/05 |        | 101      | %     | 80 - 120  |
|         |      |              | Total Vanadium (V)    | 2016/02/05 |        | 94       | %     | 80 - 120  |
|         |      |              | Total Zinc (Zn)       | 2016/02/05 |        | 97       | %     | 80 - 120  |
| 4371212 | BAN  | Method Blank | Total Aluminum (Al)   | 2016/02/05 | <5.0   |          | ug/L  |           |
|         |      |              | Total Antimony (Sb)   | 2016/02/05 | <1.0   |          | ug/L  |           |
|         |      |              | Total Arsenic (As)    | 2016/02/05 | <1.0   |          | ug/L  |           |
|         |      |              | Total Barium (Ba)     | 2016/02/05 | <1.0   |          | ug/L  |           |
|         |      |              | Total Beryllium (Be)  | 2016/02/05 | <1.0   |          | ug/L  |           |
|         |      |              | Total Bismuth (Bi)    | 2016/02/05 | <2.0   |          | ug/L  |           |
|         |      |              | Total Boron (B)       | 2016/02/05 | <50    |          | ug/L  |           |
|         |      |              | Total Cadmium (Cd)    | 2016/02/05 | <0.010 |          | ug/L  |           |
|         |      |              | Total Calcium (Ca)    | 2016/02/05 | <100   |          | ug/L  |           |
|         |      |              | Total Chromium (Cr)   | 2016/02/05 | <1.0   |          | ug/L  |           |
|         |      |              | Total Cobalt (Co)     | 2016/02/05 | <0.40  |          | ug/L  |           |
|         |      |              | Total Copper (Cu)     | 2016/02/05 | <2.0   |          | ug/L  |           |
|         |      |              | Total Iron (Fe)       | 2016/02/05 | <50    |          | ug/L  |           |
|         |      |              | Total Lead (Pb)       | 2016/02/05 | <0.50  |          | ug/L  |           |
|         |      |              | Total Magnesium (Mg)  | 2016/02/05 | <100   |          | ug/L  |           |
|         |      |              | Total Manganese (Mn)  | 2016/02/05 | <2.0   |          | ug/L  |           |
|         |      |              | Total Molybdenum (Mo) | 2016/02/05 | <2.0   |          | ug/L  |           |
|         |      |              | Total Nickel (Ni)     | 2016/02/05 | <2.0   |          | ug/L  |           |
|         |      |              | Total Phosphorus (P)  | 2016/02/05 | <100   |          | ug/L  |           |
|         |      |              | Total Potassium (K)   | 2016/02/05 | <100   |          | ug/L  |           |
|         |      |              | Total Selenium (Se)   | 2016/02/05 | <1.0   |          | ug/L  |           |
|         |      |              | Total Silver (Ag)     | 2016/02/05 | <0.10  |          | ug/L  |           |
|         |      |              | Total Sodium (Na)     | 2016/02/05 | <100   |          | ug/L  |           |
|         |      |              | Total Strontium (Sr)  | 2016/02/05 | <2.0   |          | ug/L  |           |
|         |      |              | Total Thallium (Tl)   | 2016/02/05 | <0.10  |          | ug/L  |           |
|         |      |              | Total Tin (Sn)        | 2016/02/05 | <2.0   |          | ug/L  |           |
|         |      |              | Total Titanium (Ti)   | 2016/02/05 | <2.0   |          | ug/L  |           |
|         |      |              | Total Uranium (U)     | 2016/02/05 | <0.10  |          | ug/L  |           |
|         |      |              | Total Vanadium (V)    | 2016/02/05 | <2.0   |          | ug/L  |           |
|         |      |              | Total Zinc (Zn)       | 2016/02/05 | <5.0   |          | ug/L  |           |

### QUALITY ASSURANCE REPORT(CONT'D)

| QA/QC   | Batch | Init                    | QC Type               | Parameter  | Date Analyzed   | Value | % Recovery | UNITS | QC Limits |
|---------|-------|-------------------------|-----------------------|------------|-----------------|-------|------------|-------|-----------|
| 4371212 | BAN   | RPD - Sample/Sample Dup | Total Aluminum (Al)   | 2016/02/08 | NC              |       |            | %     | 20        |
|         |       |                         | Total Antimony (Sb)   | 2016/02/08 | NC              |       |            | %     | 20        |
|         |       |                         | Total Arsenic (As)    | 2016/02/08 | NC              |       |            | %     | 20        |
|         |       |                         | Total Barium (Ba)     | 2016/02/08 | 0.15            |       |            | %     | 20        |
|         |       |                         | Total Beryllium (Be)  | 2016/02/08 | NC              |       |            | %     | 20        |
|         |       |                         | Total Bismuth (Bi)    | 2016/02/08 | NC              |       |            | %     | 20        |
|         |       |                         | Total Boron (B)       | 2016/02/08 | 1.6             |       |            | %     | 20        |
|         |       |                         | Total Cadmium (Cd)    | 2016/02/08 | NC              |       |            | %     | 20        |
|         |       |                         | Total Calcium (Ca)    | 2016/02/08 | 0.48            |       |            | %     | 20        |
|         |       |                         | Total Chromium (Cr)   | 2016/02/08 | NC              |       |            | %     | 20        |
|         |       |                         | Total Cobalt (Co)     | 2016/02/08 | NC              |       |            | %     | 20        |
|         |       |                         | Total Copper (Cu)     | 2016/02/08 | NC              |       |            | %     | 20        |
|         |       |                         | Total Iron (Fe)       | 2016/02/08 | 2.7             |       |            | %     | 20        |
|         |       |                         | Total Lead (Pb)       | 2016/02/08 | NC              |       |            | %     | 20        |
|         |       |                         | Total Magnesium (Mg)  | 2016/02/08 | 1.4             |       |            | %     | 20        |
|         |       |                         | Total Manganese (Mn)  | 2016/02/08 | 2.4             |       |            | %     | 20        |
|         |       |                         | Total Molybdenum (Mo) | 2016/02/08 | 2.1             |       |            | %     | 20        |
|         |       |                         | Total Nickel (Ni)     | 2016/02/08 | NC              |       |            | %     | 20        |
|         |       |                         | Total Phosphorus (P)  | 2016/02/08 | NC              |       |            | %     | 20        |
|         |       |                         | Total Potassium (K)   | 2016/02/08 | 1.3             |       |            | %     | 20        |
|         |       |                         | Total Selenium (Se)   | 2016/02/08 | NC              |       |            | %     | 20        |
|         |       |                         | Total Silver (Ag)     | 2016/02/08 | NC              |       |            | %     | 20        |
|         |       |                         | Total Sodium (Na)     | 2016/02/08 | 2.4             |       |            | %     | 20        |
|         |       |                         | Total Strontium (Sr)  | 2016/02/08 | 1.9             |       |            | %     | 20        |
|         |       |                         | Total Thallium (Tl)   | 2016/02/08 | NC              |       |            | %     | 20        |
|         |       |                         | Total Tin (Sn)        | 2016/02/08 | NC              |       |            | %     | 20        |
|         |       |                         | Total Titanium (Ti)   | 2016/02/08 | NC              |       |            | %     | 20        |
|         |       |                         | Total Uranium (U)     | 2016/02/08 | 3.1             |       |            | %     | 20        |
|         |       |                         | Total Vanadium (V)    | 2016/02/08 | NC              |       |            | %     | 20        |
|         |       |                         | Total Zinc (Zn)       | 2016/02/08 | NC              |       |            | %     | 20        |
| 4371213 | TMO   | Spiked Blank            | Conductivity          | 2016/02/05 |                 |       | 98         | %     | 80 - 120  |
| 4371213 | TMO   | Method Blank            | Conductivity          | 2016/02/05 | 1.0,<br>RDL=1.0 |       |            | uS/cm |           |
| 4371213 | TMO   | RPD - Sample/Sample Dup | Conductivity          | 2016/02/05 | 1.0             |       |            | %     | 25        |
| 4371214 | TMO   | QC Standard             | pH                    | 2016/02/05 |                 |       | 100        | %     | 97 - 103  |
| 4371214 | TMO   | RPD - Sample/Sample Dup | pH                    | 2016/02/05 | 0.93            |       |            | %     | N/A       |
| 4371349 | BAN   | Matrix Spike            | Total Aluminum (Al)   | 2016/02/05 |                 |       | NC         | %     | 80 - 120  |
|         |       |                         | Total Antimony (Sb)   | 2016/02/05 |                 |       | 102        | %     | 80 - 120  |
|         |       |                         | Total Arsenic (As)    | 2016/02/05 |                 |       | 97         | %     | 80 - 120  |
|         |       |                         | Total Barium (Ba)     | 2016/02/05 |                 |       | 96         | %     | 80 - 120  |
|         |       |                         | Total Beryllium (Be)  | 2016/02/05 |                 |       | 102        | %     | 80 - 120  |
|         |       |                         | Total Bismuth (Bi)    | 2016/02/05 |                 |       | 100        | %     | 80 - 120  |
|         |       |                         | Total Boron (B)       | 2016/02/05 |                 |       | 102        | %     | 80 - 120  |
|         |       |                         | Total Cadmium (Cd)    | 2016/02/05 |                 |       | 101        | %     | 80 - 120  |
|         |       |                         | Total Calcium (Ca)    | 2016/02/05 |                 |       | NC         | %     | 80 - 120  |
|         |       |                         | Total Chromium (Cr)   | 2016/02/05 |                 |       | 97         | %     | 80 - 120  |
|         |       |                         | Total Cobalt (Co)     | 2016/02/05 |                 |       | 99         | %     | 80 - 120  |
|         |       |                         | Total Copper (Cu)     | 2016/02/05 |                 |       | 99         | %     | 80 - 120  |
|         |       |                         | Total Iron (Fe)       | 2016/02/05 |                 |       | 103        | %     | 80 - 120  |
|         |       |                         | Total Lead (Pb)       | 2016/02/05 |                 |       | 96         | %     | 80 - 120  |
|         |       |                         | Total Magnesium (Mg)  | 2016/02/05 |                 |       | 100        | %     | 80 - 120  |
|         |       |                         | Total Manganese (Mn)  | 2016/02/05 |                 |       | NC         | %     | 80 - 120  |
|         |       |                         | Total Molybdenum (Mo) | 2016/02/05 |                 |       | 104        | %     | 80 - 120  |

### QUALITY ASSURANCE REPORT(CONT'D)

| QA/QC   | Batch | Init         | QC Type | Parameter             | Date Analyzed | Value  | % Recovery | UNITS | QC Limits |
|---------|-------|--------------|---------|-----------------------|---------------|--------|------------|-------|-----------|
| 4371349 | BAN   | Spiked Blank |         | Total Nickel (Ni)     | 2016/02/05    |        | 96         | %     | 80 - 120  |
|         |       |              |         | Total Phosphorus (P)  | 2016/02/05    |        | 104        | %     | 80 - 120  |
|         |       |              |         | Total Potassium (K)   | 2016/02/05    |        | 101        | %     | 80 - 120  |
|         |       |              |         | Total Selenium (Se)   | 2016/02/05    |        | 100        | %     | 80 - 120  |
|         |       |              |         | Total Silver (Ag)     | 2016/02/05    |        | 104        | %     | 80 - 120  |
|         |       |              |         | Total Sodium (Na)     | 2016/02/05    |        | 99         | %     | 80 - 120  |
|         |       |              |         | Total Strontium (Sr)  | 2016/02/05    |        | 95         | %     | 80 - 120  |
|         |       |              |         | Total Thallium (Tl)   | 2016/02/05    |        | 99         | %     | 80 - 120  |
|         |       |              |         | Total Tin (Sn)        | 2016/02/05    |        | 103        | %     | 80 - 120  |
|         |       |              |         | Total Titanium (Ti)   | 2016/02/05    |        | 100        | %     | 80 - 120  |
|         |       |              |         | Total Uranium (U)     | 2016/02/05    |        | 106        | %     | 80 - 120  |
|         |       |              |         | Total Vanadium (V)    | 2016/02/05    |        | 97         | %     | 80 - 120  |
|         |       |              |         | Total Zinc (Zn)       | 2016/02/05    |        | 100        | %     | 80 - 120  |
|         |       |              |         | Total Aluminum (Al)   | 2016/02/05    |        | 99         | %     | 80 - 120  |
|         |       |              |         | Total Antimony (Sb)   | 2016/02/05    |        | 102        | %     | 80 - 120  |
|         |       |              |         | Total Arsenic (As)    | 2016/02/05    |        | 96         | %     | 80 - 120  |
|         |       |              |         | Total Barium (Ba)     | 2016/02/05    |        | 97         | %     | 80 - 120  |
|         |       |              |         | Total Beryllium (Be)  | 2016/02/05    |        | 100        | %     | 80 - 120  |
|         |       |              |         | Total Bismuth (Bi)    | 2016/02/05    |        | 101        | %     | 80 - 120  |
|         |       |              |         | Total Boron (B)       | 2016/02/05    |        | 101        | %     | 80 - 120  |
|         |       |              |         | Total Cadmium (Cd)    | 2016/02/05    |        | 99         | %     | 80 - 120  |
|         |       |              |         | Total Calcium (Ca)    | 2016/02/05    |        | 101        | %     | 80 - 120  |
|         |       |              |         | Total Chromium (Cr)   | 2016/02/05    |        | 96         | %     | 80 - 120  |
|         |       |              |         | Total Cobalt (Co)     | 2016/02/05    |        | 99         | %     | 80 - 120  |
|         |       |              |         | Total Copper (Cu)     | 2016/02/05    |        | 99         | %     | 80 - 120  |
|         |       |              |         | Total Iron (Fe)       | 2016/02/05    |        | 103        | %     | 80 - 120  |
|         |       |              |         | Total Lead (Pb)       | 2016/02/05    |        | 97         | %     | 80 - 120  |
|         |       |              |         | Total Magnesium (Mg)  | 2016/02/05    |        | 101        | %     | 80 - 120  |
|         |       |              |         | Total Manganese (Mn)  | 2016/02/05    |        | 97         | %     | 80 - 120  |
|         |       |              |         | Total Molybdenum (Mo) | 2016/02/05    |        | 103        | %     | 80 - 120  |
|         |       |              |         | Total Nickel (Ni)     | 2016/02/05    |        | 97         | %     | 80 - 120  |
|         |       |              |         | Total Phosphorus (P)  | 2016/02/05    |        | 107        | %     | 80 - 120  |
|         |       |              |         | Total Potassium (K)   | 2016/02/05    |        | 103        | %     | 80 - 120  |
|         |       |              |         | Total Selenium (Se)   | 2016/02/05    |        | 99         | %     | 80 - 120  |
|         |       |              |         | Total Silver (Ag)     | 2016/02/05    |        | 103        | %     | 80 - 120  |
|         |       |              |         | Total Sodium (Na)     | 2016/02/05    |        | 99         | %     | 80 - 120  |
|         |       |              |         | Total Strontium (Sr)  | 2016/02/05    |        | 95         | %     | 80 - 120  |
|         |       |              |         | Total Thallium (Tl)   | 2016/02/05    |        | 100        | %     | 80 - 120  |
|         |       |              |         | Total Tin (Sn)        | 2016/02/05    |        | 102        | %     | 80 - 120  |
|         |       |              |         | Total Titanium (Ti)   | 2016/02/05    |        | 98         | %     | 80 - 120  |
|         |       |              |         | Total Uranium (U)     | 2016/02/05    |        | 106        | %     | 80 - 120  |
|         |       |              |         | Total Vanadium (V)    | 2016/02/05    |        | 96         | %     | 80 - 120  |
|         |       |              |         | Total Zinc (Zn)       | 2016/02/05    |        | 100        | %     | 80 - 120  |
| 4371349 | BAN   | Method Blank |         | Total Aluminum (Al)   | 2016/02/05    | <5.0   |            | ug/L  |           |
|         |       |              |         | Total Antimony (Sb)   | 2016/02/05    | <1.0   |            | ug/L  |           |
|         |       |              |         | Total Arsenic (As)    | 2016/02/05    | <1.0   |            | ug/L  |           |
|         |       |              |         | Total Barium (Ba)     | 2016/02/05    | <1.0   |            | ug/L  |           |
|         |       |              |         | Total Beryllium (Be)  | 2016/02/05    | <1.0   |            | ug/L  |           |
|         |       |              |         | Total Bismuth (Bi)    | 2016/02/05    | <2.0   |            | ug/L  |           |
|         |       |              |         | Total Boron (B)       | 2016/02/05    | <50    |            | ug/L  |           |
|         |       |              |         | Total Cadmium (Cd)    | 2016/02/05    | <0.010 |            | ug/L  |           |
|         |       |              |         | Total Calcium (Ca)    | 2016/02/05    | <100   |            | ug/L  |           |
|         |       |              |         | Total Chromium (Cr)   | 2016/02/05    | <1.0   |            | ug/L  |           |

### QUALITY ASSURANCE REPORT(CONT'D)

| QA/QC   | Batch | Init | QC Type                 | Parameter             | Date Analyzed | Value | % Recovery | UNITS | QC Limits |
|---------|-------|------|-------------------------|-----------------------|---------------|-------|------------|-------|-----------|
|         |       |      |                         | Total Cobalt (Co)     | 2016/02/05    | <0.40 |            | ug/L  |           |
|         |       |      |                         | Total Copper (Cu)     | 2016/02/05    | <2.0  |            | ug/L  |           |
|         |       |      |                         | Total Iron (Fe)       | 2016/02/05    | <50   |            | ug/L  |           |
|         |       |      |                         | Total Lead (Pb)       | 2016/02/05    | <0.50 |            | ug/L  |           |
|         |       |      |                         | Total Magnesium (Mg)  | 2016/02/05    | <100  |            | ug/L  |           |
|         |       |      |                         | Total Manganese (Mn)  | 2016/02/05    | <2.0  |            | ug/L  |           |
|         |       |      |                         | Total Molybdenum (Mo) | 2016/02/05    | <2.0  |            | ug/L  |           |
|         |       |      |                         | Total Nickel (Ni)     | 2016/02/05    | <2.0  |            | ug/L  |           |
|         |       |      |                         | Total Phosphorus (P)  | 2016/02/05    | <100  |            | ug/L  |           |
|         |       |      |                         | Total Potassium (K)   | 2016/02/05    | <100  |            | ug/L  |           |
|         |       |      |                         | Total Selenium (Se)   | 2016/02/05    | <1.0  |            | ug/L  |           |
|         |       |      |                         | Total Silver (Ag)     | 2016/02/05    | <0.10 |            | ug/L  |           |
|         |       |      |                         | Total Sodium (Na)     | 2016/02/05    | <100  |            | ug/L  |           |
|         |       |      |                         | Total Strontium (Sr)  | 2016/02/05    | <2.0  |            | ug/L  |           |
|         |       |      |                         | Total Thallium (Tl)   | 2016/02/05    | <0.10 |            | ug/L  |           |
|         |       |      |                         | Total Tin (Sn)        | 2016/02/05    | <2.0  |            | ug/L  |           |
|         |       |      |                         | Total Titanium (Ti)   | 2016/02/05    | <2.0  |            | ug/L  |           |
|         |       |      |                         | Total Uranium (U)     | 2016/02/05    | <0.10 |            | ug/L  |           |
|         |       |      |                         | Total Vanadium (V)    | 2016/02/05    | <2.0  |            | ug/L  |           |
|         |       |      |                         | Total Zinc (Zn)       | 2016/02/05    | <5.0  |            | ug/L  |           |
| 4371349 | BAN   |      | RPD - Sample/Sample Dup | Total Aluminum (Al)   | 2016/02/05    | 3.3   |            | %     | 20        |
|         |       |      |                         | Total Antimony (Sb)   | 2016/02/05    | NC    |            | %     | 20        |
|         |       |      |                         | Total Arsenic (As)    | 2016/02/05    | NC    |            | %     | 20        |
|         |       |      |                         | Total Barium (Ba)     | 2016/02/05    | 0.88  |            | %     | 20        |
|         |       |      |                         | Total Beryllium (Be)  | 2016/02/05    | NC    |            | %     | 20        |
|         |       |      |                         | Total Bismuth (Bi)    | 2016/02/05    | NC    |            | %     | 20        |
|         |       |      |                         | Total Boron (B)       | 2016/02/05    | NC    |            | %     | 20        |
|         |       |      |                         | Total Cadmium (Cd)    | 2016/02/05    | NC    |            | %     | 20        |
|         |       |      |                         | Total Calcium (Ca)    | 2016/02/05    | 2.9   |            | %     | 20        |
|         |       |      |                         | Total Chromium (Cr)   | 2016/02/05    | NC    |            | %     | 20        |
|         |       |      |                         | Total Cobalt (Co)     | 2016/02/05    | NC    |            | %     | 20        |
|         |       |      |                         | Total Copper (Cu)     | 2016/02/05    | NC    |            | %     | 20        |
|         |       |      |                         | Total Iron (Fe)       | 2016/02/05    | NC    |            | %     | 20        |
|         |       |      |                         | Total Lead (Pb)       | 2016/02/05    | NC    |            | %     | 20        |
|         |       |      |                         | Total Magnesium (Mg)  | 2016/02/05    | 1.2   |            | %     | 20        |
|         |       |      |                         | Total Manganese (Mn)  | 2016/02/05    | 1.4   |            | %     | 20        |
|         |       |      |                         | Total Molybdenum (Mo) | 2016/02/05    | NC    |            | %     | 20        |
|         |       |      |                         | Total Nickel (Ni)     | 2016/02/05    | NC    |            | %     | 20        |
|         |       |      |                         | Total Phosphorus (P)  | 2016/02/05    | NC    |            | %     | 20        |
|         |       |      |                         | Total Potassium (K)   | 2016/02/05    | NC    |            | %     | 20        |
|         |       |      |                         | Total Selenium (Se)   | 2016/02/05    | NC    |            | %     | 20        |
|         |       |      |                         | Total Silver (Ag)     | 2016/02/05    | NC    |            | %     | 20        |
|         |       |      |                         | Total Sodium (Na)     | 2016/02/05    | 0.72  |            | %     | 20        |
|         |       |      |                         | Total Strontium (Sr)  | 2016/02/05    | 4.6   |            | %     | 20        |
|         |       |      |                         | Total Thallium (Tl)   | 2016/02/05    | NC    |            | %     | 20        |
|         |       |      |                         | Total Tin (Sn)        | 2016/02/05    | NC    |            | %     | 20        |
|         |       |      |                         | Total Titanium (Ti)   | 2016/02/05    | NC    |            | %     | 20        |
|         |       |      |                         | Total Uranium (U)     | 2016/02/05    | NC    |            | %     | 20        |
|         |       |      |                         | Total Vanadium (V)    | 2016/02/05    | NC    |            | %     | 20        |
|         |       |      |                         | Total Zinc (Zn)       | 2016/02/05    | NC    |            | %     | 20        |
| 4371365 | TMO   |      | QC Standard             | Turbidity             | 2016/02/05    |       | 90         | %     | 80 - 120  |
| 4371365 | TMO   |      | Method Blank            | Turbidity             | 2016/02/05    | <0.10 |            | NTU   |           |
| 4371365 | TMO   |      | RPD - Sample/Sample Dup | Turbidity             | 2016/02/05    | NC    |            | %     | 20        |



### QUALITY ASSURANCE REPORT(CONT'D)

| QA/QC   |      |                         |                       | Date       |       | %        |       |           |
|---------|------|-------------------------|-----------------------|------------|-------|----------|-------|-----------|
| Batch   | Init | QC Type                 | Parameter             | Analyzed   | Value | Recovery | UNITS | QC Limits |
| 4371370 | TMO  | QC Standard             | Turbidity             | 2016/02/05 |       | 89       | %     | 80 - 120  |
| 4371370 | TMO  | Method Blank            | Turbidity             | 2016/02/05 | <0.10 |          | NTU   |           |
| 4371370 | TMO  | RPD - Sample/Sample Dup | Turbidity             | 2016/02/05 | 0.98  |          | %     | 20        |
| 4373494 | BAN  | Matrix Spike            | Total Aluminum (Al)   | 2016/02/09 |       | 98       | %     | 80 - 120  |
|         |      |                         | Total Antimony (Sb)   | 2016/02/09 |       | 102      | %     | 80 - 120  |
|         |      |                         | Total Arsenic (As)    | 2016/02/09 |       | 91       | %     | 80 - 120  |
|         |      |                         | Total Barium (Ba)     | 2016/02/09 |       | 93       | %     | 80 - 120  |
|         |      |                         | Total Beryllium (Be)  | 2016/02/09 |       | 91       | %     | 80 - 120  |
|         |      |                         | Total Bismuth (Bi)    | 2016/02/09 |       | 94       | %     | 80 - 120  |
|         |      |                         | Total Boron (B)       | 2016/02/09 |       | 93       | %     | 80 - 120  |
|         |      |                         | Total Cadmium (Cd)    | 2016/02/09 |       | 96       | %     | 80 - 120  |
|         |      |                         | Total Calcium (Ca)    | 2016/02/09 |       | NC       | %     | 80 - 120  |
|         |      |                         | Total Chromium (Cr)   | 2016/02/09 |       | 90       | %     | 80 - 120  |
|         |      |                         | Total Cobalt (Co)     | 2016/02/09 |       | 92       | %     | 80 - 120  |
|         |      |                         | Total Copper (Cu)     | 2016/02/09 |       | 90       | %     | 80 - 120  |
|         |      |                         | Total Iron (Fe)       | 2016/02/09 |       | 94       | %     | 80 - 120  |
|         |      |                         | Total Lead (Pb)       | 2016/02/09 |       | 93       | %     | 80 - 120  |
|         |      |                         | Total Magnesium (Mg)  | 2016/02/09 |       | NC       | %     | 80 - 120  |
|         |      |                         | Total Manganese (Mn)  | 2016/02/09 |       | NC       | %     | 80 - 120  |
|         |      |                         | Total Molybdenum (Mo) | 2016/02/09 |       | 104      | %     | 80 - 120  |
|         |      |                         | Total Nickel (Ni)     | 2016/02/09 |       | 89       | %     | 80 - 120  |
|         |      |                         | Total Phosphorus (P)  | 2016/02/09 |       | 103      | %     | 80 - 120  |
|         |      |                         | Total Potassium (K)   | 2016/02/09 |       | 100      | %     | 80 - 120  |
|         |      |                         | Total Selenium (Se)   | 2016/02/09 |       | 94       | %     | 80 - 120  |
|         |      |                         | Total Silver (Ag)     | 2016/02/09 |       | 101      | %     | 80 - 120  |
|         |      |                         | Total Sodium (Na)     | 2016/02/09 |       | 93       | %     | 80 - 120  |
|         |      |                         | Total Strontium (Sr)  | 2016/02/09 |       | NC       | %     | 80 - 120  |
|         |      |                         | Total Thallium (Tl)   | 2016/02/09 |       | 95       | %     | 80 - 120  |
|         |      |                         | Total Tin (Sn)        | 2016/02/09 |       | 103      | %     | 80 - 120  |
|         |      |                         | Total Titanium (Ti)   | 2016/02/09 |       | 94       | %     | 80 - 120  |
|         |      |                         | Total Uranium (U)     | 2016/02/09 |       | 103      | %     | 80 - 120  |
|         |      |                         | Total Vanadium (V)    | 2016/02/09 |       | 92       | %     | 80 - 120  |
|         |      |                         | Total Zinc (Zn)       | 2016/02/09 |       | NC       | %     | 80 - 120  |
| 4373494 | BAN  | Spiked Blank            | Total Aluminum (Al)   | 2016/02/09 |       | 100      | %     | 80 - 120  |
|         |      |                         | Total Antimony (Sb)   | 2016/02/09 |       | 101      | %     | 80 - 120  |
|         |      |                         | Total Arsenic (As)    | 2016/02/09 |       | 91       | %     | 80 - 120  |
|         |      |                         | Total Barium (Ba)     | 2016/02/09 |       | 92       | %     | 80 - 120  |
|         |      |                         | Total Beryllium (Be)  | 2016/02/09 |       | 92       | %     | 80 - 120  |
|         |      |                         | Total Bismuth (Bi)    | 2016/02/09 |       | 97       | %     | 80 - 120  |
|         |      |                         | Total Boron (B)       | 2016/02/09 |       | 92       | %     | 80 - 120  |
|         |      |                         | Total Cadmium (Cd)    | 2016/02/09 |       | 94       | %     | 80 - 120  |
|         |      |                         | Total Calcium (Ca)    | 2016/02/09 |       | 98       | %     | 80 - 120  |
|         |      |                         | Total Chromium (Cr)   | 2016/02/09 |       | 91       | %     | 80 - 120  |
|         |      |                         | Total Cobalt (Co)     | 2016/02/09 |       | 94       | %     | 80 - 120  |
|         |      |                         | Total Copper (Cu)     | 2016/02/09 |       | 92       | %     | 80 - 120  |
|         |      |                         | Total Iron (Fe)       | 2016/02/09 |       | 97       | %     | 80 - 120  |
|         |      |                         | Total Lead (Pb)       | 2016/02/09 |       | 94       | %     | 80 - 120  |
|         |      |                         | Total Magnesium (Mg)  | 2016/02/09 |       | 99       | %     | 80 - 120  |
|         |      |                         | Total Manganese (Mn)  | 2016/02/09 |       | 95       | %     | 80 - 120  |
|         |      |                         | Total Molybdenum (Mo) | 2016/02/09 |       | 101      | %     | 80 - 120  |
|         |      |                         | Total Nickel (Ni)     | 2016/02/09 |       | 92       | %     | 80 - 120  |
|         |      |                         | Total Phosphorus (P)  | 2016/02/09 |       | 103      | %     | 80 - 120  |
|         |      |                         | Total Potassium (K)   | 2016/02/09 |       | 99       | %     | 80 - 120  |

### QUALITY ASSURANCE REPORT(CONT'D)

| QA/QC   | Batch | Init | QC Type                 | Parameter               | Date Analyzed | Value  | % Recovery | UNITS | QC Limits |
|---------|-------|------|-------------------------|-------------------------|---------------|--------|------------|-------|-----------|
|         |       |      |                         | Total Selenium (Se)     | 2016/02/09    |        | 92         | %     | 80 - 120  |
|         |       |      |                         | Total Silver (Ag)       | 2016/02/09    |        | 100        | %     | 80 - 120  |
|         |       |      |                         | Total Sodium (Na)       | 2016/02/09    |        | 96         | %     | 80 - 120  |
|         |       |      |                         | Total Strontium (Sr)    | 2016/02/09    |        | 97         | %     | 80 - 120  |
|         |       |      |                         | Total Thallium (Tl)     | 2016/02/09    |        | 96         | %     | 80 - 120  |
|         |       |      |                         | Total Tin (Sn)          | 2016/02/09    |        | 102        | %     | 80 - 120  |
|         |       |      |                         | Total Titanium (Ti)     | 2016/02/09    |        | 94         | %     | 80 - 120  |
|         |       |      |                         | Total Uranium (U)       | 2016/02/09    |        | 103        | %     | 80 - 120  |
|         |       |      |                         | Total Vanadium (V)      | 2016/02/09    |        | 92         | %     | 80 - 120  |
|         |       |      |                         | Total Zinc (Zn)         | 2016/02/09    |        | 92         | %     | 80 - 120  |
| 4373494 | BAN   |      | Method Blank            | Total Aluminum (Al)     | 2016/02/09    | <5.0   |            | ug/L  |           |
|         |       |      |                         | Total Antimony (Sb)     | 2016/02/09    | <1.0   |            | ug/L  |           |
|         |       |      |                         | Total Arsenic (As)      | 2016/02/09    | <1.0   |            | ug/L  |           |
|         |       |      |                         | Total Barium (Ba)       | 2016/02/09    | <1.0   |            | ug/L  |           |
|         |       |      |                         | Total Beryllium (Be)    | 2016/02/09    | <1.0   |            | ug/L  |           |
|         |       |      |                         | Total Bismuth (Bi)      | 2016/02/09    | <2.0   |            | ug/L  |           |
|         |       |      |                         | Total Boron (B)         | 2016/02/09    | <50    |            | ug/L  |           |
|         |       |      |                         | Total Cadmium (Cd)      | 2016/02/09    | <0.010 |            | ug/L  |           |
|         |       |      |                         | Total Calcium (Ca)      | 2016/02/09    | <100   |            | ug/L  |           |
|         |       |      |                         | Total Chromium (Cr)     | 2016/02/09    | <1.0   |            | ug/L  |           |
|         |       |      |                         | Total Cobalt (Co)       | 2016/02/09    | <0.40  |            | ug/L  |           |
|         |       |      |                         | Total Copper (Cu)       | 2016/02/09    | <2.0   |            | ug/L  |           |
|         |       |      |                         | Total Iron (Fe)         | 2016/02/09    | <50    |            | ug/L  |           |
|         |       |      |                         | Total Lead (Pb)         | 2016/02/09    | <0.50  |            | ug/L  |           |
|         |       |      |                         | Total Magnesium (Mg)    | 2016/02/09    | <100   |            | ug/L  |           |
|         |       |      |                         | Total Manganese (Mn)    | 2016/02/09    | <2.0   |            | ug/L  |           |
|         |       |      |                         | Total Molybdenum (Mo)   | 2016/02/09    | <2.0   |            | ug/L  |           |
|         |       |      |                         | Total Nickel (Ni)       | 2016/02/09    | <2.0   |            | ug/L  |           |
|         |       |      |                         | Total Phosphorus (P)    | 2016/02/09    | <100   |            | ug/L  |           |
|         |       |      |                         | Total Potassium (K)     | 2016/02/09    | <100   |            | ug/L  |           |
|         |       |      |                         | Total Selenium (Se)     | 2016/02/09    | <1.0   |            | ug/L  |           |
|         |       |      |                         | Total Silver (Ag)       | 2016/02/09    | <0.10  |            | ug/L  |           |
|         |       |      |                         | Total Sodium (Na)       | 2016/02/09    | <100   |            | ug/L  |           |
|         |       |      |                         | Total Strontium (Sr)    | 2016/02/09    | <2.0   |            | ug/L  |           |
|         |       |      |                         | Total Thallium (Tl)     | 2016/02/09    | <0.10  |            | ug/L  |           |
|         |       |      |                         | Total Tin (Sn)          | 2016/02/09    | <2.0   |            | ug/L  |           |
|         |       |      |                         | Total Titanium (Ti)     | 2016/02/09    | <2.0   |            | ug/L  |           |
|         |       |      |                         | Total Uranium (U)       | 2016/02/09    | <0.10  |            | ug/L  |           |
|         |       |      |                         | Total Vanadium (V)      | 2016/02/09    | <2.0   |            | ug/L  |           |
|         |       |      |                         | Total Zinc (Zn)         | 2016/02/09    | <5.0   |            | ug/L  |           |
| 4373494 | BAN   |      | RPD - Sample/Sample Dup | Total Calcium (Ca)      | 2016/02/09    | 0.22   |            | %     | 20        |
|         |       |      |                         | Total Copper (Cu)       | 2016/02/09    | NC     |            | %     | 20        |
|         |       |      |                         | Total Iron (Fe)         | 2016/02/09    | NC     |            | %     | 20        |
|         |       |      |                         | Total Lead (Pb)         | 2016/02/09    | 0.44   |            | %     | 20        |
|         |       |      |                         | Total Magnesium (Mg)    | 2016/02/09    | 1.0    |            | %     | 20        |
|         |       |      |                         | Total Zinc (Zn)         | 2016/02/09    | 0.55   |            | %     | 20        |
| 4373537 | LPW   |      | QC Standard             | Total Suspended Solids  | 2016/02/09    |        | 100        | %     | 80 - 120  |
| 4373537 | LPW   |      | Method Blank            | Total Suspended Solids  | 2016/02/09    | <1.0   |            | mg/L  |           |
| 4373537 | LPW   |      | RPD - Sample/Sample Dup | Total Suspended Solids  | 2016/02/09    | 13     |            | %     | 25        |
| 4373700 | LPW   |      | QC Standard             | Total Suspended Solids  | 2016/02/10    |        | 96         | %     | 80 - 120  |
| 4373700 | LPW   |      | Method Blank            | Total Suspended Solids  | 2016/02/10    | <1.0   |            | mg/L  |           |
| 4373700 | LPW   |      | RPD - Sample/Sample Dup | Total Suspended Solids  | 2016/02/10    | 3.8    |            | %     | 25        |
| 4373731 | NRG   |      | Matrix Spike            | Total Kjeldahl Nitrogen | 2016/02/09    |        | 107        | %     | 80 - 120  |

### QUALITY ASSURANCE REPORT(CONT'D)

| QA/QC Batch | Init | QC Type                 | Parameter                                      | Date Analyzed | Value             | % Recovery | UNITS | QC Limits |
|-------------|------|-------------------------|------------------------------------------------|---------------|-------------------|------------|-------|-----------|
| 4373731     | NRG  | Spiked Blank            | Total Kjeldahl Nitrogen                        | 2016/02/09    |                   | 97         | %     | 80 - 120  |
| 4373731     | NRG  | Method Blank            | Total Kjeldahl Nitrogen                        | 2016/02/09    | 0.17,<br>RDL=0.10 |            | mg/L  |           |
| 4373731     | NRG  | RPD - Sample/Sample Dup | Total Kjeldahl Nitrogen                        | 2016/02/09    | 3.5 (1)           |            | %     | 25        |
| 4373737     | NRG  | Matrix Spike            | Total Kjeldahl Nitrogen                        | 2016/02/09    |                   | 76 (2)     | %     | 80 - 120  |
| 4373737     | NRG  | Spiked Blank            | Total Kjeldahl Nitrogen                        | 2016/02/09    |                   | 95         | %     | 80 - 120  |
| 4373737     | NRG  | Method Blank            | Total Kjeldahl Nitrogen                        | 2016/02/09    | 0.19,<br>RDL=0.10 |            | mg/L  |           |
| 4373737     | NRG  | RPD - Sample/Sample Dup | Total Kjeldahl Nitrogen                        | 2016/02/09    | NC (1)            |            | %     | 25        |
| 4373744     | ARS  | Matrix Spike            | Total Alkalinity (Total as CaCO <sub>3</sub> ) | 2016/02/09    |                   | NC         | %     | 80 - 120  |
| 4373744     | ARS  | Spiked Blank            | Total Alkalinity (Total as CaCO <sub>3</sub> ) | 2016/02/09    |                   | 104        | %     | 80 - 120  |
| 4373744     | ARS  | Method Blank            | Total Alkalinity (Total as CaCO <sub>3</sub> ) | 2016/02/09    | <5.0              |            | mg/L  |           |
| 4373744     | ARS  | RPD - Sample/Sample Dup | Total Alkalinity (Total as CaCO <sub>3</sub> ) | 2016/02/09    | 2.5               |            | %     | 25        |
| 4373752     | ARS  | Matrix Spike            | Dissolved Chloride (Cl)                        | 2016/02/08    |                   | NC         | %     | 80 - 120  |
| 4373752     | ARS  | QC Standard             | Dissolved Chloride (Cl)                        | 2016/02/08    |                   | 109        | %     | 80 - 120  |
| 4373752     | ARS  | Spiked Blank            | Dissolved Chloride (Cl)                        | 2016/02/08    |                   | 108        | %     | 80 - 120  |
| 4373752     | ARS  | Method Blank            | Dissolved Chloride (Cl)                        | 2016/02/08    | <1.0              |            | mg/L  |           |
| 4373752     | ARS  | RPD - Sample/Sample Dup | Dissolved Chloride (Cl)                        | 2016/02/08    | 1.6               |            | %     | 25        |
| 4373753     | ARS  | Matrix Spike            | Dissolved Sulphate (SO <sub>4</sub> )          | 2016/02/09    |                   | NC         | %     | 80 - 120  |
| 4373753     | ARS  | Spiked Blank            | Dissolved Sulphate (SO <sub>4</sub> )          | 2016/02/09    |                   | 100        | %     | 80 - 120  |
| 4373753     | ARS  | Method Blank            | Dissolved Sulphate (SO <sub>4</sub> )          | 2016/02/09    | <2.0              |            | mg/L  |           |
| 4373753     | ARS  | RPD - Sample/Sample Dup | Dissolved Sulphate (SO <sub>4</sub> )          | 2016/02/09    | 1.1               |            | %     | 25        |
| 4373754     | ARS  | Matrix Spike            | Reactive Silica (SiO <sub>2</sub> )            | 2016/02/09    |                   | NC         | %     | 80 - 120  |
| 4373754     | ARS  | Spiked Blank            | Reactive Silica (SiO <sub>2</sub> )            | 2016/02/09    |                   | 99         | %     | 80 - 120  |
| 4373754     | ARS  | Method Blank            | Reactive Silica (SiO <sub>2</sub> )            | 2016/02/09    | <0.50             |            | mg/L  |           |
| 4373754     | ARS  | RPD - Sample/Sample Dup | Reactive Silica (SiO <sub>2</sub> )            | 2016/02/09    | 2.8               |            | %     | 25        |
| 4373757     | ARS  | Spiked Blank            | Colour                                         | 2016/02/08    |                   | 99         | %     | 80 - 120  |
| 4373757     | ARS  | Method Blank            | Colour                                         | 2016/02/08    | <5.0              |            | TCU   |           |
| 4373757     | ARS  | RPD - Sample/Sample Dup | Colour                                         | 2016/02/08    | NC                |            | %     | 20        |
| 4373758     | ARS  | Matrix Spike            | Orthophosphate (P)                             | 2016/02/08    |                   | 95         | %     | 80 - 120  |
| 4373758     | ARS  | Spiked Blank            | Orthophosphate (P)                             | 2016/02/08    |                   | 102        | %     | 80 - 120  |
| 4373758     | ARS  | Method Blank            | Orthophosphate (P)                             | 2016/02/08    | <0.010            |            | mg/L  |           |
| 4373758     | ARS  | RPD - Sample/Sample Dup | Orthophosphate (P)                             | 2016/02/08    | NC                |            | %     | 25        |
| 4373771     | SMT  | Matrix Spike            | Nitrate + Nitrite (N)                          | 2016/02/09    |                   | 99         | %     | 80 - 120  |
| 4373771     | SMT  | Spiked Blank            | Nitrate + Nitrite (N)                          | 2016/02/09    |                   | 105        | %     | 80 - 120  |
| 4373771     | SMT  | Method Blank            | Nitrate + Nitrite (N)                          | 2016/02/09    | <0.050            |            | mg/L  |           |
| 4373771     | SMT  | RPD - Sample/Sample Dup | Nitrate + Nitrite (N)                          | 2016/02/09    | 0.29              |            | %     | 25        |
| 4373774     | ARS  | Matrix Spike            | Nitrite (N)                                    | 2016/02/08    |                   | 67 (2)     | %     | 80 - 120  |
| 4373774     | ARS  | Spiked Blank            | Nitrite (N)                                    | 2016/02/08    |                   | 96         | %     | 80 - 120  |
| 4373774     | ARS  | Method Blank            | Nitrite (N)                                    | 2016/02/08    | <0.010            |            | mg/L  |           |
| 4373774     | ARS  | RPD - Sample/Sample Dup | Nitrite (N)                                    | 2016/02/08    | NC                |            | %     | 25        |
| 4373775     | ARS  | Matrix Spike(BUC656)    | Total Alkalinity (Total as CaCO <sub>3</sub> ) | 2016/02/09    |                   | 86         | %     | 80 - 120  |
| 4373775     | ARS  | Spiked Blank            | Total Alkalinity (Total as CaCO <sub>3</sub> ) | 2016/02/09    |                   | 102        | %     | 80 - 120  |
| 4373775     | ARS  | Method Blank            | Total Alkalinity (Total as CaCO <sub>3</sub> ) | 2016/02/09    | <5.0              |            | mg/L  |           |
| 4373775     | ARS  | RPD - Sample/Sample Dup | Total Alkalinity (Total as CaCO <sub>3</sub> ) | 2016/02/09    | NC                |            | %     | 25        |
| 4373780     | ARS  | Matrix Spike(BUC656)    | Dissolved Chloride (Cl)                        | 2016/02/08    |                   | NC         | %     | 80 - 120  |
| 4373780     | ARS  | QC Standard             | Dissolved Chloride (Cl)                        | 2016/02/08    |                   | 111        | %     | 80 - 120  |
| 4373780     | ARS  | Spiked Blank            | Dissolved Chloride (Cl)                        | 2016/02/08    |                   | 105        | %     | 80 - 120  |
| 4373780     | ARS  | Method Blank            | Dissolved Chloride (Cl)                        | 2016/02/08    | <1.0              |            | mg/L  |           |
| 4373780     | ARS  | RPD - Sample/Sample Dup | Dissolved Chloride (Cl)                        | 2016/02/08    | 1.6               |            | %     | 25        |
| 4373781     | ARS  | Matrix Spike(BUC656)    | Dissolved Sulphate (SO <sub>4</sub> )          | 2016/02/09    |                   | 118        | %     | 80 - 120  |
| 4373781     | ARS  | Spiked Blank            | Dissolved Sulphate (SO <sub>4</sub> )          | 2016/02/09    |                   | 94         | %     | 80 - 120  |

### QUALITY ASSURANCE REPORT(CONT'D)

| QA/QC   | Batch | Init | QC Type                 | Parameter                 | Date Analyzed | Value           | % Recovery | UNITS | QC Limits |
|---------|-------|------|-------------------------|---------------------------|---------------|-----------------|------------|-------|-----------|
| 4373781 | ARS   |      | Method Blank            | Dissolved Sulphate (SO4)  | 2016/02/09    | 3.0,<br>RDL=2.0 |            | mg/L  |           |
| 4373781 | ARS   |      | RPD - Sample/Sample Dup | Dissolved Sulphate (SO4)  | 2016/02/09    | NC              |            | %     | 25        |
| 4373783 | ARS   |      | Matrix Spike(BUC656)    | Reactive Silica (SiO2)    | 2016/02/09    |                 | NC         | %     | 80 - 120  |
| 4373783 | ARS   |      | Spiked Blank            | Reactive Silica (SiO2)    | 2016/02/09    |                 | 101        | %     | 80 - 120  |
| 4373783 | ARS   |      | Method Blank            | Reactive Silica (SiO2)    | 2016/02/09    | <0.50           |            | mg/L  |           |
| 4373783 | ARS   |      | RPD - Sample/Sample Dup | Reactive Silica (SiO2)    | 2016/02/09    | 0.59            |            | %     | 25        |
| 4373786 | ARS   |      | Spiked Blank            | Colour                    | 2016/02/08    |                 | 96         | %     | 80 - 120  |
| 4373786 | ARS   |      | Method Blank            | Colour                    | 2016/02/08    | <5.0            |            | TCU   |           |
| 4373786 | ARS   |      | RPD - Sample/Sample Dup | Colour                    | 2016/02/08    | 14              |            | %     | 20        |
| 4373787 | ARS   |      | Matrix Spike(BUC656)    | Orthophosphate (P)        | 2016/02/08    |                 | 80         | %     | 80 - 120  |
| 4373787 | ARS   |      | Spiked Blank            | Orthophosphate (P)        | 2016/02/08    |                 | 98         | %     | 80 - 120  |
| 4373787 | ARS   |      | Method Blank            | Orthophosphate (P)        | 2016/02/08    | <0.010          |            | mg/L  |           |
| 4373787 | ARS   |      | RPD - Sample/Sample Dup | Orthophosphate (P)        | 2016/02/08    | NC              |            | %     | 25        |
| 4373790 | SMT   |      | Matrix Spike(BUC656)    | Nitrate + Nitrite (N)     | 2016/02/09    |                 | 99         | %     | 80 - 120  |
| 4373790 | SMT   |      | Spiked Blank            | Nitrate + Nitrite (N)     | 2016/02/09    |                 | 95         | %     | 80 - 120  |
| 4373790 | SMT   |      | Method Blank            | Nitrate + Nitrite (N)     | 2016/02/09    | <0.050          |            | mg/L  |           |
| 4373790 | SMT   |      | RPD - Sample/Sample Dup | Nitrate + Nitrite (N)     | 2016/02/09    | NC              |            | %     | 25        |
| 4373795 | ARS   |      | Matrix Spike(BUC656)    | Nitrite (N)               | 2016/02/08    |                 | 75 (2)     | %     | 80 - 120  |
| 4373795 | ARS   |      | Spiked Blank            | Nitrite (N)               | 2016/02/08    |                 | 94         | %     | 80 - 120  |
| 4373795 | ARS   |      | Method Blank            | Nitrite (N)               | 2016/02/08    | <0.010          |            | mg/L  |           |
| 4373795 | ARS   |      | RPD - Sample/Sample Dup | Nitrite (N)               | 2016/02/08    | NC              |            | %     | 25        |
| 4373953 | SMT   |      | Matrix Spike            | Total Organic Carbon (C)  | 2016/02/08    |                 | 104        | %     | 80 - 120  |
| 4373953 | SMT   |      | Spiked Blank            | Total Organic Carbon (C)  | 2016/02/08    |                 | 103        | %     | 80 - 120  |
| 4373953 | SMT   |      | Method Blank            | Total Organic Carbon (C)  | 2016/02/08    | <0.50           |            | mg/L  |           |
| 4373953 | SMT   |      | RPD - Sample/Sample Dup | Total Organic Carbon (C)  | 2016/02/08    | NC              |            | %     | 20        |
| 4373963 | SMT   |      | Matrix Spike(BUC626)    | Total Organic Carbon (C)  | 2016/02/08    |                 | 96         | %     | 80 - 120  |
| 4373963 | SMT   |      | Spiked Blank            | Total Organic Carbon (C)  | 2016/02/08    |                 | 97         | %     | 80 - 120  |
| 4373963 | SMT   |      | Method Blank            | Total Organic Carbon (C)  | 2016/02/08    | <0.50           |            | mg/L  |           |
| 4373963 | SMT   |      | RPD - Sample/Sample Dup | Total Organic Carbon (C)  | 2016/02/08    | NC              |            | %     | 20        |
| 4375036 | SHL   |      | Matrix Spike(BUC620)    | 1,2-Dichlorobenzene       | 2016/02/09    |                 | 95         | %     | 70 - 130  |
|         |       |      |                         | 1,3-Dichlorobenzene       | 2016/02/09    |                 | 96         | %     | 70 - 130  |
|         |       |      |                         | 1,4-Dichlorobenzene       | 2016/02/09    |                 | 100        | %     | 70 - 130  |
|         |       |      |                         | Chlorobenzene             | 2016/02/09    |                 | 101        | %     | 70 - 130  |
|         |       |      |                         | 1,1,1-Trichloroethane     | 2016/02/09    |                 | 101        | %     | 70 - 130  |
|         |       |      |                         | 1,1,2,2-Tetrachloroethane | 2016/02/09    |                 | 111        | %     | 70 - 130  |
|         |       |      |                         | 1,1,2-Trichloroethane     | 2016/02/09    |                 | 106        | %     | 70 - 130  |
|         |       |      |                         | 1,1-Dichloroethane        | 2016/02/09    |                 | 102        | %     | 70 - 130  |
|         |       |      |                         | 1,1-Dichloroethylene      | 2016/02/09    |                 | 102        | %     | 70 - 130  |
|         |       |      |                         | 1,2-Dichloroethane        | 2016/02/09    |                 | 103        | %     | 70 - 130  |
|         |       |      |                         | 1,2-Dichloropropane       | 2016/02/09    |                 | 114        | %     | 70 - 130  |
|         |       |      |                         | Benzene                   | 2016/02/09    |                 | 104        | %     | 70 - 130  |
|         |       |      |                         | Bromodichloromethane      | 2016/02/09    |                 | 111        | %     | 70 - 130  |
|         |       |      |                         | Bromoform                 | 2016/02/09    |                 | 102        | %     | 70 - 130  |
|         |       |      |                         | Bromomethane              | 2016/02/09    |                 | 97         | %     | 60 - 140  |
|         |       |      |                         | Carbon Tetrachloride      | 2016/02/09    |                 | 100        | %     | 70 - 130  |
|         |       |      |                         | Chloroethane              | 2016/02/09    |                 | 95         | %     | 60 - 140  |
|         |       |      |                         | Chloroform                | 2016/02/09    |                 | 96         | %     | 70 - 130  |
|         |       |      |                         | Chloromethane             | 2016/02/09    |                 | 100        | %     | 60 - 140  |
|         |       |      |                         | cis-1,2-Dichloroethylene  | 2016/02/09    |                 | 103        | %     | 70 - 130  |
|         |       |      |                         | cis-1,3-Dichloropropene   | 2016/02/09    |                 | 102        | %     | 70 - 130  |
|         |       |      |                         | Dibromochloromethane      | 2016/02/09    |                 | 108        | %     | 70 - 130  |
|         |       |      |                         | Ethylbenzene              | 2016/02/09    |                 | 115        | %     | 70 - 130  |

### QUALITY ASSURANCE REPORT(CONT'D)

| QA/QC   |      |              |                                     | Date       |       | %        |       |           |
|---------|------|--------------|-------------------------------------|------------|-------|----------|-------|-----------|
| Batch   | Init | QC Type      | Parameter                           | Analyzed   | Value | Recovery | UNITS | QC Limits |
| 4375036 | SHL  | Matrix Spike | Ethylene Dibromide                  | 2016/02/09 |       | 106      | %     | 70 - 130  |
|         |      |              | Methyl t-butyl ether (MTBE)         | 2016/02/09 |       | 104      | %     | 70 - 130  |
|         |      |              | Methylene Chloride(Dichloromethane) | 2016/02/09 |       | 103      | %     | 70 - 130  |
|         |      |              | o-Xylene                            | 2016/02/09 |       | 127      | %     | 70 - 130  |
|         |      |              | p+m-Xylene                          | 2016/02/09 |       | 119      | %     | 70 - 130  |
|         |      |              | Styrene                             | 2016/02/09 |       | 115      | %     | 70 - 130  |
|         |      |              | Tetrachloroethylene                 | 2016/02/09 |       | 104      | %     | 70 - 130  |
|         |      |              | Toluene                             | 2016/02/09 |       | 107      | %     | 70 - 130  |
|         |      |              | trans-1,2-Dichloroethylene          | 2016/02/09 |       | 101      | %     | 70 - 130  |
|         |      |              | trans-1,3-Dichloropropene           | 2016/02/09 |       | 102      | %     | 70 - 130  |
|         |      |              | Trichloroethylene                   | 2016/02/09 |       | 110      | %     | 70 - 130  |
|         |      |              | Trichlorofluoromethane (FREON 11)   | 2016/02/09 |       | 94       | %     | 60 - 140  |
|         |      |              | Vinyl Chloride                      | 2016/02/09 |       | 100      | %     | 60 - 140  |
|         |      |              | 4-Bromofluorobenzene                | 2016/02/09 |       | 102      | %     | 70 - 130  |
| 4375036 | SHL  | Spiked Blank | D4-1,2-Dichloroethane               | 2016/02/09 |       | 93       | %     | 70 - 130  |
|         |      |              | D8-Toluene                          | 2016/02/09 |       | 101      | %     | 70 - 130  |
|         |      |              | 1,2-Dichlorobenzene                 | 2016/02/09 |       | 97       | %     | 70 - 130  |
|         |      |              | 1,3-Dichlorobenzene                 | 2016/02/09 |       | 95       | %     | 70 - 130  |
|         |      |              | 1,4-Dichlorobenzene                 | 2016/02/09 |       | 97       | %     | 70 - 130  |
|         |      |              | Chlorobenzene                       | 2016/02/09 |       | 100      | %     | 70 - 130  |
|         |      |              | 1,1,1-Trichloroethane               | 2016/02/09 |       | 99       | %     | 70 - 130  |
|         |      |              | 1,1,2,2-Tetrachloroethane           | 2016/02/09 |       | 108      | %     | 70 - 130  |
|         |      |              | 1,1,2-Trichloroethane               | 2016/02/09 |       | 101      | %     | 70 - 130  |
|         |      |              | 1,1-Dichloroethane                  | 2016/02/09 |       | 103      | %     | 70 - 130  |
|         |      |              | 1,1-Dichloroethylene                | 2016/02/09 |       | 104      | %     | 70 - 130  |
|         |      |              | 1,2-Dichloroethane                  | 2016/02/09 |       | 99       | %     | 70 - 130  |
|         |      |              | 1,2-Dichloropropane                 | 2016/02/09 |       | 101      | %     | 70 - 130  |
|         |      |              | 4-Bromofluorobenzene                | 2016/02/09 |       | 102      | %     | 70 - 130  |
|         |      |              | Benzene                             | 2016/02/09 |       | 93       | %     | 70 - 130  |
|         |      |              | Bromodichloromethane                | 2016/02/09 |       | 100      | %     | 70 - 130  |
|         |      |              | Bromoform                           | 2016/02/09 |       | 103      | %     | 70 - 130  |
|         |      |              | Bromomethane                        | 2016/02/09 |       | 104      | %     | 60 - 140  |
|         |      |              | Carbon Tetrachloride                | 2016/02/09 |       | 97       | %     | 70 - 130  |
|         |      |              | Chloroethane                        | 2016/02/09 |       | 101      | %     | 60 - 140  |
|         |      |              | Chloroform                          | 2016/02/09 |       | 93       | %     | 70 - 130  |
|         |      |              | Chloromethane                       | 2016/02/09 |       | 105      | %     | 60 - 140  |
|         |      |              | cis-1,2-Dichloroethylene            | 2016/02/09 |       | 109      | %     | 70 - 130  |
|         |      |              | cis-1,3-Dichloropropene             | 2016/02/09 |       | 101      | %     | 70 - 130  |
|         |      |              | D4-1,2-Dichloroethane               | 2016/02/09 |       | 92       | %     | 70 - 130  |
|         |      |              | D8-Toluene                          | 2016/02/09 |       | 102      | %     | 70 - 130  |
|         |      |              | Dibromochloromethane                | 2016/02/09 |       | 105      | %     | 70 - 130  |
|         |      |              | Ethylbenzene                        | 2016/02/09 |       | 116      | %     | 70 - 130  |
|         |      |              | Ethylene Dibromide                  | 2016/02/09 |       | 107      | %     | 70 - 130  |
|         |      |              | Methyl t-butyl ether (MTBE)         | 2016/02/09 |       | 102      | %     | 70 - 130  |
|         |      |              | Methylene Chloride(Dichloromethane) | 2016/02/09 |       | 106      | %     | 70 - 130  |
|         |      |              | o-Xylene                            | 2016/02/09 |       | 125      | %     | 70 - 130  |
|         |      |              | p+m-Xylene                          | 2016/02/09 |       | 124      | %     | 70 - 130  |
|         |      |              | Styrene                             | 2016/02/09 |       | 119      | %     | 70 - 130  |
|         |      |              | Tetrachloroethylene                 | 2016/02/09 |       | 104      | %     | 70 - 130  |
|         |      |              | Toluene                             | 2016/02/09 |       | 110      | %     | 70 - 130  |
|         |      |              | trans-1,2-Dichloroethylene          | 2016/02/09 |       | 98       | %     | 70 - 130  |
|         |      |              | trans-1,3-Dichloropropene           | 2016/02/09 |       | 101      | %     | 70 - 130  |
|         |      |              | Trichloroethylene                   | 2016/02/09 |       | 101      | %     | 70 - 130  |

### QUALITY ASSURANCE REPORT(CONT'D)

| QA/QC   |      |                         |                                     | Date       |       | %        |       |           |
|---------|------|-------------------------|-------------------------------------|------------|-------|----------|-------|-----------|
| Batch   | Init | QC Type                 | Parameter                           | Analyzed   | Value | Recovery | UNITS | QC Limits |
| 4375036 | SHL  | Method Blank            | Trichlorofluoromethane (FREON 11)   | 2016/02/09 |       | 94       | %     | 60 - 140  |
|         |      |                         | Vinyl Chloride                      | 2016/02/09 |       | 101      | %     | 60 - 140  |
|         |      |                         | 1,2-Dichlorobenzene                 | 2016/02/09 | <0.50 |          | ug/L  |           |
|         |      |                         | 1,3-Dichlorobenzene                 | 2016/02/09 | <1.0  |          | ug/L  |           |
|         |      |                         | 1,4-Dichlorobenzene                 | 2016/02/09 | <1.0  |          | ug/L  |           |
|         |      |                         | Chlorobenzene                       | 2016/02/09 | <1.0  |          | ug/L  |           |
|         |      |                         | 1,1,1-Trichloroethane               | 2016/02/09 | <1.0  |          | ug/L  |           |
|         |      |                         | 1,1,2,2-Tetrachloroethane           | 2016/02/09 | <0.50 |          | ug/L  |           |
|         |      |                         | 1,1,2-Trichloroethane               | 2016/02/09 | <1.0  |          | ug/L  |           |
|         |      |                         | 1,1-Dichloroethane                  | 2016/02/09 | <2.0  |          | ug/L  |           |
|         |      |                         | 1,1-Dichloroethylene                | 2016/02/09 | <0.50 |          | ug/L  |           |
|         |      |                         | 1,2-Dichloroethane                  | 2016/02/09 | <1.0  |          | ug/L  |           |
|         |      |                         | 1,2-Dichloropropane                 | 2016/02/09 | <0.50 |          | ug/L  |           |
|         |      |                         | 4-Bromofluorobenzene                | 2016/02/09 |       | 97       | %     | 70 - 130  |
|         |      |                         | Benzene                             | 2016/02/09 | <1.0  |          | ug/L  |           |
|         |      |                         | Bromodichloromethane                | 2016/02/09 | <1.0  |          | ug/L  |           |
|         |      |                         | Bromoform                           | 2016/02/09 | <1.0  |          | ug/L  |           |
|         |      |                         | Bromomethane                        | 2016/02/09 | <0.50 |          | ug/L  |           |
|         |      |                         | Carbon Tetrachloride                | 2016/02/09 | <0.50 |          | ug/L  |           |
|         |      |                         | Chloroethane                        | 2016/02/09 | <8.0  |          | ug/L  |           |
|         |      |                         | Chloroform                          | 2016/02/09 | <1.0  |          | ug/L  |           |
|         |      |                         | Chloromethane                       | 2016/02/09 | <8.0  |          | ug/L  |           |
|         |      |                         | cis-1,2-Dichloroethylene            | 2016/02/09 | <0.50 |          | ug/L  |           |
|         |      |                         | cis-1,3-Dichloropropene             | 2016/02/09 | <0.50 |          | ug/L  |           |
|         |      |                         | D4-1,2-Dichloroethane               | 2016/02/09 |       | 107      | %     | 70 - 130  |
|         |      |                         | D8-Toluene                          | 2016/02/09 |       | 100      | %     | 70 - 130  |
|         |      |                         | Dibromochloromethane                | 2016/02/09 | <1.0  |          | ug/L  |           |
|         |      |                         | Ethylbenzene                        | 2016/02/09 | <1.0  |          | ug/L  |           |
|         |      |                         | Ethylene Dibromide                  | 2016/02/09 | <0.20 |          | ug/L  |           |
|         |      |                         | Methyl t-butyl ether (MTBE)         | 2016/02/09 | <2.0  |          | ug/L  |           |
|         |      |                         | Methylene Chloride(Dichloromethane) | 2016/02/09 | <3.0  |          | ug/L  |           |
|         |      |                         | o-Xylene                            | 2016/02/09 | <1.0  |          | ug/L  |           |
|         |      |                         | p+m-Xylene                          | 2016/02/09 | <2.0  |          | ug/L  |           |
|         |      |                         | Styrene                             | 2016/02/09 | <1.0  |          | ug/L  |           |
|         |      |                         | Tetrachloroethylene                 | 2016/02/09 | <1.0  |          | ug/L  |           |
|         |      |                         | Toluene                             | 2016/02/09 | <1.0  |          | ug/L  |           |
|         |      |                         | Total Trihalomethanes               | 2016/02/09 | <1.0  |          | ug/L  |           |
|         |      |                         | Total Xylenes                       | 2016/02/09 | <1.0  |          | ug/L  |           |
|         |      |                         | trans-1,2-Dichloroethylene          | 2016/02/09 | <0.50 |          | ug/L  |           |
|         |      |                         | trans-1,3-Dichloropropene           | 2016/02/09 | <0.50 |          | ug/L  |           |
|         |      |                         | Trichloroethylene                   | 2016/02/09 | <1.0  |          | ug/L  |           |
|         |      |                         | Trichlorofluoromethane (FREON 11)   | 2016/02/09 | <8.0  |          | ug/L  |           |
|         |      |                         | Vinyl Chloride                      | 2016/02/09 | <0.50 |          | ug/L  |           |
| 4375036 | SHL  | RPD - Sample/Sample Dup | 1,2-Dichlorobenzene                 | 2016/02/09 | NC    |          | %     | 40        |
|         |      |                         | 1,4-Dichlorobenzene                 | 2016/02/09 | NC    |          | %     | 40        |
|         |      |                         | 1,1,1-Trichloroethane               | 2016/02/09 | NC    |          | %     | 40        |
|         |      |                         | 1,1,2,2-Tetrachloroethane           | 2016/02/09 | NC    |          | %     | 40        |
|         |      |                         | 1,1,2-Trichloroethane               | 2016/02/09 | NC    |          | %     | 40        |
|         |      |                         | Chloroform                          | 2016/02/09 | 13    |          | %     | 40        |
|         |      |                         | Methylene Chloride(Dichloromethane) | 2016/02/09 | NC    |          | %     | 40        |
| 4375116 | VWA  | Matrix Spike            | Trichloroethylene                   | 2016/02/09 | NC    |          | %     | 40        |
|         |      |                         | Total Mercury (Hg)                  | 2016/02/10 |       | 100      | %     | 80 - 120  |
| 4375116 | VWA  | Spiked Blank            | Total Mercury (Hg)                  | 2016/02/10 |       | 101      | %     | 80 - 120  |



### QUALITY ASSURANCE REPORT(CONT'D)

| QA/QC   | Batch | Init | QC Type                 | Parameter                           | Date Analyzed | Value               | % Recovery | UNITS | QC Limits |
|---------|-------|------|-------------------------|-------------------------------------|---------------|---------------------|------------|-------|-----------|
| 4375116 | VWA   |      | Method Blank            | Total Mercury (Hg)                  | 2016/02/10    | <0.013              |            | ug/L  |           |
| 4375116 | VWA   |      | RPD - Sample/Sample Dup | Total Mercury (Hg)                  | 2016/02/10    | NC                  |            | %     | 20        |
| 4375798 | NRG   |      | Matrix Spike(BUC625)    | Nitrogen (Ammonia Nitrogen)         | 2016/02/09    |                     | 95         | %     | 80 - 120  |
| 4375798 | NRG   |      | Spiked Blank            | Nitrogen (Ammonia Nitrogen)         | 2016/02/09    |                     | 92         | %     | 80 - 120  |
| 4375798 | NRG   |      | Method Blank            | Nitrogen (Ammonia Nitrogen)         | 2016/02/09    | 0.053,<br>RDL=0.050 |            | mg/L  |           |
| 4375798 | NRG   |      | RPD - Sample/Sample Dup | Nitrogen (Ammonia Nitrogen)         | 2016/02/10    | NC                  |            | %     | 20        |
| 4376377 | SHL   |      | Matrix Spike(BUC624)    | 1,2-Dichlorobenzene                 | 2016/02/11    |                     | 93         | %     | 70 - 130  |
|         |       |      |                         | 1,3-Dichlorobenzene                 | 2016/02/11    |                     | 91         | %     | 70 - 130  |
|         |       |      |                         | 1,4-Dichlorobenzene                 | 2016/02/11    |                     | 94         | %     | 70 - 130  |
|         |       |      |                         | Chlorobenzene                       | 2016/02/11    |                     | 96         | %     | 70 - 130  |
|         |       |      |                         | 1,1,1-Trichloroethane               | 2016/02/11    |                     | 98         | %     | 70 - 130  |
|         |       |      |                         | 1,1,2,2-Tetrachloroethane           | 2016/02/11    |                     | 99         | %     | 70 - 130  |
|         |       |      |                         | 1,1,2-Trichloroethane               | 2016/02/11    |                     | 100        | %     | 70 - 130  |
|         |       |      |                         | 1,1-Dichloroethane                  | 2016/02/11    |                     | 95         | %     | 70 - 130  |
|         |       |      |                         | 1,1-Dichloroethylene                | 2016/02/11    |                     | 93         | %     | 70 - 130  |
|         |       |      |                         | 1,2-Dichloroethane                  | 2016/02/11    |                     | 99         | %     | 70 - 130  |
|         |       |      |                         | 1,2-Dichloropropane                 | 2016/02/11    |                     | 104        | %     | 70 - 130  |
|         |       |      |                         | Benzene                             | 2016/02/11    |                     | 98         | %     | 70 - 130  |
|         |       |      |                         | Bromodichloromethane                | 2016/02/11    |                     | 105        | %     | 70 - 130  |
|         |       |      |                         | Bromoform                           | 2016/02/11    |                     | 101        | %     | 70 - 130  |
|         |       |      |                         | Bromomethane                        | 2016/02/11    |                     | 89         | %     | 60 - 140  |
|         |       |      |                         | Carbon Tetrachloride                | 2016/02/11    |                     | 95         | %     | 70 - 130  |
|         |       |      |                         | Chloroethane                        | 2016/02/11    |                     | 84         | %     | 60 - 140  |
|         |       |      |                         | Chloroform                          | 2016/02/11    |                     | 85         | %     | 70 - 130  |
|         |       |      |                         | Chloromethane                       | 2016/02/11    |                     | 87         | %     | 60 - 140  |
|         |       |      |                         | cis-1,2-Dichloroethylene            | 2016/02/11    |                     | 102        | %     | 70 - 130  |
|         |       |      |                         | cis-1,3-Dichloropropene             | 2016/02/11    |                     | 100        | %     | 70 - 130  |
|         |       |      |                         | Dibromochloromethane                | 2016/02/11    |                     | 101        | %     | 70 - 130  |
|         |       |      |                         | Ethylbenzene                        | 2016/02/11    |                     | 110        | %     | 70 - 130  |
|         |       |      |                         | Ethylene Dibromide                  | 2016/02/11    |                     | 104        | %     | 70 - 130  |
|         |       |      |                         | Methyl t-butyl ether (MTBE)         | 2016/02/11    |                     | 101        | %     | 70 - 130  |
|         |       |      |                         | Methylene Chloride(Dichloromethane) | 2016/02/11    |                     | 92         | %     | 70 - 130  |
|         |       |      |                         | o-Xylene                            | 2016/02/11    |                     | 117        | %     | 70 - 130  |
|         |       |      |                         | p+m-Xylene                          | 2016/02/11    |                     | 118        | %     | 70 - 130  |
|         |       |      |                         | Styrene                             | 2016/02/11    |                     | 116        | %     | 70 - 130  |
|         |       |      |                         | Tetrachloroethylene                 | 2016/02/11    |                     | 102        | %     | 70 - 130  |
|         |       |      |                         | Toluene                             | 2016/02/11    |                     | 108        | %     | 70 - 130  |
|         |       |      |                         | trans-1,2-Dichloroethylene          | 2016/02/11    |                     | 97         | %     | 70 - 130  |
|         |       |      |                         | trans-1,3-Dichloropropene           | 2016/02/11    |                     | 100        | %     | 70 - 130  |
|         |       |      |                         | Trichloroethylene                   | 2016/02/11    |                     | 106        | %     | 70 - 130  |
|         |       |      |                         | Trichlorofluoromethane (FREON 11)   | 2016/02/11    |                     | 85         | %     | 60 - 140  |
|         |       |      |                         | Vinyl Chloride                      | 2016/02/11    |                     | 85         | %     | 60 - 140  |
| 4376377 | SHL   |      | Matrix Spike            | 4-Bromofluorobenzene                | 2016/02/11    |                     | 101        | %     | 70 - 130  |
|         |       |      |                         | D4-1,2-Dichloroethane               | 2016/02/11    |                     | 94         | %     | 70 - 130  |
|         |       |      |                         | D8-Toluene                          | 2016/02/11    |                     | 101        | %     | 70 - 130  |
| 4376377 | SHL   |      | Spiked Blank            | 1,2-Dichlorobenzene                 | 2016/02/11    |                     | 90         | %     | 70 - 130  |
|         |       |      |                         | 1,3-Dichlorobenzene                 | 2016/02/11    |                     | 90         | %     | 70 - 130  |
|         |       |      |                         | 1,4-Dichlorobenzene                 | 2016/02/11    |                     | 92         | %     | 70 - 130  |
|         |       |      |                         | Chlorobenzene                       | 2016/02/11    |                     | 94         | %     | 70 - 130  |
|         |       |      |                         | 1,1,1-Trichloroethane               | 2016/02/11    |                     | 97         | %     | 70 - 130  |
|         |       |      |                         | 1,1,2,2-Tetrachloroethane           | 2016/02/11    |                     | 95         | %     | 70 - 130  |
|         |       |      |                         | 1,1,2-Trichloroethane               | 2016/02/11    |                     | 99         | %     | 70 - 130  |

### QUALITY ASSURANCE REPORT(CONT'D)

| QA/QC   | Batch | Init | QC Type      | Parameter                           | Date Analyzed | Value | % Recovery | UNITS | QC Limits |
|---------|-------|------|--------------|-------------------------------------|---------------|-------|------------|-------|-----------|
|         |       |      |              | 1,1-Dichloroethane                  | 2016/02/11    |       | 99         | %     | 70 - 130  |
|         |       |      |              | 1,1-Dichloroethylene                | 2016/02/11    |       | 98         | %     | 70 - 130  |
|         |       |      |              | 1,2-Dichloroethane                  | 2016/02/11    |       | 95         | %     | 70 - 130  |
|         |       |      |              | 1,2-Dichloropropane                 | 2016/02/11    |       | 96         | %     | 70 - 130  |
|         |       |      |              | 4-Bromofluorobenzene                | 2016/02/11    |       | 99         | %     | 70 - 130  |
|         |       |      |              | Benzene                             | 2016/02/11    |       | 94         | %     | 70 - 130  |
|         |       |      |              | Bromodichloromethane                | 2016/02/11    |       | 98         | %     | 70 - 130  |
|         |       |      |              | Bromoform                           | 2016/02/11    |       | 97         | %     | 70 - 130  |
|         |       |      |              | Bromomethane                        | 2016/02/11    |       | 93         | %     | 60 - 140  |
|         |       |      |              | Carbon Tetrachloride                | 2016/02/11    |       | 94         | %     | 70 - 130  |
|         |       |      |              | Chloroethane                        | 2016/02/11    |       | 89         | %     | 60 - 140  |
|         |       |      |              | Chloroform                          | 2016/02/11    |       | 89         | %     | 70 - 130  |
|         |       |      |              | Chloromethane                       | 2016/02/11    |       | 90         | %     | 60 - 140  |
|         |       |      |              | cis-1,2-Dichloroethylene            | 2016/02/11    |       | 102        | %     | 70 - 130  |
|         |       |      |              | cis-1,3-Dichloropropene             | 2016/02/11    |       | 100        | %     | 70 - 130  |
|         |       |      |              | D4-1,2-Dichloroethane               | 2016/02/11    |       | 95         | %     | 70 - 130  |
|         |       |      |              | D8-Toluene                          | 2016/02/11    |       | 101        | %     | 70 - 130  |
|         |       |      |              | Dibromochloromethane                | 2016/02/11    |       | 98         | %     | 70 - 130  |
|         |       |      |              | Ethylbenzene                        | 2016/02/11    |       | 110        | %     | 70 - 130  |
|         |       |      |              | Ethylene Dibromide                  | 2016/02/11    |       | 101        | %     | 70 - 130  |
|         |       |      |              | Methyl t-butyl ether (MTBE)         | 2016/02/11    |       | 103        | %     | 70 - 130  |
|         |       |      |              | Methylene Chloride(Dichloromethane) | 2016/02/11    |       | 95         | %     | 70 - 130  |
|         |       |      |              | o-Xylene                            | 2016/02/11    |       | 114        | %     | 70 - 130  |
|         |       |      |              | p+m-Xylene                          | 2016/02/11    |       | 116        | %     | 70 - 130  |
|         |       |      |              | Styrene                             | 2016/02/11    |       | 111        | %     | 70 - 130  |
|         |       |      |              | Tetrachloroethylene                 | 2016/02/11    |       | 100        | %     | 70 - 130  |
|         |       |      |              | Toluene                             | 2016/02/11    |       | 108        | %     | 70 - 130  |
|         |       |      |              | trans-1,2-Dichloroethylene          | 2016/02/11    |       | 97         | %     | 70 - 130  |
|         |       |      |              | trans-1,3-Dichloropropene           | 2016/02/11    |       | 102        | %     | 70 - 130  |
|         |       |      |              | Trichloroethylene                   | 2016/02/11    |       | 102        | %     | 70 - 130  |
|         |       |      |              | Trichlorofluoromethane (FREON 11)   | 2016/02/11    |       | 89         | %     | 60 - 140  |
|         |       |      |              | Vinyl Chloride                      | 2016/02/11    |       | 86         | %     | 60 - 140  |
| 4376377 | SHL   |      | Method Blank | 1,2-Dichlorobenzene                 | 2016/02/11    | <0.50 |            | ug/L  |           |
|         |       |      |              | 1,3-Dichlorobenzene                 | 2016/02/11    | <1.0  |            | ug/L  |           |
|         |       |      |              | 1,4-Dichlorobenzene                 | 2016/02/11    | <1.0  |            | ug/L  |           |
|         |       |      |              | Chlorobenzene                       | 2016/02/11    | <1.0  |            | ug/L  |           |
|         |       |      |              | 1,1,1-Trichloroethane               | 2016/02/11    | <1.0  |            | ug/L  |           |
|         |       |      |              | 1,1,2,2-Tetrachloroethane           | 2016/02/11    | <0.50 |            | ug/L  |           |
|         |       |      |              | 1,1,2-Trichloroethane               | 2016/02/11    | <1.0  |            | ug/L  |           |
|         |       |      |              | 1,1-Dichloroethane                  | 2016/02/11    | <2.0  |            | ug/L  |           |
|         |       |      |              | 1,1-Dichloroethylene                | 2016/02/11    | <0.50 |            | ug/L  |           |
|         |       |      |              | 1,2-Dichloroethane                  | 2016/02/11    | <1.0  |            | ug/L  |           |
|         |       |      |              | 1,2-Dichloropropane                 | 2016/02/11    | <0.50 |            | ug/L  |           |
|         |       |      |              | 4-Bromofluorobenzene                | 2016/02/11    |       | 93         | %     | 70 - 130  |
|         |       |      |              | Benzene                             | 2016/02/11    | <1.0  |            | ug/L  |           |
|         |       |      |              | Bromodichloromethane                | 2016/02/11    | <1.0  |            | ug/L  |           |
|         |       |      |              | Bromoform                           | 2016/02/11    | <1.0  |            | ug/L  |           |
|         |       |      |              | Bromomethane                        | 2016/02/11    | <0.50 |            | ug/L  |           |
|         |       |      |              | Carbon Tetrachloride                | 2016/02/11    | <0.50 |            | ug/L  |           |
|         |       |      |              | Chloroethane                        | 2016/02/11    | <8.0  |            | ug/L  |           |
|         |       |      |              | Chloroform                          | 2016/02/11    | <1.0  |            | ug/L  |           |
|         |       |      |              | Chloromethane                       | 2016/02/11    | <8.0  |            | ug/L  |           |
|         |       |      |              | cis-1,2-Dichloroethylene            | 2016/02/11    | <0.50 |            | ug/L  |           |

### QUALITY ASSURANCE REPORT(CONT'D)

| QA/QC   | Batch | Init                    | QC Type | Parameter                           | Date Analyzed | Value | % Recovery | UNITS | QC Limits |
|---------|-------|-------------------------|---------|-------------------------------------|---------------|-------|------------|-------|-----------|
|         |       |                         |         | cis-1,3-Dichloropropene             | 2016/02/11    | <0.50 |            | ug/L  |           |
|         |       |                         |         | D4-1,2-Dichloroethane               | 2016/02/11    |       | 101        | %     | 70 - 130  |
|         |       |                         |         | D8-Toluene                          | 2016/02/11    |       | 98         | %     | 70 - 130  |
|         |       |                         |         | Dibromochloromethane                | 2016/02/11    | <1.0  |            | ug/L  |           |
|         |       |                         |         | Ethylbenzene                        | 2016/02/11    | <1.0  |            | ug/L  |           |
|         |       |                         |         | Ethylene Dibromide                  | 2016/02/11    | <0.20 |            | ug/L  |           |
|         |       |                         |         | Methyl t-butyl ether (MTBE)         | 2016/02/11    | <2.0  |            | ug/L  |           |
|         |       |                         |         | Methylene Chloride(Dichloromethane) | 2016/02/11    | <3.0  |            | ug/L  |           |
|         |       |                         |         | o-Xylene                            | 2016/02/11    | <1.0  |            | ug/L  |           |
|         |       |                         |         | p+m-Xylene                          | 2016/02/11    | <2.0  |            | ug/L  |           |
|         |       |                         |         | Styrene                             | 2016/02/11    | <1.0  |            | ug/L  |           |
|         |       |                         |         | Tetrachloroethylene                 | 2016/02/11    | <1.0  |            | ug/L  |           |
|         |       |                         |         | Toluene                             | 2016/02/11    | <1.0  |            | ug/L  |           |
|         |       |                         |         | Total Trihalomethanes               | 2016/02/11    | <1.0  |            | ug/L  |           |
|         |       |                         |         | Total Xylenes                       | 2016/02/11    | <1.0  |            | ug/L  |           |
|         |       |                         |         | trans-1,2-Dichloroethylene          | 2016/02/11    | <0.50 |            | ug/L  |           |
|         |       |                         |         | trans-1,3-Dichloropropene           | 2016/02/11    | <0.50 |            | ug/L  |           |
|         |       |                         |         | Trichloroethylene                   | 2016/02/11    | <1.0  |            | ug/L  |           |
|         |       |                         |         | Trichlorofluoromethane (FREON 11)   | 2016/02/11    | <8.0  |            | ug/L  |           |
|         |       |                         |         | Vinyl Chloride                      | 2016/02/11    | <0.50 |            | ug/L  |           |
| 4376377 | SHL   | RPD - Sample/Sample Dup |         | 1,2-Dichlorobenzene                 | 2016/02/11    | NC    |            | %     | 40        |
|         |       |                         |         | 1,3-Dichlorobenzene                 | 2016/02/11    | NC    |            | %     | 40        |
|         |       |                         |         | 1,4-Dichlorobenzene                 | 2016/02/11    | NC    |            | %     | 40        |
|         |       |                         |         | Chlorobenzene                       | 2016/02/11    | NC    |            | %     | 40        |
|         |       |                         |         | 1,1,1-Trichloroethane               | 2016/02/11    | NC    |            | %     | 40        |
|         |       |                         |         | 1,1,2,2-Tetrachloroethane           | 2016/02/11    | NC    |            | %     | 40        |
|         |       |                         |         | 1,1,2-Trichloroethane               | 2016/02/11    | NC    |            | %     | 40        |
|         |       |                         |         | 1,1-Dichloroethane                  | 2016/02/11    | NC    |            | %     | 40        |
|         |       |                         |         | 1,1-Dichloroethylene                | 2016/02/11    | NC    |            | %     | 40        |
|         |       |                         |         | 1,2-Dichloroethane                  | 2016/02/11    | NC    |            | %     | 40        |
|         |       |                         |         | 1,2-Dichloropropane                 | 2016/02/11    | NC    |            | %     | 40        |
|         |       |                         |         | Benzene                             | 2016/02/11    | NC    |            | %     | 40        |
|         |       |                         |         | Bromodichloromethane                | 2016/02/11    | NC    |            | %     | 40        |
|         |       |                         |         | Bromoform                           | 2016/02/11    | NC    |            | %     | 40        |
|         |       |                         |         | Bromomethane                        | 2016/02/11    | NC    |            | %     | 40        |
|         |       |                         |         | Carbon Tetrachloride                | 2016/02/11    | NC    |            | %     | 40        |
|         |       |                         |         | Chloroethane                        | 2016/02/11    | NC    |            | %     | 40        |
|         |       |                         |         | Chloroform                          | 2016/02/11    | NC    |            | %     | 40        |
|         |       |                         |         | Chloromethane                       | 2016/02/11    | NC    |            | %     | 40        |
|         |       |                         |         | cis-1,2-Dichloroethylene            | 2016/02/11    | NC    |            | %     | 40        |
|         |       |                         |         | cis-1,3-Dichloropropene             | 2016/02/11    | NC    |            | %     | 40        |
|         |       |                         |         | Dibromochloromethane                | 2016/02/11    | NC    |            | %     | 40        |
|         |       |                         |         | Ethylbenzene                        | 2016/02/11    | NC    |            | %     | 40        |
|         |       |                         |         | Ethylene Dibromide                  | 2016/02/11    | NC    |            | %     | 40        |
|         |       |                         |         | Methyl t-butyl ether (MTBE)         | 2016/02/11    | NC    |            | %     | 40        |
|         |       |                         |         | Methylene Chloride(Dichloromethane) | 2016/02/11    | NC    |            | %     | 40        |
|         |       |                         |         | o-Xylene                            | 2016/02/11    | NC    |            | %     | 40        |
|         |       |                         |         | p+m-Xylene                          | 2016/02/11    | NC    |            | %     | 40        |
|         |       |                         |         | Styrene                             | 2016/02/11    | NC    |            | %     | 40        |
|         |       |                         |         | Tetrachloroethylene                 | 2016/02/11    | NC    |            | %     | 40        |
|         |       |                         |         | Toluene                             | 2016/02/11    | NC    |            | %     | 40        |
|         |       |                         |         | Total Trihalomethanes               | 2016/02/11    | NC    |            | %     | 40        |
|         |       |                         |         | Total Xylenes                       | 2016/02/11    | NC    |            | %     | 40        |

### QUALITY ASSURANCE REPORT(CONT'D)

| QA/QC   | Batch | Init | QC Type                 | Parameter                         | Date Analyzed | Value   | % Recovery | UNITS | QC Limits |
|---------|-------|------|-------------------------|-----------------------------------|---------------|---------|------------|-------|-----------|
|         |       |      |                         | trans-1,2-Dichloroethylene        | 2016/02/11    | NC      |            | %     | 40        |
|         |       |      |                         | trans-1,3-Dichloropropene         | 2016/02/11    | NC      |            | %     | 40        |
|         |       |      |                         | Trichloroethylene                 | 2016/02/11    | NC      |            | %     | 40        |
|         |       |      |                         | Trichlorofluoromethane (FREON 11) | 2016/02/11    | NC      |            | %     | 40        |
|         |       |      |                         | Vinyl Chloride                    | 2016/02/11    | NC      |            | %     | 40        |
| 4376463 | LPW   |      | QC Standard             | Total Suspended Solids            | 2016/02/11    |         | 98         | %     | 80 - 120  |
| 4376463 | LPW   |      | Method Blank            | Total Suspended Solids            | 2016/02/11    | <1.0    |            | mg/L  |           |
| 4376463 | LPW   |      | RPD - Sample/Sample Dup | Total Suspended Solids            | 2016/02/11    | 4.2     |            | %     | 25        |
| 4376538 | SMT   |      | Matrix Spike(BUC622)    | Dissolved Organic Carbon (C)      | 2016/02/10    |         | 99         | %     | 80 - 120  |
| 4376538 | SMT   |      | Spiked Blank            | Dissolved Organic Carbon (C)      | 2016/02/10    |         | 100        | %     | 80 - 120  |
| 4376538 | SMT   |      | Method Blank            | Dissolved Organic Carbon (C)      | 2016/02/10    | <0.5    |            | mg/L  |           |
| 4376538 | SMT   |      | RPD - Sample/Sample Dup | Dissolved Organic Carbon (C)      | 2016/02/10    | 4.6     |            | %     | 20        |
| 4378118 | ZZH   |      | Matrix Spike(BUC628)    | Total Chemical Oxygen Demand      | 2016/02/12    |         | 101        | %     | 80 - 120  |
| 4378118 | ZZH   |      | QC Standard             | Total Chemical Oxygen Demand      | 2016/02/12    |         | 97         | %     | 80 - 120  |
| 4378118 | ZZH   |      | Spiked Blank            | Total Chemical Oxygen Demand      | 2016/02/12    |         | 100        | %     | 80 - 120  |
| 4378118 | ZZH   |      | Method Blank            | Total Chemical Oxygen Demand      | 2016/02/12    | <20     |            | mg/L  |           |
| 4378738 | BIP   |      | Matrix Spike            | Tannins & Lignins                 | 2016/02/11    |         | 98         | %     | 80 - 120  |
| 4378738 | BIP   |      | Spiked Blank            | Tannins & Lignins                 | 2016/02/11    |         | 94         | %     | 80 - 120  |
| 4378738 | BIP   |      | Method Blank            | Tannins & Lignins                 | 2016/02/11    | <0.2    |            | mg/L  |           |
| 4378738 | BIP   |      | RPD - Sample/Sample Dup | Tannins & Lignins                 | 2016/02/11    | NC      |            | %     | 25        |
| 4378919 | CRA   |      | Matrix Spike            | Phenols-4AAP                      | 2016/02/11    |         | 98         | %     | 80 - 120  |
| 4378919 | CRA   |      | Spiked Blank            | Phenols-4AAP                      | 2016/02/11    |         | 103        | %     | 80 - 120  |
| 4378919 | CRA   |      | Method Blank            | Phenols-4AAP                      | 2016/02/11    | <0.0010 |            | mg/L  |           |
| 4378919 | CRA   |      | RPD - Sample/Sample Dup | Phenols-4AAP                      | 2016/02/11    | NC      |            | %     | 25        |
| 4380079 | ZZH   |      | Matrix Spike(BUC628)    | Total Chemical Oxygen Demand      | 2016/02/12    |         | 115        | %     | 80 - 120  |
| 4380079 | ZZH   |      | QC Standard             | Total Chemical Oxygen Demand      | 2016/02/12    |         | 98         | %     | 80 - 120  |
| 4380079 | ZZH   |      | Spiked Blank            | Total Chemical Oxygen Demand      | 2016/02/12    |         | 104        | %     | 80 - 120  |
| 4380079 | ZZH   |      | Method Blank            | Total Chemical Oxygen Demand      | 2016/02/12    | <5.0    |            | mg/L  |           |
| 4380079 | ZZH   |      | RPD - Sample/Sample Dup | Total Chemical Oxygen Demand      | 2016/02/12    | NC      |            | %     | 25        |
| 4380484 | CRA   |      | Matrix Spike            | Phenols-4AAP                      | 2016/02/12    |         | 102        | %     | 80 - 120  |
| 4380484 | CRA   |      | Spiked Blank            | Phenols-4AAP                      | 2016/02/12    |         | 100        | %     | 80 - 120  |
| 4380484 | CRA   |      | Method Blank            | Phenols-4AAP                      | 2016/02/12    | <0.0010 |            | mg/L  |           |
| 4380484 | CRA   |      | RPD - Sample/Sample Dup | Phenols-4AAP                      | 2016/02/12    | NC      |            | %     | 25        |

N/A = Not Applicable

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

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

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

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

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

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spiked amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than 2x that of the native sample concentration).

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

(1) Elevated reporting limit due to blank performance.

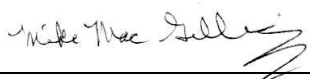
(2) Poor spike recovery due to sample matrix. Results confirmed with repeat analysis.

### VALIDATION SIGNATURE PAGE

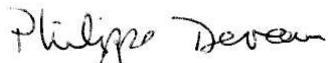
The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).



Cristina Carriere, Scientific Services



Mike MacGillivray, Scientific Specialist (Inorganics)



Phil Deveau

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



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# Chain Of Custody Record

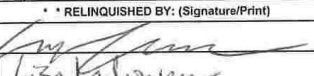
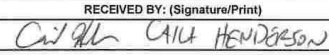
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|                    |                              |                           |                                |                            |        |                            |                 |
|--------------------|------------------------------|---------------------------|--------------------------------|----------------------------|--------|----------------------------|-----------------|
| <b>INVOICE TO:</b> |                              | <b>Report Information</b> |                                | <b>Project Information</b> |        | <b>Laboratory Use Only</b> |                 |
| Company Name       | #41009 Englobe Corp.         | Company Name              |                                | Quotation #                | B42284 | Maxxam Job #               | Bottle Order #: |
| Contact Name       | Accounts Payable             | Contact Name              | Lisa Ladouceur                 | P.O. #                     |        |                            |                 |
| Address            | 97 Troop Ave                 | Address                   |                                | Project #                  | 21347  |                            |                 |
|                    | Dartmouth NS B3B 2A7         |                           |                                | Project Name               |        | Chain Of Custody Record    | Project Manager |
| Phone              | (902) 468-6486               | Phone                     |                                | Site #                     |        |                            |                 |
| Fax                | (902) 468-4919               | Fax                       |                                | Sampled By                 | LL     |                            |                 |
| Email              | Dartmouth.AP@englobecorp.com | Email                     | lisa.ladouceur@englobecorp.com |                            |        |                            |                 |

|                                                                                                                    |                                  |                      |              |                                         |                         |                               |                           |                             |                               |                        |                         |                              |                                      |                                 |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                              |
|--------------------------------------------------------------------------------------------------------------------|----------------------------------|----------------------|--------------|-----------------------------------------|-------------------------|-------------------------------|---------------------------|-----------------------------|-------------------------------|------------------------|-------------------------|------------------------------|--------------------------------------|---------------------------------|------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|
| Regulatory Criteria:                                                                                               |                                  | Special Instructions |              | ANALYSIS REQUESTED (PLEASE BE SPECIFIC) |                         |                               |                           |                             |                               |                        |                         |                              |                                      | Turnaround Time (TAT) Required: |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                              |
| ** Specify Matrix: Surface/Ground/Tapwater/Sewage/Effluent/Seawater<br>Potable/Nonpotable/Tissue/Soil/Sludge/Metal |                                  |                      |              | Field Filtered & Preserved              | Lab Filtration Required | RCAP-MS Total Metals in Water | Mercury - Total (CVAA,LL) | Nitrogen TKN - water (as N) | Phosphorus Total Colourimetry | Total Suspended Solids | VOC in Water (Column 1) | Chemical Oxygen Demand (COD) | Dissolved Organic Carbon (Field Fil) | Phenols (4-AAP)                 | Carbonaceous BOD | Please provide advance notice for rush projects                                                                                                                                                                                                                                                                                                                                                                                  |                                              |
|                                                                                                                    |                                  |                      |              |                                         |                         |                               |                           |                             |                               |                        |                         |                              |                                      |                                 |                  | Regular (Standard) TAT:<br>(will be applied if Rush TAT is not specified):<br>Standard TAT = 5-7 Working days for most tests.<br>Please note: Standard TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.<br><input checked="" type="checkbox"/><br>Job Specific Rush TAT (if applies to entire submission)<br>Date Required: Time Required: <input type="checkbox"/> |                                              |
| SAMPLES MUST BE KEPT COOL (< 10°C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM                                  |                                  |                      |              |                                         |                         |                               |                           |                             |                               |                        |                         |                              |                                      |                                 |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                              |
| Sample Barcode Label                                                                                               | Sample (Location) Identification | Date Sampled         | Time Sampled | Matrix                                  |                         |                               |                           |                             |                               |                        |                         |                              |                                      |                                 |                  | # of Bottles                                                                                                                                                                                                                                                                                                                                                                                                                     | Comments / Hazards / Other Required Analysis |
| 1                                                                                                                  | MW1                              | 2/2/16               | 16h30        | GW                                      | X                       | X                             | X                         | X                           | X                             | X                      | X                       | X                            | X                                    | X                               | X                | 11                                                                                                                                                                                                                                                                                                                                                                                                                               |                                              |
| 2                                                                                                                  | MW2                              | 2/2/16               | 14h00        | GW                                      | X                       | X                             | X                         | X                           | X                             | X                      | X                       | X                            | X                                    | X                               | X                | 11                                                                                                                                                                                                                                                                                                                                                                                                                               |                                              |
| 3                                                                                                                  | MW3                              |                      |              |                                         | X                       | X                             | X                         | X                           | X                             | X                      | X                       | X                            | X                                    | X                               | X                | #                                                                                                                                                                                                                                                                                                                                                                                                                                |                                              |
| 4                                                                                                                  | MW4                              |                      |              |                                         | X                       | X                             | X                         | X                           | X                             | X                      | X                       | X                            | X                                    | X                               | X                |                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                              |
| 5                                                                                                                  | PW1                              | 2/2/16               | 10h00        | PW                                      | X                       | X                             | X                         | X                           | X                             | X                      | X                       | X                            | X                                    | X                               | X                | 11                                                                                                                                                                                                                                                                                                                                                                                                                               |                                              |
| 6                                                                                                                  | PW2                              |                      | 10h30        | PW                                      | X                       | X                             | X                         | X                           | X                             | X                      | X                       | X                            | X                                    | X                               | X                | 11                                                                                                                                                                                                                                                                                                                                                                                                                               |                                              |
| 7                                                                                                                  | PW3                              |                      | 11h00        | PW                                      | X                       | X                             | X                         | X                           | X                             | X                      | X                       | X                            | X                                    | X                               | X                | 11                                                                                                                                                                                                                                                                                                                                                                                                                               |                                              |
| 8                                                                                                                  | PW4                              |                      | 11h30        | PW                                      | X                       | X                             | X                         | X                           | X                             | X                      | X                       | X                            | X                                    | X                               | X                | 11                                                                                                                                                                                                                                                                                                                                                                                                                               |                                              |
| 9                                                                                                                  | PW5                              |                      | 12h00        | PW                                      | X                       | X                             | X                         | X                           | X                             | X                      | X                       | X                            | X                                    | X                               | X                | 11                                                                                                                                                                                                                                                                                                                                                                                                                               | 2016 FEB 3 12:14                             |
| 10                                                                                                                 | PW6                              |                      | 12h30        | PW                                      | X                       | X                             | X                         | X                           | X                             | X                      | X                       | X                            | X                                    | X                               | X                | 11                                                                                                                                                                                                                                                                                                                                                                                                                               |                                              |

|                                                                                                                                                                           |  |                  |       |                                |  |                  |      |                               |                                                                                         |                             |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|------------------|-------|--------------------------------|--|------------------|------|-------------------------------|-----------------------------------------------------------------------------------------|-----------------------------|
| RELINQUISHED BY: (Signature/Print)                                                                                                                                        |  | Date: (YY/MM/DD) | Time  | RECEIVED BY: (Signature/Print) |  | Date: (YY/MM/DD) | Time | # jars used and not submitted | Lab Use Only                                                                            |                             |
|                                                                                                                                                                           |  | 10/2/13          | 13h10 |                                |  |                  |      |                               | Time Sensitive                                                                          | Temperature (°C) on Receipt |
|                                                                                                                                                                           |  |                  |       |                                |  |                  |      |                               | <input type="checkbox"/>                                                                | 1, 2, 2                     |
|                                                                                                                                                                           |  |                  |       |                                |  |                  |      |                               |                                                                                         | 2, 3, 1                     |
|                                                                                                                                                                           |  |                  |       |                                |  |                  |      |                               |                                                                                         | 2, 1, 2                     |
| * IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS. |  |                  |       |                                |  |                  |      |                               | Custody Seal Intact on Cooler? <input type="checkbox"/> Yes <input type="checkbox"/> No |                             |
|                                                                                                                                                                           |  |                  |       |                                |  |                  |      |                               | White: Maxxam Yellow: Client                                                            |                             |



| INVOICE TO:                                                                                                                                                                                                                                   |                                  |                                    |                      |                                                                                                                               | Report Information                                                                                                                         |                             |                               |                                      |                             | Project Information                                                                                                                  |                        |                                               |                              |                                                                                                   | Laboratory Use Only                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                  |              |                                              |  |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------|------------------------------------|----------------------|-------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|-------------------------------|--------------------------------------|-----------------------------|--------------------------------------------------------------------------------------------------------------------------------------|------------------------|-----------------------------------------------|------------------------------|---------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|--------------|----------------------------------------------|--|
| <b>Company Name</b> #41009 Englobe Corp.<br><b>Contact Name</b> Accounts Payable<br><b>Address</b> 97 Troop Ave<br>Dartmouth NS B3B 2A7<br><b>Phone</b> (902) 468-6486 <b>Fax</b> (902) 468-4919<br><b>Email</b> Dartmouth.AP@englobecorp.com |                                  |                                    |                      |                                                                                                                               | <b>Company Name</b><br><b>Contact Name</b> Lisa Ladouceur<br><b>Address</b><br><b>Phone</b><br><b>Email</b> lisa.ladouceur@englobecorp.com |                             |                               |                                      |                             | <b>Quotation #</b> B42284<br><b>P.O. #</b><br><b>Project #</b> 21347<br><b>Project Name</b><br><b>Site #</b><br><b>Sampled By</b> LL |                        |                                               |                              |                                                                                                   | <b>Maxxam Job #</b><br><b>Bottle Order #:</b> 547372<br><b>Chain Of Custody Record</b><br><b>Project Manager</b><br><b>C#</b> 547372-02-01<br><b>Avery Withrow</b>                                                                                                                                                                                                                                                                                                          |                  |              |                                              |  |
| <b>Regulatory Criteria:</b><br><br><b>** Specify Matrix: Surface/Ground/Tapwater/Sewage/Effluent/Seawater Potable/Nonpotable/Tissue/Soil/Sludge/Metal</b>                                                                                     |                                  |                                    |                      |                                                                                                                               | <b>Special Instructions</b>                                                                                                                |                             |                               |                                      |                             | <b>ANALYSIS REQUESTED (PLEASE BE SPECIFIC)</b>                                                                                       |                        |                                               |                              |                                                                                                   | <b>Turnaround Time (TAT) Required:</b><br>Please provide advance notice for rush projects<br><b>Regular (Standard) TAT:</b><br>(will be applied if Rush TAT is not specified):<br>Standard TAT = 5-7 Working days for most tests.<br>Please note: Standard TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.<br><b>Job Specific Rush TAT (if applies to entire submission)</b><br>Date Required: Time Required: |                  |              |                                              |  |
| <b>SAMPLES MUST BE KEPT COOL ( &lt; 10°C ) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM</b>                                                                                                                                                 |                                  |                                    |                      |                                                                                                                               |                                                                                                                                            |                             |                               |                                      |                             | <b>Field Filtered &amp; Preserved</b><br><b>Lab Filtration Required</b>                                                              |                        |                                               |                              |                                                                                                   | <b>RCAP-MS Total Metals in Water</b><br><b>Mercury - Total (CVAA,LL)</b><br><b>Nitrogen TKN - water (as N)</b><br><b>Phosphorus Total Colourimetry</b><br><b>Total Suspended Solids</b><br><b>VOC in Water (Column 1)</b><br><b>Chemical Oxygen Demand (COD)</b><br><b>Dissolved Organic Carbon (Field Filtr)</b><br><b>Phenols (4-AAP)</b><br><b>Carbonaceous BOD</b>                                                                                                      |                  |              |                                              |  |
| Sample Barcode Label                                                                                                                                                                                                                          | Sample (Location) Identification | Date Sampled                       | Time Sampled         | Matrix                                                                                                                        | Field Filtered & Preserved                                                                                                                 | Lab Filtration Required     | RCAP-MS Total Metals in Water | Mercury - Total (CVAA,LL)            | Nitrogen TKN - water (as N) | Phosphorus Total Colourimetry                                                                                                        | Total Suspended Solids | VOC in Water (Column 1)                       | Chemical Oxygen Demand (COD) | Dissolved Organic Carbon (Field Filtr)                                                            | Phenols (4-AAP)                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Carbonaceous BOD | # of Bottles | Comments / Hazards / Other Required Analysis |  |
| 1                                                                                                                                                                                                                                             | PW7                              | 2/2/16                             | 12h45                | PW                                                                                                                            | X                                                                                                                                          | X                           | X                             | X                                    | X                           | X                                                                                                                                    | X                      | X                                             | X                            | X                                                                                                 | X                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | X                | 11           |                                              |  |
| 2                                                                                                                                                                                                                                             | PW8                              | 2/2/16                             | 13h00                | PW                                                                                                                            | X                                                                                                                                          | X                           | X                             | X                                    | X                           | X                                                                                                                                    | X                      | X                                             | X                            | X                                                                                                 | X                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | X                | 11           |                                              |  |
| 3                                                                                                                                                                                                                                             | PW9                              |                                    |                      |                                                                                                                               |                                                                                                                                            |                             | X                             | X                                    | X                           | X                                                                                                                                    | X                      | X                                             | X                            | X                                                                                                 | X                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | X                |              |                                              |  |
| 4                                                                                                                                                                                                                                             | PW10                             |                                    |                      |                                                                                                                               |                                                                                                                                            |                             | X                             | X                                    | X                           | X                                                                                                                                    | X                      | X                                             | X                            | X                                                                                                 | X                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | X                |              |                                              |  |
| 5                                                                                                                                                                                                                                             | PW11                             |                                    |                      |                                                                                                                               |                                                                                                                                            |                             | X                             | X                                    | X                           | X                                                                                                                                    | X                      | X                                             | X                            | X                                                                                                 | X                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | X                |              |                                              |  |
| 6                                                                                                                                                                                                                                             | PW12                             |                                    |                      |                                                                                                                               |                                                                                                                                            |                             | X                             | X                                    | X                           | X                                                                                                                                    | X                      | X                                             | X                            | X                                                                                                 | X                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | X                |              |                                              |  |
| 7                                                                                                                                                                                                                                             | SW1                              | 2/2/16                             | 13h30                | SW                                                                                                                            |                                                                                                                                            |                             | X                             | X                                    | X                           | X                                                                                                                                    | X                      |                                               | X                            |                                                                                                   | X                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | X                | 913          |                                              |  |
| 8                                                                                                                                                                                                                                             | SW2                              |                                    | 15h00                |                                                                                                                               |                                                                                                                                            |                             | X                             | X                                    | X                           | X                                                                                                                                    | X                      |                                               | X                            |                                                                                                   | X                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | X                | 913          |                                              |  |
| 9                                                                                                                                                                                                                                             | SW3                              |                                    | 16h00                |                                                                                                                               |                                                                                                                                            |                             | X                             | X                                    | X                           | X                                                                                                                                    | X                      |                                               | X                            |                                                                                                   | X                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | X                | 913          | 2016 FEB 3 12:15                             |  |
| 10                                                                                                                                                                                                                                            |                                  |                                    |                      |                                                                                                                               |                                                                                                                                            |                             |                               |                                      |                             |                                                                                                                                      |                        |                                               |                              |                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                  |              |                                              |  |
| <b>** RELINQUISHED BY: (Signature/Print)</b><br>                                                                                                            |                                  | <b>Date: (YY/MM/DD)</b><br>16/2/13 | <b>Time</b><br>12h10 | <b>RECEIVED BY: (Signature/Print)</b><br> |                                                                                                                                            | <b>Date: (YY/MM/DD)</b><br> | <b>Time</b><br>               | <b># jars used and not submitted</b> |                             | <b>Lab Use Only</b><br><b>Time Sensitive</b><br><input type="checkbox"/>                                                             |                        | <b>Temperature (°C) on Receipt</b><br>1, 2, 2 |                              | <b>Custody Seal Intact on Cooler?</b><br><input type="checkbox"/> Yes <input type="checkbox"/> No |                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                  |              |                                              |  |
| <b>* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.</b>                                                              |                                  |                                    |                      |                                                                                                                               |                                                                                                                                            |                             |                               |                                      |                             |                                                                                                                                      |                        |                                               |                              |                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                  |              |                                              |  |



Maxxam Analytics International Corporation o/a Maxxam Analytics  
200 Bluewater Road, Bedford, Nova Scotia Canada B4B 1G9 Tel: (902) 420-0203 Toll-Free (800) 565-7227 Fax: (902) 420-8612 www.maxxam.ca

# Chain Of Custody Record

35  
Page 6 of 8

| INVOICE TO:  |                                      | Report Information |                                | Project Information |        | Laboratory Use Only     |                 |
|--------------|--------------------------------------|--------------------|--------------------------------|---------------------|--------|-------------------------|-----------------|
| Company Name | #41009 Englobe Corp.                 | Company Name       |                                | Quotation #         | B42284 | Maxxam Job #            | Bottle Order #: |
| Contact Name | Accounts Payable                     | Contact Name       | Lisa Ladouceur                 | P.O. #              |        |                         |                 |
| Address      | 97 Troop Ave<br>Dartmouth NS B3B 2A7 | Address            |                                | Project #           | 21347  |                         |                 |
| Phone        | (902) 468-6486                       | Phone              |                                | Project Name        |        | Chain Of Custody Record | Project Manager |
| Email        | Dartmouth.AP@englobecorp.com         | Email              | lisa.ladouceur@englobecorp.com | Site #              |        |                         |                 |
|              |                                      |                    |                                | Sampled By          | LL     |                         | Avery Withrow   |

| Regulatory Criteria:                                                                                               |                                  | Special Instructions |              | ANALYSIS REQUESTED (PLEASE BE SPECIFIC)                                                             |  |   |   |  |  |  |  |  |  | Turnaround Time (TAT) Required:                                                                                                                                                                                                                                      |                  |                                              |
|--------------------------------------------------------------------------------------------------------------------|----------------------------------|----------------------|--------------|-----------------------------------------------------------------------------------------------------|--|---|---|--|--|--|--|--|--|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|----------------------------------------------|
| ** Specify Matrix: Surface/Ground/Tapwater/Sewage/Effluent/Seawater<br>Potable/Nonpotable/Tissue/Soil/Sludge/Metal |                                  |                      |              | Field Filtered & Preserved<br>Lab Filtration Required<br>Tannins & Lignins<br>VOC in Water Column 3 |  |   |   |  |  |  |  |  |  | Please provide advance notice for rush projects                                                                                                                                                                                                                      |                  |                                              |
|                                                                                                                    |                                  |                      |              |                                                                                                     |  |   |   |  |  |  |  |  |  | Regular (Standard) TAT:<br>(will be applied if Rush TAT is not specified):<br>Standard TAT = 5-7 Working days for most tests.<br>Please note: Standard TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details. |                  |                                              |
| SAMPLES MUST BE KEPT COOL (< 10°C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM                                  |                                  |                      |              |                                                                                                     |  |   |   |  |  |  |  |  |  | Job Specific Rush TAT (if applies to entire submission)                                                                                                                                                                                                              |                  |                                              |
|                                                                                                                    |                                  |                      |              |                                                                                                     |  |   |   |  |  |  |  |  |  | Date Required: Time Required:                                                                                                                                                                                                                                        |                  |                                              |
| Sample Barcode Label                                                                                               | Sample (Location) Identification | Date Sampled         | Time Sampled | Matrix                                                                                              |  |   |   |  |  |  |  |  |  |                                                                                                                                                                                                                                                                      | # of Bottles     | Comments / Hazards / Other Required Analysis |
| 1                                                                                                                  | PW7                              |                      |              |                                                                                                     |  |   |   |  |  |  |  |  |  |                                                                                                                                                                                                                                                                      |                  |                                              |
| 2                                                                                                                  | PW8                              |                      |              |                                                                                                     |  |   |   |  |  |  |  |  |  |                                                                                                                                                                                                                                                                      |                  |                                              |
| 3                                                                                                                  | PW9                              |                      |              |                                                                                                     |  |   |   |  |  |  |  |  |  |                                                                                                                                                                                                                                                                      |                  |                                              |
| 4                                                                                                                  | PW10                             |                      |              |                                                                                                     |  |   |   |  |  |  |  |  |  |                                                                                                                                                                                                                                                                      |                  |                                              |
| 5                                                                                                                  | PW11                             |                      |              |                                                                                                     |  |   |   |  |  |  |  |  |  |                                                                                                                                                                                                                                                                      |                  |                                              |
| 6                                                                                                                  | PW12                             |                      |              |                                                                                                     |  |   |   |  |  |  |  |  |  |                                                                                                                                                                                                                                                                      |                  |                                              |
| 7                                                                                                                  | SW1                              | 2/2/16               | 13h30        | SW                                                                                                  |  | X | X |  |  |  |  |  |  | 13                                                                                                                                                                                                                                                                   |                  |                                              |
| 8                                                                                                                  | SW2                              | ↓                    | 15h00        | ↓                                                                                                   |  | X | X |  |  |  |  |  |  | 13                                                                                                                                                                                                                                                                   |                  |                                              |
| 9                                                                                                                  | SW3                              | ↓                    | 16h00        | ↓                                                                                                   |  | X | X |  |  |  |  |  |  | 13                                                                                                                                                                                                                                                                   | 2016 FEB 3 12:15 |                                              |
| 10                                                                                                                 |                                  |                      |              |                                                                                                     |  |   |   |  |  |  |  |  |  |                                                                                                                                                                                                                                                                      |                  |                                              |

|                                    |  |                  |       |                                |  |                  |      |                               |                          |                             |
|------------------------------------|--|------------------|-------|--------------------------------|--|------------------|------|-------------------------------|--------------------------|-----------------------------|
| RELINQUISHED BY: (Signature/Print) |  | Date: (YY/MM/DD) | Time  | RECEIVED BY: (Signature/Print) |  | Date: (YY/MM/DD) | Time | # Jars used and not submitted | Lab Use Only             |                             |
| Lisa Ladouceur                     |  | 16/2/13          | 12h10 | Cait Henderson                 |  |                  |      |                               | Time Sensitive           | Temperature (°C) on Receipt |
|                                    |  |                  |       |                                |  |                  |      |                               | <input type="checkbox"/> | 1, 2, 2                     |
|                                    |  |                  |       |                                |  |                  |      |                               |                          | 2, 3, 1                     |
|                                    |  |                  |       |                                |  |                  |      |                               |                          | 2.1.7                       |

\* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.

White: Maxxam Yellow: Client

Maxxam Analytics International Corporation o/a Maxxam Analytics

## **Appendix 4   Compost Analytical Results**

Your C.O.C. #: D 07514

**Attention:Paul Arnold**

Bio-Logic Enviro  
18 Erin Dr  
Dartmouth, NS  
B2W 2B8

**Report Date: 2016/02/19**

Report #: R3900582

Version: 2 - Partial

**CERTIFICATE OF ANALYSIS – PARTIAL RESULTS**

**MAXXAM JOB #: B626629**

**Received: 2016/02/08, 16:00**

Sample Matrix: Soil  
# Samples Received: 1

| Analyses                             | Quantity | Date       | Date       | Laboratory Method | Reference      |
|--------------------------------------|----------|------------|------------|-------------------|----------------|
|                                      |          | Extracted  | Analyzed   |                   |                |
| Carbon Nitrogen Ratio by Calculation | 1        | 2016/02/09 | 2016/02/11 |                   | Auto Calc.     |
| Metals Solids Acid Extr. ICPMS       | 1        | 2016/02/11 | 2016/02/11 | ATL SOP 00058     | EPA 6020A R1 m |
| CHN/Protein by Combustion            | 1        | 2016/02/11 | 2016/02/11 | ATL SOP 00046     | AOAC 990.03 m  |

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.

**Encryption Key**

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

Melissa DiPinto, Project Manager

Email: mdipinto@maxxam.ca

Phone# (902) 420-0203

=====

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 SOIL

|                                  |              |                  |            |                 |
|----------------------------------|--------------|------------------|------------|-----------------|
| Maxxam ID                        |              | BVC199           |            |                 |
| Sampling Date                    |              | 2016/02/02       |            |                 |
| COC Number                       |              | D 07514          |            |                 |
|                                  | <b>UNITS</b> | <b>BOTTLE #1</b> | <b>RDL</b> | <b>QC Batch</b> |
| <b>Inorganics</b>                |              |                  |            |                 |
| C:N RATIO                        | n/a          | 9.2              | N/A        | 4375013         |
| Carbon                           | %            | 19               | 0.50       | 4378099         |
| Hydrogen                         | %            | 2.9              | 0.50       | 4378099         |
| Nitrogen                         | %            | 2.0              | 0.20       | 4378099         |
| Protein                          | %            | NA               | 0.60       | 4378099         |
| RDL = Reportable Detection Limit |              |                  |            |                 |
| QC Batch = Quality Control Batch |              |                  |            |                 |
| N/A = Not Applicable             |              |                  |            |                 |

### ELEMENTS BY ATOMIC SPECTROSCOPY (SOIL)

|                                  |              |                  |            |                 |
|----------------------------------|--------------|------------------|------------|-----------------|
| Maxxam ID                        |              | BVC199           |            |                 |
| Sampling Date                    |              | 2016/02/02       |            |                 |
| COC Number                       |              | D 07514          |            |                 |
|                                  | <b>UNITS</b> | <b>BOTTLE #1</b> | <b>RDL</b> | <b>QC Batch</b> |
| <b>Metals</b>                    |              |                  |            |                 |
| Acid Extractable Aluminum (Al)   | mg/kg        | 4900             | 10         | 4378140         |
| Acid Extractable Antimony (Sb)   | mg/kg        | ND               | 2.0        | 4378140         |
| Acid Extractable Arsenic (As)    | mg/kg        | 5.5              | 2.0        | 4378140         |
| Acid Extractable Barium (Ba)     | mg/kg        | 75               | 5.0        | 4378140         |
| Acid Extractable Beryllium (Be)  | mg/kg        | ND               | 2.0        | 4378140         |
| Acid Extractable Bismuth (Bi)    | mg/kg        | ND               | 2.0        | 4378140         |
| Acid Extractable Boron (B)       | mg/kg        | ND               | 50         | 4378140         |
| Acid Extractable Cadmium (Cd)    | mg/kg        | 0.50             | 0.30       | 4378140         |
| Acid Extractable Chromium (Cr)   | mg/kg        | 12               | 2.0        | 4378140         |
| Acid Extractable Cobalt (Co)     | mg/kg        | 2.7              | 1.0        | 4378140         |
| Acid Extractable Copper (Cu)     | mg/kg        | 54               | 2.0        | 4378140         |
| Acid Extractable Iron (Fe)       | mg/kg        | 9800             | 50         | 4378140         |
| Acid Extractable Lead (Pb)       | mg/kg        | 68               | 0.50       | 4378140         |
| Acid Extractable Lithium (Li)    | mg/kg        | 10               | 2.0        | 4378140         |
| Acid Extractable Manganese (Mn)  | mg/kg        | 370              | 2.0        | 4378140         |
| Acid Extractable Mercury (Hg)    | mg/kg        | ND               | 0.10       | 4378140         |
| Acid Extractable Molybdenum (Mo) | mg/kg        | ND               | 2.0        | 4378140         |
| Acid Extractable Nickel (Ni)     | mg/kg        | 8.3              | 2.0        | 4378140         |
| Acid Extractable Rubidium (Rb)   | mg/kg        | 13               | 2.0        | 4378140         |
| Acid Extractable Selenium (Se)   | mg/kg        | ND               | 1.0        | 4378140         |
| Acid Extractable Silver (Ag)     | mg/kg        | ND               | 0.50       | 4378140         |
| Acid Extractable Strontium (Sr)  | mg/kg        | 190              | 5.0        | 4378140         |
| Acid Extractable Thallium (Tl)   | mg/kg        | ND               | 0.10       | 4378140         |
| Acid Extractable Tin (Sn)        | mg/kg        | 3.4              | 2.0        | 4378140         |
| Acid Extractable Uranium (U)     | mg/kg        | 0.52             | 0.10       | 4378140         |
| Acid Extractable Vanadium (V)    | mg/kg        | 13               | 2.0        | 4378140         |
| Acid Extractable Zinc (Zn)       | mg/kg        | 180              | 5.0        | 4378140         |
| RDL = Reportable Detection Limit |              |                  |            |                 |
| QC Batch = Quality Control Batch |              |                  |            |                 |
| ND = Not detected                |              |                  |            |                 |



### GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

|           |        |
|-----------|--------|
| Package 1 | 17.7°C |
|-----------|--------|

Samples received >10°C at the lab for analysis.

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

### QUALITY ASSURANCE REPORT

| QA/QC Batch | Init | QC Type      | Parameter                        | Date Analyzed | Value           | Recovery | UNITS | QC Limits |
|-------------|------|--------------|----------------------------------|---------------|-----------------|----------|-------|-----------|
| 4378099     | BBD  | QC Standard  | Carbon                           | 2016/02/11    |                 | 102      | %     | 80 - 120  |
|             |      |              | Hydrogen                         | 2016/02/11    |                 | 109      | %     | 80 - 120  |
|             |      |              | Nitrogen                         | 2016/02/11    |                 | 112      | %     | 80 - 120  |
|             |      |              | Protein                          | 2016/02/11    |                 | NA       | %     | 90 - 110  |
| 4378099     | BBD  | Method Blank | Carbon                           | 2016/02/11    | ND,<br>RDL=0.50 |          | %     |           |
|             |      |              | Hydrogen                         | 2016/02/11    | ND,<br>RDL=0.50 |          | %     |           |
|             |      |              | Nitrogen                         | 2016/02/11    | ND,<br>RDL=0.20 |          | %     |           |
|             |      |              | Protein                          | 2016/02/11    | NA,<br>RDL=0.60 |          | %     |           |
| 4378099     | BBD  | RPD          | Carbon                           | 2016/02/11    | 0.63            |          | %     | 25        |
|             |      |              | Hydrogen                         | 2016/02/11    | 9.8             |          | %     | 25        |
|             |      |              | Nitrogen                         | 2016/02/11    | 11              |          | %     | 25        |
|             |      |              | Protein                          | 2016/02/11    | NC              |          | %     | 25        |
| 4378140     | BAN  | Matrix Spike | Acid Extractable Antimony (Sb)   | 2016/02/11    |                 | 86       | %     | 75 - 125  |
|             |      |              | Acid Extractable Arsenic (As)    | 2016/02/11    |                 | NC       | %     | 75 - 125  |
|             |      |              | Acid Extractable Barium (Ba)     | 2016/02/11    |                 | NC       | %     | 75 - 125  |
|             |      |              | Acid Extractable Beryllium (Be)  | 2016/02/11    |                 | 96       | %     | 75 - 125  |
|             |      |              | Acid Extractable Bismuth (Bi)    | 2016/02/11    |                 | 99       | %     | 75 - 125  |
|             |      |              | Acid Extractable Boron (B)       | 2016/02/11    |                 | 83       | %     | 75 - 125  |
|             |      |              | Acid Extractable Cadmium (Cd)    | 2016/02/11    |                 | 99       | %     | 75 - 125  |
|             |      |              | Acid Extractable Chromium (Cr)   | 2016/02/11    |                 | 99       | %     | 75 - 125  |
|             |      |              | Acid Extractable Cobalt (Co)     | 2016/02/11    |                 | 99       | %     | 75 - 125  |
|             |      |              | Acid Extractable Copper (Cu)     | 2016/02/11    |                 | 97       | %     | 75 - 125  |
|             |      |              | Acid Extractable Lead (Pb)       | 2016/02/11    |                 | NC       | %     | 75 - 125  |
|             |      |              | Acid Extractable Lithium (Li)    | 2016/02/11    |                 | 105      | %     | 75 - 125  |
|             |      |              | Acid Extractable Manganese (Mn)  | 2016/02/11    |                 | NC       | %     | 75 - 125  |
|             |      |              | Acid Extractable Mercury (Hg)    | 2016/02/11    |                 | 92       | %     | 75 - 125  |
|             |      |              | Acid Extractable Molybdenum (Mo) | 2016/02/11    |                 | 102      | %     | 75 - 125  |
|             |      |              | Acid Extractable Nickel (Ni)     | 2016/02/11    |                 | 99       | %     | 75 - 125  |
|             |      |              | Acid Extractable Rubidium (Rb)   | 2016/02/11    |                 | 95       | %     | 75 - 125  |
|             |      |              | Acid Extractable Selenium (Se)   | 2016/02/11    |                 | 98       | %     | 75 - 125  |
|             |      |              | Acid Extractable Silver (Ag)     | 2016/02/11    |                 | 99       | %     | 75 - 125  |
|             |      |              | Acid Extractable Strontium (Sr)  | 2016/02/11    |                 | 101      | %     | 75 - 125  |
|             |      |              | Acid Extractable Thallium (Tl)   | 2016/02/11    |                 | 97       | %     | 75 - 125  |
|             |      |              | Acid Extractable Tin (Sn)        | 2016/02/11    |                 | 99       | %     | 75 - 125  |
|             |      |              | Acid Extractable Uranium (U)     | 2016/02/11    |                 | 98       | %     | 75 - 125  |
|             |      |              | Acid Extractable Vanadium (V)    | 2016/02/11    |                 | NC       | %     | 75 - 125  |
|             |      |              | Acid Extractable Zinc (Zn)       | 2016/02/11    |                 | NC       | %     | 75 - 125  |
| 4378140     | BAN  | Spiked Blank | Acid Extractable Antimony (Sb)   | 2016/02/11    |                 | 95       | %     | 75 - 125  |
|             |      |              | Acid Extractable Arsenic (As)    | 2016/02/11    |                 | 97       | %     | 75 - 125  |
|             |      |              | Acid Extractable Barium (Ba)     | 2016/02/11    |                 | 95       | %     | 75 - 125  |
|             |      |              | Acid Extractable Beryllium (Be)  | 2016/02/11    |                 | 94       | %     | 75 - 125  |
|             |      |              | Acid Extractable Bismuth (Bi)    | 2016/02/11    |                 | 100      | %     | 75 - 125  |
|             |      |              | Acid Extractable Boron (B)       | 2016/02/11    |                 | 97       | %     | 75 - 125  |
|             |      |              | Acid Extractable Cadmium (Cd)    | 2016/02/11    |                 | 97       | %     | 75 - 125  |
|             |      |              | Acid Extractable Chromium (Cr)   | 2016/02/11    |                 | 95       | %     | 75 - 125  |
|             |      |              | Acid Extractable Cobalt (Co)     | 2016/02/11    |                 | 96       | %     | 75 - 125  |
|             |      |              | Acid Extractable Copper (Cu)     | 2016/02/11    |                 | 95       | %     | 75 - 125  |
|             |      |              | Acid Extractable Lead (Pb)       | 2016/02/11    |                 | 96       | %     | 75 - 125  |
|             |      |              | Acid Extractable Lithium (Li)    | 2016/02/11    |                 | 99       | %     | 75 - 125  |
|             |      |              | Acid Extractable Manganese (Mn)  | 2016/02/11    |                 | 98       | %     | 75 - 125  |

### QUALITY ASSURANCE REPORT(CONT'D)

| QA/QC<br>Batch | Init | QC Type      | Parameter                        | Date<br>Analyzed | Value           | Recovery | UNITS | QC Limits |
|----------------|------|--------------|----------------------------------|------------------|-----------------|----------|-------|-----------|
| 4378140        | BAN  | Method Blank | Acid Extractable Mercury (Hg)    | 2016/02/11       |                 | 97       | %     | 75 - 125  |
|                |      |              | Acid Extractable Molybdenum (Mo) | 2016/02/11       |                 | 98       | %     | 75 - 125  |
|                |      |              | Acid Extractable Nickel (Ni)     | 2016/02/11       |                 | 98       | %     | 75 - 125  |
|                |      |              | Acid Extractable Rubidium (Rb)   | 2016/02/11       |                 | 98       | %     | 75 - 125  |
|                |      |              | Acid Extractable Selenium (Se)   | 2016/02/11       |                 | 98       | %     | 75 - 125  |
|                |      |              | Acid Extractable Silver (Ag)     | 2016/02/11       |                 | 97       | %     | 75 - 125  |
|                |      |              | Acid Extractable Strontium (Sr)  | 2016/02/11       |                 | 97       | %     | 75 - 125  |
|                |      |              | Acid Extractable Thallium (Tl)   | 2016/02/11       |                 | 97       | %     | 75 - 125  |
|                |      |              | Acid Extractable Tin (Sn)        | 2016/02/11       |                 | 108      | %     | 75 - 125  |
|                |      |              | Acid Extractable Uranium (U)     | 2016/02/11       |                 | 97       | %     | 75 - 125  |
|                |      |              | Acid Extractable Vanadium (V)    | 2016/02/11       |                 | 95       | %     | 75 - 125  |
|                |      |              | Acid Extractable Zinc (Zn)       | 2016/02/11       |                 | 96       | %     | 75 - 125  |
|                |      |              | Acid Extractable Aluminum (Al)   | 2016/02/11       | ND,<br>RDL=10   |          | mg/kg |           |
|                |      |              | Acid Extractable Antimony (Sb)   | 2016/02/11       | ND,<br>RDL=2.0  |          | mg/kg |           |
|                |      |              | Acid Extractable Arsenic (As)    | 2016/02/11       | ND,<br>RDL=2.0  |          | mg/kg |           |
|                |      |              | Acid Extractable Barium (Ba)     | 2016/02/11       | ND,<br>RDL=5.0  |          | mg/kg |           |
|                |      |              | Acid Extractable Beryllium (Be)  | 2016/02/11       | ND,<br>RDL=2.0  |          | mg/kg |           |
|                |      |              | Acid Extractable Bismuth (Bi)    | 2016/02/11       | ND,<br>RDL=2.0  |          | mg/kg |           |
|                |      |              | Acid Extractable Boron (B)       | 2016/02/11       | ND,<br>RDL=50   |          | mg/kg |           |
|                |      |              | Acid Extractable Cadmium (Cd)    | 2016/02/11       | ND,<br>RDL=0.30 |          | mg/kg |           |
|                |      |              | Acid Extractable Chromium (Cr)   | 2016/02/11       | ND,<br>RDL=2.0  |          | mg/kg |           |
|                |      |              | Acid Extractable Cobalt (Co)     | 2016/02/11       | ND,<br>RDL=1.0  |          | mg/kg |           |
|                |      |              | Acid Extractable Copper (Cu)     | 2016/02/11       | ND,<br>RDL=2.0  |          | mg/kg |           |
|                |      |              | Acid Extractable Iron (Fe)       | 2016/02/11       | ND,<br>RDL=50   |          | mg/kg |           |
|                |      |              | Acid Extractable Lead (Pb)       | 2016/02/11       | ND,<br>RDL=0.50 |          | mg/kg |           |
|                |      |              | Acid Extractable Lithium (Li)    | 2016/02/11       | ND,<br>RDL=2.0  |          | mg/kg |           |
|                |      |              | Acid Extractable Manganese (Mn)  | 2016/02/11       | ND,<br>RDL=2.0  |          | mg/kg |           |
|                |      |              | Acid Extractable Mercury (Hg)    | 2016/02/11       | ND,<br>RDL=0.10 |          | mg/kg |           |
|                |      |              | Acid Extractable Molybdenum (Mo) | 2016/02/11       | ND,<br>RDL=2.0  |          | mg/kg |           |
|                |      |              | Acid Extractable Nickel (Ni)     | 2016/02/11       | ND,<br>RDL=2.0  |          | mg/kg |           |
|                |      |              | Acid Extractable Rubidium (Rb)   | 2016/02/11       | ND,<br>RDL=2.0  |          | mg/kg |           |
|                |      |              | Acid Extractable Selenium (Se)   | 2016/02/11       | ND,<br>RDL=1.0  |          | mg/kg |           |

### QUALITY ASSURANCE REPORT(CONT'D)

| QA/QC Batch | Init | QC Type | Parameter                       | Date Analyzed | Value           | Recovery | UNITS | QC Limits |
|-------------|------|---------|---------------------------------|---------------|-----------------|----------|-------|-----------|
| 4378140     | BAN  | RPD     | Acid Extractable Silver (Ag)    | 2016/02/11    | ND,<br>RDL=0.50 |          | mg/kg |           |
|             |      |         | Acid Extractable Strontium (Sr) | 2016/02/11    | ND,<br>RDL=5.0  |          | mg/kg |           |
|             |      |         | Acid Extractable Thallium (Tl)  | 2016/02/11    | ND,<br>RDL=0.10 |          | mg/kg |           |
|             |      |         | Acid Extractable Tin (Sn)       | 2016/02/11    | ND,<br>RDL=2.0  |          | mg/kg |           |
|             |      |         | Acid Extractable Uranium (U)    | 2016/02/11    | ND,<br>RDL=0.10 |          | mg/kg |           |
|             |      |         | Acid Extractable Vanadium (V)   | 2016/02/11    | ND,<br>RDL=2.0  |          | mg/kg |           |
|             |      |         | Acid Extractable Zinc (Zn)      | 2016/02/11    | ND,<br>RDL=5.0  |          | mg/kg |           |
|             |      |         | Acid Extractable Arsenic (As)   | 2016/02/11    | 1.7             |          | %     | 35        |
|             |      |         | Acid Extractable Barium (Ba)    | 2016/02/11    | 6.5             |          | %     | 35        |
|             |      |         | Acid Extractable Chromium (Cr)  | 2016/02/11    | 0.41            |          | %     | 35        |
|             |      |         | Acid Extractable Copper (Cu)    | 2016/02/11    | 6.9             |          | %     | 35        |
|             |      |         | Acid Extractable Lead (Pb)      | 2016/02/11    | 4.8             |          | %     | 35        |
|             |      |         | Acid Extractable Zinc (Zn)      | 2016/02/11    | 4.9             |          | %     | 35        |

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

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

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

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

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

**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).

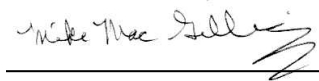
**NC (Duplicate RPD):** The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (one or both samples < 5x RDL).

### VALIDATION SIGNATURE PAGE

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



Colleen Acker, Supervisor, General Chemistry



Mike MacGillivray, Scientific Specialist (Inorganics)

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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 #: DB626629  
Your C.O.C. #: B626629

**Attention:BEDFORD CLIENT SERVICE**

MAXXAM ANALYTICS  
200 BLUEWATER ROAD, SUITE 105  
BEDFORD, NS  
CANADA B4B 1G9

**Report Date: 2016/02/18**  
Report #: R2131802  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B610290**

**Received: 2016/02/11, 08:35**

Sample Matrix: Soil  
# Samples Received: 1

| Analyses                      | Quantity | Date       | Date       | Laboratory Method            | Analytical Method    |
|-------------------------------|----------|------------|------------|------------------------------|----------------------|
|                               |          | Extracted  | Analyzed   |                              |                      |
| Potassium (Available)         | 1        | 2016/02/18 | 2016/02/18 | CAL SOP-00153 / AB SOP-00042 | EPA 200.7 CFR 2012 m |
| Nitrate-N (Available)         | 1        | 2016/02/18 | 2016/02/18 | CAL SOP-00152 / AB SOP-00023 | SM 22 4110 B m       |
| Phosphorus (Available by ICP) | 1        | 2016/02/18 | 2016/02/18 | CAL SOP-00152 / AB SOP-00042 | EPA 200.7 CFR 2012 m |

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.

**Encryption Key**

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

Curtis Templeton, Project Manager Assistant

Email: CTempleton@maxxam.ca

Phone# (403)219-3662

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

Maxxam Job #: B610290  
Report Date: 2016/02/18

MAXXAM ANALYTICS  
Client Project #: DB626629  
Sampler Initials: PA

**NPK (AVAILABLE)**

|                                                   |              |                                  |            |                 |
|---------------------------------------------------|--------------|----------------------------------|------------|-----------------|
| <b>Maxxam ID</b>                                  |              | OC4073                           |            |                 |
| <b>Sampling Date</b>                              |              | 2016/02/02                       |            |                 |
| <b>COC Number</b>                                 |              | B626629                          |            |                 |
|                                                   | <b>UNITS</b> | <b>BOTTLE #1<br/>(BVC199-01)</b> | <b>RDL</b> | <b>QC Batch</b> |
| <b>Nutrients</b>                                  |              |                                  |            |                 |
| Available (NH <sub>4</sub> F) Nitrogen (N)        | mg/kg        | 120 (1)                          | 10         | 8194689         |
| Available (NH <sub>4</sub> F) Phosphorus (P)      | mg/kg        | 1000                             | 5.0        | 8194702         |
| Available (NH <sub>4</sub> OAc) Potassium (K)     | mg/kg        | 1700                             | 10         | 8194663         |
| RDL = Reportable Detection Limit                  |              |                                  |            |                 |
| (1) Detection limits raised due to sample matrix. |              |                                  |            |                 |



Maxxam Job #: B610290  
Report Date: 2016/02/18

MAXXAM ANALYTICS  
Client Project #: DB626629  
Sampler Initials: PA

### GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

|           |       |
|-----------|-------|
| Package 1 | 5.3°C |
|-----------|-------|

#### **NPK (AVAILABLE) Comments**

Sample OC4073-01 Phosphorus (Available by ICP): Due to the sample matrix, sample required dilution. Detection limit was adjusted accordingly  
Sample OC4073-01 Potassium (Available): Due to the sample matrix, sample required dilution. Detection limit was adjusted accordingly

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

Maxxam Job #: B610290  
Report Date: 2016/02/18

## QUALITY ASSURANCE REPORT

MAXXAM ANALYTICS  
Client Project #: DB626629  
Sampler Initials: PA

| QC Batch | Parameter                                     | Date       | Matrix Spike |           | Spiked Blank |           | Method Blank |       | RPD       |           |
|----------|-----------------------------------------------|------------|--------------|-----------|--------------|-----------|--------------|-------|-----------|-----------|
|          |                                               |            | % Recovery   | QC Limits | % Recovery   | QC Limits | Value        | UNITS | Value (%) | QC Limits |
| 8194663  | Available (NH <sub>4</sub> OAc) Potassium (K) | 2016/02/18 |              |           | 112          | 80 - 120  | <2.0         | mg/kg | 2.8       | 35        |
| 8194689  | Available (NH <sub>4</sub> F) Nitrogen (N)    | 2016/02/18 | 104          | 75 - 125  | 106          | 80 - 120  | <2.0         | mg/kg | NC        | 35        |
| 8194702  | Available (NH <sub>4</sub> F) Phosphorus (P)  | 2016/02/18 |              |           | 113          | 80 - 120  | <1.0         | mg/kg | 2.3       | 35        |

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.

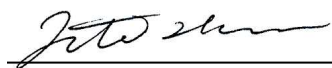
NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (one or both samples < 5x RDL).

Maxxam Job #: B610290  
Report Date: 2016/02/18

MAXXAM ANALYTICS  
Client Project #: DB626629  
Sampler Initials: PA

### VALIDATION SIGNATURE PAGE

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



Lili Zhou, Senior analyst, Inorganic department.

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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.